SPACEWATCH
AFRICA

SPECIAL REPORT

The future of digital learning in Africa

United States of America
9,372,180 sq km

India
3,166,830 sq km

Argentina
2,766,889 sq km

Western Europe
4,939,927 sq km

Africa:
30,301,596 sq km

Other named countries:
29,843,826 sq km

China
9,597,000 sq km

AFRICA IN PERSPECTIVE

People often underestimate quite how large Africa is, so we figured we'd put it in perspective by transposing as many of the world's other countries over it as we could. As you can see, Africa is larger than China, the USA, Western Europe, India, Argentina and the British Isles… combined!

Source: The Times Atlas

C O N T E N T S

6G challenge: Connecting the remaining unconnected

Vol. 8 No. 4   May   2020   N600 South Africa: R35 UK: Euro5 US: S10 Canada: S 15 Ghana: Ce 60,000 Kenya: S300

SPACEWATCH
AFRICA

INTERVIEW with Dr. Abiodun Olusesi
The state of telemedicine and ehealth in Nigeria

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Opening up education initiative

About half a century ago, when Sir Arthur Clark forecasted the birth of satellite based communications, many people at that time considered it as science fiction. Today, however, it is no longer science fiction, but science fact. Not only are satellites typically used for applications like radio and television broadcasts, but also, the use of satellite today has evolved to high-tech science fiction genre class applications such as long range video and audience surveillance, thermal imaging and even meteorological tracking.

If Sir Arthur Clark were still around today, he would see remote schools, where computers in a local areas network are linked back through specialised satellite transceivers up through the T-18 satellite, and then back down to the earth stations and VSAT base band equipment at SMART's Network Operations Centre.

The resulting service provided a close fit to the educational requirements, allowing not only a timely deployment schedule, but also a cost effective classical IP-based connectivity services for schools in these rural and remote areas.

One company that has demonstrated the impact of satellite technologies in education is Gilat Satcom as it has already launched a Digital Classroom in A Box, the e-learning component of its Smart village programme. The programme provides Internet, VoIP, and video over IP using an affordable private satellite network, with prices for connectivity for individual villagers starting from US$1 per month. The system consists of a fully-insulated and decorated shipping container powered by solar energy with VSAT connectivity, a 500m radius Wi-Fi router, a management and billing system, projector, sound system and microphone, computers and tablets, tables and chairs
.
"Gilat Satcom's Digital Classroom in A Box was extremely well-received because it provides a complete solution. Content can easily be emailed through to teachers whilst our high-speed satellite connection enables high quality video-conferencing," said Gilat Satcom's CMO and Head of Business Development, Eran Yoran. While the Digital Classroom in A Box can be connected with any e-learning platform, Gilat Satcom has joined forces with Intelitek to provide an e-learning platform to meet the needs of Africa's rural communities with a large number of ready-to-use syllabuses.
Nowhere does the two-sided nature of distance education come into play more directly than in Africa where inadequate

infrastructure is the major impediments to qualitative education. In the last 20 years, Nigerian Higher Educational Institutions have experienced staggering increases in student population, while working with inadequate resources. Many institutions have continued to rely on outdated course materials and old instructional perspectives that are damaging institutional prestige. The best and brightest are rejecting local institutions in preference for overseas training and opportunities. Nigerian Higher Educational Institutions are mostly losing the most valuable national resources. Entrepreneurs and professionals are taking the Higher Educational Institutions less seriously.

Against this background, Nigerian Higher Educational Institutions have move to embrace change and make the paradigm shift into 21st century education. The teaching paradigm is changing for online instruction, away from the traditional lecture format. The online or eLearning environment as it popularly called appeals to a broader range of individual learning styles than does classroom instruction and makes it easier for individuals to participate in learning activities. New technologies are making information access and learning possible in ways that previously did not exist. With the current technology infusion within teaching and learning, the very notion of a course or a classroom are issues of current debate.
Africa's educational experts have embraced Information and Communication Technology as a tool for institutional renewal, such as new energy, fresh ideas, and a renewed sense of discovery and innovation to address the lacks, become relevant, survives, and grows. The power of ICT to connect teachers and learners to the knowledge they need wherever that knowledge exists is now being harnessed by the educational institutions. Schools have witnessed a departure from existing norms and practices, as the incorporation of new technologies for blended e-learning prepares our institutions for local content creation as well as for Open and Distance Learning.

While envisioning the goal of distance education/eLearning programme, the University of Jos, North Central Nigeria has successfully turn around the fortunes of its Mathematics Department that runs heavily subscribed compulsory first year courses for students of all science-based

faculties into a distributive eLearning programme. Previously, the average yearly enrolment in maths courses is over 1500; too large to hold in one lecture hall while inadequate staff strength prevents splitting up into small enough groups for meaningful staff-student interaction, according to e-learning consultant. In addition to the shortage of teachers and lecture rooms, there are serious inadequacies with current books, office accommodation, and laboratory facilities. In the university, these problems are most significant in the Faculties of Medical and Natural Sciences. In order to address these inadequacies, the Department of Mathematics received international financial support to initiate, sustain, and grow its e-learning efforts.

As technology evolves so has eLearning. Despite its modest means, the university of jos Nigeria emerged a leading ICT University in Nigeria. It can boast of only 1500 systems for a population of 15000 students. The faculty based student-run computer laboratories and library computer facilities have enhanced the chances for students' engagement with these limited resources. A small but increasing number of students and staff own laptops. The mathematics department is acquiring 72 tablet PCs to improve student access. The University of Jos has successfully managed the cultural shift necessary to stimulate e-learning in a virtual school house.

In creating local digital content, the University of Jos has leaped frog by going through the fundamental phases in minimal time, rather than eliminating them. Digitising notes, identifying the deficiencies and remedying them provide a natural lead to blended e-learning. Digitising notes in Nigerian Higher Educational Institution has other positive benefits as sale of handouts and accessibility to teaching materials have been problematic to the extent that a union has a national document on the issue. Distance education/e-learning potentially will improve Africa's educational standard. First, the human networks required to drive technological networks are now being nurtured through team teaching.

In addition to its various institutional benefits, "Distance Learning has also been described as a money saver. The biggest savings, though, is time. The three biggest benefits to Distance Learning are the time saved, keeping students in their hostels while they are learning, and the ability to educate more students at one time."

ST Engineering appoints new director, Ms. May Ng

Singapore Technologies Engineering Ltd announced the appointment of Ng Bee Bee, May as an independent non-executive Director of the Company with effect from 1 June 2020.

Ms May Ng, 52 is currently the Chief Executive Officer of Pan-United Corporation Ltd (Pan-United), the largest local ready-mixed concrete and cement supplier that supplies to major infrastructure projects like Changi Airport Terminal 5 and LTA MRT lines and private developments like Guoco Towers. She was previously the Executive Director from January 2004 to February 2011. Ms Ng sits on the boards of several subsidiaries in the Pan-United group. She is also the Chairman of Mercatus Co-operative Ltd and a director of NTUC Enterprise Co-operative Ltd. Ms Ng holds a Bachelor of Arts (Honours) degree from the University of Western Ontario, Canada. The Board of Directors welcomes Ms May Ng to the Board and look forward to her contributions.

Francis Chizea becomes NASRDA's Chief Executive

The National Space Research and Development Agency, NASRDA has announced the appointment of Dr. Francis Chizea as the acting Director General and chief executive of the space agency. His appointment follows the retirement of the Jonathan Angulu, the erstwhile chief executive who retires recently after spending 35 years in the service of the space agency. Before his appointment, Dr. Chizea was the Director of planning, research and project at the Nigeria's space agency.

The National Space Research and Development Agency (NASRDA) was charged, at establishment, with the mandate to consolidate all Space Science and Technology related activities in order to make a greater impact on developmental efforts in Nigeria. The Agency's mandate stated that "it shall pursue the development and application of space science application and technology for the socio-economic benefits of the nation".
As the Director General and Chief executive of the National Space Research and Development Agency, NASRDA, he will be responsible for proposing and implementing space policy in Nigeria in all aspects, Astronomy, sciences, observation, telecommunications,

defense through the centers spread across Nigeria. Dr. Chizea will also represents Nigeria within the continent and several other international organizations.

Arqiva Announces the Appointment of Paul Donovan as CEO

Arqiva Group Ltd announced that Paul Donovan has been appointed Chief Executive Officer with immediate effect. Paul Donovan has over twenty years' experience in senior executive roles across the technology, media and telecommunications sectors. He is currently non-executive Director on Arqiva's Board and has previously been CEO of Odeon and UCI Cinemas Group and, before that, CEO of eir, Ireland's leading telecommunications business. He was also a member of the Group's Executive Committee at Vodafone where he led the Group's emerging markets businesses. Paul Donovan succeeds Simon Beresford-Wylie who has been Chief Executive Officer since August 2015. During Simon Beresford-Wylie's tenure as CEO he has simplified the business and successfully driven year on year improvement in both revenue (four year CAGR of 3.9% to £999.5m last financial year) and EBITDA (CAGR of 5.9% to £526.4m in 2019). Paul Donovan's appointment is with immediate effect. He will work with Simon Beresford-Wylie over the coming months to ensure a smooth and orderly transition. Simon will formally leave Arqiva on the 30 June 2020.

Massimo Claudio Comparini Appointed as Deputy CEO at Thales Alenia Space and CEO of Thales Alenia Space Italia

Thales Alenia Space, a joint venture between Thales (67%) and Leonardo (33%), announced the appointment of Massimo Claudio Comparini as Deputy CEO and Senior Executive Vice President Observation, Exploration and Navigation Business Line at Thales Alenia Space as well as CEO of Thales Alenia Space Italia, with immediate effect. He succeeds to Donato Amoroso. Massimo Claudio Comparini, former CEO at eGeos since 2016 and Director Line of Business Geo Information at Telespazio, has a long and proven track record in space industry, from technology to services, and in the earth observation domain. He started his career in 1983 at Selenia Spazio (later Alenia Spazio), holding various management positions, up to the role of Chief Technology Officer. In 2013 he was appointed CTO of

Telespazio, a joint venture between Leonardo (67%) and Thales (33%). In 2016 he became the CEO of eGeos, an ASI (20%) and Telespazio (80%) company, an established international leader in the Earth Observation and Geo-Spatial Information, and, in his role, Chairman of GAF and EarthLab Luxembourg.

Iatakoo expands as Ivo Guilini Appointed Sales Director for EMEA Region
I
Iatakoo, a leading video transfer and workflow company offering a cloud-based platform that is the fastest, easiest and most secure way to get video from anywhere to anywhere, regardless of connectivity or file size, announces the appointment of Ivo Guilini as Sales Director for Europe, Middle East, Africa (EMEA) region. Iatakoo is currently expanding its video transfer and workflow product portfolio to support production companies as well as its traditional broadcast production customer base.
Ivo Guilini, based in Belgium, will oversee the direction of all sales and marketing activities in the EMEA region. Ivo Guilini was previously Director of Sales, Northern Europe for Ross Video coordinating sales and marketing efforts in Northern Europe including the Nordics, Benelux, UK and Ireland. Prior to this, Ivo was a channel manager for Avid Technology handling direct sales and channel sales for non-linear digital media product. Ivo began his career as a manager in the multimedia unit for DM&S.

Astroscale UK appoints Kumar Singarajah as Director of Government & Regulatory Affairs

Astroscale has announced the strengthening of its management team with the appointment of Kumar Singarajah as Director of Government & Regulatory Affairs (UK & Europe) effective 23 March 2020. Kumar joins with 30 years experience in senior positions in the space and telecommunications sectors with companies such as Avanti Communications, ICO Global Communications, Global, Inmarsat and SES ASTRA. He is the current chair of the joint techuk/UKspace Satellite Telecommunications Committee and a faculty member of the London Institute of Space Policy and Law. In his new role, Kumar will lead governmental, regulatory and space policy matters with UK and European government organisations and will work closely with John Auburn, Chief Commercial Officer and Managing Director, UK, as well as the Global Policy team.

China-funded satellite television project benefits 1,000 villages in Mozambique

Mozambique announced the conclusion of a project to bring digital satellite television signal to 1,000 villages in the country, which is supposed to benefit over 20,000 families.
The Minister of Transport and Communication Janfar Abdulai made the announcement after reviewing the project in the northern province of Cabo Delgado.

Rural communities in Africa constitutes the larger percentage of the population whose information and developmental needs are not adequately met and consequently they have not been able to productively participate in the development process and enjoy the benefits thereof.So far, the emergence of information and knowledge society is a significant intervention with the potential to ensure that knowledge and information are very important for achieving meaningful development.

"This project is included in the 100 days of governance and now it is totally concluded, here today we are reviewing how the beneficiaries feel with the project and we are able to testify that they are happy, they have direct access to information and we share their satisfaction," said the minister. He said the project generated about 2,000 jobs in total and trained work force particularly young people to be in charge of the maintenance and provide assistance to the beneficiaries.

Meanwhile, information can be regarded as a basic resource by African communities which the populace may use to improve their conditions of living and is essential to development process. Not only does information expand the possibilities of social, political, educational and economic development of any country, but it also facilitates awareness and empowerment .Information is an asset and a resource for development of communities, governments, agencies, and the target population.
The project, covering all the ten provinces and the capital city of Mozambique, was co-funded by China and implemented by the Chinese electronics and media company StarTimes.

The project is part of the resolutions of the Johannesburg Summit of the Forum on China-Africa Cooperation in 2015, in which the Chinese government pledged to provide satellite television access for 10,000 villages in Africa.Indeed, access to information by rural communities in Africa will serve as a panacea to the problems that long time exist and hindered them from exploiting their potentialities. Rural community development is the back borne of a country's development, ignoring rural communities for not providing them with basics needs and access to information infrastructures will basically lead them to migrate from rural communities to concentrate in the urban areas which will not augur well for African development. Therefore, there is the need for refocusing on the role of information in rural community development and television as a tool for change agent.

Vodacom signs up with Loon to deliver 4G-by-balloon to Mozambique

Mobile operator Vodacom is to use Alphabet's Loon balloon-carried base stations to extend coverage in Mozambique.
The balloons will float 20km above the ground in the provinces of Cabo Delgado and Niassa, in the north of the country close to the border with Tanzania.

Loon's CEO Alastair Westgarth said: "We view this as the first step to a larger partnership that will allow us to serve more of those users throughout Africa."
Loon is already experimenting with balloons in Kenya, on the other side of Tanzania, in a project with Telkom Kenya. Shameel Joosub, the group CEO of Vodacom, confirmed the company's interest in expanding balloon coverage. "We look forward to forging similar partnerships and projects across the continent, as we ensure that no one is left behind when it comes to accessing the global digital economy," he said.
The balloons will deliver voice, data. SMA and USSD on 4G, as well as M-Pesa mobile financial services. Vodacom said: "The service will be available to any Vodacom subscriber with a standard 4G-VoLTE enabled handset and SIM card. Users will not need to do anything special to connect to the service; they will connect just as they would to a normal cell tower. In fact, it's unlikely that a user will know that they are connected to the service provided by a high altitude balloon, except for the fact that they may have a signal in a location where it previously did not exist."

Vodacom and Loon will need to install physical terrestrial infrastructure to connect the balloons to the core network. And Loon said it will need "to learn the stratospheric wind patterns on which the balloons must navigate to remain above the service area". They will be controlled with what Loon, owned by Google's parent company Alphabet, calls an autonomous navigation system.
Westgarth added: "Since Loon vehicles float on wind currents in the stratosphere, they are constantly moving in and out of a given service region. With two countries in close proximity to one another, we can share vehicles across service regions when it makes sense to do so, which will increase our utilisation rates. It's pretty cool that in the lifespan of one vehicle, it could serve in multiple countries, multiple times."

Eutelsat reported revenues for Q3 and nine months ended 31 March 2020

Eutelsat has reported revenues for the Third Quarter and Nine Months ended 31 March 2020. The Board of Directors of Eutelsat Communications chaired by Dominique D'Hinnin, announced the report after reviewing the financial results for the period.
Rodolphe Belmer, Chief Executive Officer, commented: "Third Quarter revenues were in line with our expectations, and confirmed the underlying improvement in Operating Verticals trends. In particular, Broadcast was highly resilient with stable revenues year-on-year and return to quarter-on-quarter growth with ongoing signs of commercial dynamism in emerging markets with a new DTH platform in Sub-Saharan Africa and the extension of a contract in the Balkans. Other commercial highlights include a solid Spring Renewal campaign with the US Government, a multi-year contract with Telenor Maritime in Mobile Connectivity, and for Konnect Africa, a MoU to connect several thousand schools across the Democratic Republic of Congo.
According to the company, third Quarter Broadcast revenues were stable at €198.8 million on a year-on-year basis. This reflected on one hand the carry-forward effect of the return of a couple of transponders in Russia in July and, on the other, higher revenues notably in MENA and at 28.5°East. On a quarter-on-quarter basis, total Broadcast revenues rose by 2.1%, including a positive one-off for circa €1m. At 31 March 2020 the total number of channels broadcast by Eutelsat satellites stood at 6,867, down 2% year-on-year and stable quarter-on-quarter. On a year-on-year basis, HD channels rose by 10% to 1,667, implying a penetration rate of 24.3% compared to 21.5% a year earlier. On the commercial front, activity remained dynamic with the addition of a new platform in Sub-Saharan Africa - Ghana RCS at 7°East - as well as the renewal and expansion of business in the Western Balkans at the 16°East orbital position.
During the quarter, EUTELSAT 7C entered into service, bringing 19 incremental transponders to the African market which are expected to gradually ramp-up; elsewhere EUTELSAT 5 WEST B entered into service, replacing EUTELSAT 5

Intelsat undertakes financial restructuring for future innovation and growth

Intelsat S.A., operator of the world's largest and most advanced satellite fleet and connectivity infrastructure, has announced that it has undertaken a financial restructuring to position the Company for long-term success. The restructuring process is intended to enhance the Company's liquidity and will likely result in a substantial reduction of Intelsat's legacy debt burden, allowing for Intelsat to emerge with a strengthened balance sheet to complement its strong operating model and future growth plans.

One of the primary catalysts for restructuring the balance sheet now is Intelsat's desire to participate in the accelerated clearing of C-band spectrum under the Federal Communications Commission order in support of a build-out of 5G wireless infrastructure in the United States. To meet the FCC's accelerated clearing deadlines and ultimately be eligible to receive $4.87 billion of accelerated relocation payments, Intelsat needs to spend more than $1 billion on clearing activities. These clearing activities must start immediately, long before costs begin to be reimbursed. The Company is also managing the economic slowdown impacting several of its end markets caused by the COVID-19 global health crisis.

"This is a transformational moment in the history of our company," said Stephen Spengler, Chief Executive Officer of Intelsat. "Intelsat is the pioneer and foundational architect of the satellite industry. For more than 50 years, we have been respected for quality, innovation, sector leadership, and premium services. Our success has come despite being burdened in recent years by substantial legacy debt. Now is the time to change that. We intend to move forward with the accelerated clearing of C-band spectrum in the United States and to achieve a comprehensive solution that would result in a stronger balance sheet. This will position us to invest and pursue our strategic growth objectives, build on our strengths, and serve the mission-critical needs of our customers with additional resources and wind in our sails."

To facilitate the financial restructuring, Intelsat and certain of its subsidiaries have filed voluntary Chapter 11 petitions in the U.S. Bankruptcy Court for the Eastern District of Virginia, Richmond Division. Intelsat General (IGC), which serves the Company's U.S. commercial, government, and Allied military customers, is not part of the Chapter 11 proceedings.

BBC World News and SES extend HD deal to ASTRA 19.2 degrees East

TV viewers across Western Europe will continue to be able to watch BBC World News thanks to an extended deal with SES. BBC Global News delivers its HD news channel, BBC World News, free-to-air across Europe on SES's Astra satellite at 19.2 degrees East.

The total HD reach at Astra 19.2 degrees East has increased every year, rising from 65 million homes at year end 2015 to 88 million by year end 2019, a 34% growth in five years. The BBC World News channel, which has been available in HD through SES since 2015, is distributed via a multiplex operated and uplinked by SES from its Luxembourg headquarters.

For over 30 years, after SES launched its first satellite, a 30-year anniversary it celebrated last year, the world leading operator has been part of a changing and evolving landscape of services delivered from space.
Over this period, SES have broadened its reach from Direct-to-Home (DTH), to broad video distribution and contribution and into data services, the company's ability to touch lives and have an impact on the world has grown.

Chris Davies, executive vice president of marketing and distribution for BBC Global News, said, "This deal with SES is really important as it allows us to reliably reach widespread audiences across Western Europe. Amidst one of the biggest news stories of this generation, we're seeing unprecedented demand for quality journalism. Since the beginning of the year, we've taken BBC World News from being available in 465 million homes worldwide to over half a billion homes, to provide a growing audience with trusted, accurate and impartial news."
"Since the COVID-19 health crisis started, we have heard from our customers that demand for linear TV, especially news programmes, is on the rise and that reliable news producers such as the BBC are now more critical in providing accurate news and information to millions of viewers," said Ferdinand Kayser, CEO at SES Video. "We're pleased to continue working with the BBC and to help bring high-quality HD news to 88 million European households at a time when they need it most."

Present time SES has a formidable head-start in the video segment. We serve 312 million households through our global fleet which equates to impacting the entertainment and informational experience of more than 1 billion inhabitants on our planet. And, we still have a long way to go. Pay-TV penetration in some of the largest emerging countries remains under 20% and in many cases even under 10%. We are therefore contemplating a unique opportunity to improve and democratize the video experience, improve people's lives, and help build the business of our partners such as local and regional broadcasters.

Tunisia's announces first homebuilt satellite

The African space market is in full bloom and is now estimated at more than 7 billion dollars a year. In almost 21 years, 32 satellites have been launched by eight African countries, three of which are financed by African institutions.
Next to Asia, Africa is the world's largest continent, home to more than 900 million people living in 54 countries. It covers more than 20 percent of the total landmass on this planet.
The continent is also progressing, with home-built satellites. One such case is Tunisia, which has just manufactured a satellite named "challenge one." It is produced by TELNET Company with support from Russia. It is scheduled to be launched from its Soyuz 2 spacecraft on November 15. Telnet aims to progressively deploy a constellation of 30 more nanosatellites over the next decade.
Anis Youssef, Head of Innovation Activities at Telnet: "Telnet's specificity – as a Tunisian company – is that we are not buying a satellite. We are developing one ourselves. "All this is in the interest of creating a gateway between Russia and Tunisia, around space nano satellites, and the technology of the Internet of Things (IoT)."
This satellite specializes in the Internet of Things. It is 100% made by Tunisian resources and skills, and thanks to a new technology developed in Tunisia. Each device in the system will eventually be able to be individually programmed, controlled or reset in space from Telnet's labs. There are many possible uses for Challenge One, ranging from remotely activating solar pumps in the Sahara to tracking livestock crossing Tunisian borders into Algeria or Libya.
Mohammed Frikha, CEO of Telnet Holding: "After the revolution (Tunisia) was a country that successfully established a democracy, she showed the world that an Arab and Muslim country, can be successful in democracy.
"In the world, countries are valued by two things: by democracy and by technology. I think that in Tunisia we have potential I am personally convinced of that and justifiably this project will give a very good image of Tunisia in the world and it will also give Tunisians the confidence that we are capable of becoming one of the leaders of technology."

SES posted solid Q1 financial results

In 2019, SES served a total of 367 million TV households compared with 355 million households in 2018 across its industry-leading video neighbourhoods. SES' reach in international markets has continued to expand, now serving a total of 130 million TV households across Asia-Pacific, Africa, Latin America and the Middle East, posting solid financial results for the first three months ended 31 March 2020

SES S.A, a global satellite services provider, has announced solid financial results for the first three months ended 31 March 2020 with performance in line with the company's expectations and strong underlying revenue growth in SES Networks. The business has seen limited impact to date from the COVID-19 global pandemic but given the unprecedented impact on the global economy and on certain industry segments that the company serves, SES has proactively implemented a series of measures to mitigate the headwinds to be faced in 2020.

Steve Collar, CEO, commented: "We have made a strong start to 2020 with solid first quarter financial results including a step up in underlying revenue growth in SES Networks. Our Networks business now represents more than 40% of our business overall and mobility continues to stand out with 29% growth year-on-year as we have seen the full year contributions of important customer contracts signed during 2019. Strong control over discretionary costs in the quarter contributed to a reduction in recurring operating expenses year-on-year and reflects our ongoing focus on execution.

"Underlying" revenue represents the core business of capacity sales, as well as associated services and equipment.

 In 2019, SES served a total of 367 million TV households compared with 355 million households in 2018 across its industry-leading video neighbourhoods. European reach remained solid with 168 million TV homes, or over 60% of all TV households in Europe, relying on SES for their video content. North American reach of 69 million TV households remains a key distribution platform for over 60% of TV households in the U.S. SES' reach in international markets has continued to expand, now serving a total of 130 million TV households across Asia-Pacific, Africa, Latin America and the Middle East.

We have a strong, resilient business with predominantly fixed, long-term contracts and 85% of our expected revenue for 2020 already secured. To date our results have been largely unaffected by COVID-19. Nevertheless, the impact of the pandemic on the global economy and on several of the business verticals that we serve is profound and it is inevitable that we will be impacted as we support our most affected customers. It is too early to provide an assessment of the revenue impact that COVID-19 environment will have on our 2020 performance. That said, we have 'gone hard and gone early' in implementing COVID-19 specific measures to mitigate impacts on EBITDA, including substantial limits on discretionary spend in the order of mid-double-digit millions for the year, and removed EUR 180 million from our capital expenditure programme over the next 4 years.

We are focused on ensuring the safety of our employees around the world, maintaining business continuity, supporting our customers, and taking all steps to ensure that SES can emerge from this period in the strongest possible position. I am proud and appreciative of the incredible team at SES who have seamlessly adapted to the operational challenges presented by COVID-19 and continue to deliver critical services to our customers with the same quality and expertise as ever.

Looking beyond COVID-19, Simplify & Amplify, our strategic transformation programme, is well underway. We are executing on initiatives that will generate EUR 40-50 million annualised EBITDA optimisation in 2021 and beyond and we are making progress on the potential separation of our Video and Networks business within SES. Successful execution of this separation will provide greater visibility into our business for investors, increase operational focus and create strategic flexibility.

We have set up a dedicated team to execute on the objectives of the U.S. FCC's C-Band final Report and Order, including the ability for SES to earn up to USD 3.97 billion in acceleration payments for efficiently and effectively repurposing C-Band spectrum while protecting our broadcast neighbourhoods."

Response to the COVID-19 Global Pandemic

From a business perspective, SES' response and actions during this unprecedented period focus on employee safety and business continuity. Since early March 2020, SES has maintained a worldwide 'work from home' policy for the majority of its 2,100+ full-time employees and additional part-time staff/contractors, before any government regulation. SES has well established and tested contingency plans in place to address a number of scenarios across all technical facilities around the world and, accordingly, does not anticipate any impact on the services provided to SES' customers. All operations centres across the SES network remain 100% in service and operational;

At 31 March 2020, SES had cash and cash equivalents of EUR 437.2 million prior to payment of the 2019 dividend (total amount of EUR 184 million) which was paid to shareholders on 23 April 2020. The group has no refinancing requirements until 2021 and a EUR 1.2 billion Revolving Credit Facility which is fully undrawn. SES has implemented additional measures to manage cost and discretionary spending, notably reducing capital expenditure by EUR 180 million for the period 2020-2024 as compared with the previous forecast.

Given the importance of staying connected, SES is actively supporting customers and Non-Governmental Organisations (NGOs) on the frontlines of the pandemic with "in kind" connectivity services and broadcasting programmes organised by non-profit organisations to uplift community spirits. SES employees are utilising the SES Give Back programme to support their local communities including through donations to qualified non-profit organisations which are matched by SES, helping vulnerable communities or serving as volunteers on the frontline of the response to COVID-19.

In addition, the fixed and long-term nature of SES' commercial contracts provide strong cash flow visibility and security as reflected in the group's fully protected contract backlog of EUR 6.2 billion as at 31 March 2020. SES is closely monitoring development across all business segments, most notably Aeronautical approximately 7% of group revenue, Cruise, approximately 4% of group revenue and Sports & Events approximately 1% of group revenue. At the same time, SES is focused on driving opportunities to support additional demand for content connectivity solutions in Fixed Data and Government.

The state of public sector connectivity

Galaxybackbone is a leading enabler of digital inclusion in Nigeria and Africa, supporting efficient and effective delivery of public sector services, according to the company's report

In 2006, Galaxy Backbone was established as a leading Information and Communications Technology service provider in by the Federal Government to harmonise the approach to ICT in the public sector, to help derive more value from its investments in Information and Communications Technology by eliminating duplication, establishing economies of scale, enhancing interoperability of systems and improving government's capacity to deliver electronic services.

Today's business and e-governance applications often require 100% uptime due to cloud computing, machine-to-machine interaction, VoIP and video communications and the digital transformation of business processes. All businesses usually have a common set of requirements. They need secured highly available connections with increasing amount of band-width in a cost-effective way.

In over ten years of its establishment, Galaxy Backbone has built a common services platform consisting of in-country and offshore VSAT hubs, a datacenter, Federal Capital metro fiber backbone and multiple redundant internet gateways. From this platform, the company is growing its coverage of public institutions nationwide and currently connects about 4,000 locations spread across various parts of Nigeria representing over 350 Ministries Departments and Agencies of the Federal Government.

In order to achieve its goals, it provide and deliver on the technology that enables government institutions work faster, smarter and solve their immediate and future challenges. The Federal government's investments in the Galaxy Backbone (GBB) infrastructure was geared towards improving government services and creating a platform that can accommodate public institutions at both federal and state levels and other private institutions that might want to benefit from these services.

The Galaxy Backbone own network is made up of hundreds and thousands of network computers, terminals, servers, gateways, and routers offering Internet access across Nigeria. Therefore, a personal computer can access any of the servers on the network, regardless where that server is located. In some instances, more than one computer could access the same server or resource simultaneously. Generally, the company's network interconnects thousands or hundreds of thousands of individual network "dots" on demand enabling public sector organizations to survive with e-mails, large documents, sound and video files. In many locations, Galaxy backbone's strategy for delivering broadband is often a hybrid of wireless solutions including fibre, satellite, fixed wireless and mobile broadband networks. In addition Public Access Points especially, a NIPOST outlet or Local Government HQ) can be deployed within a 2km radius at the most, to support those who cannot afford their own devices.'

Before Galalxy Backbone was set up, it was government's vision to build an organization that would bridge the gap between how business was perceived to be done in the public sector and how it is perceived to be done in the private sector. The goal for the creation of Galaxy Backbone was to ensure government processes were improved upon and worked effectively most especially in an obvious technology driven world that was oblivious of whether one belonged to the public or private sector. Technology indeed, is for everyone.

So for Galaxy Backbone, one of our greatest pride is in our people. The company have assembled an exceptionally diverse set of professionals with both Private and public sector experience; men and women from different parts of the country and beyond. It also have a rich diversity of people cut across the different cultures in Nigeria who are not just technology professionals but understand what it means to deliver value to government institutions and ensure its operations are run effectively based on international standards. Its work culture and values thrives on teamwork, commitment to excellence and results.

The future of public sector connectivity

Governments at various levels have a critical role to play in the drive to have pervasive broadband infrastructure across the nation. Government no doubt has interest in converting the states and local governments in Nigeria into digital havens that will be fully networked and ready to be integrated into the new world order of digital citizens in an environment of e-governance, e-health, e-commerce and e-agriculture among others.

Therefore, some have taken steps to partner with Galaxy Backbone to deploy necessary fibre and other electronic infrastructure for the benefit of public sector organizations and Nigerians at large. Governments have necessary roles to play in removing many bureaucratic difficulties and obstacles that hinder faster broadband rollout.

Since the implementation of Government broadband plan, and with the support from Galaxy Backbone, millions of educated and working class adults are beginning to have broadband experience in their workplaces. In addition, young students in secondary and tertiary institutions are very active online and are generally fascinated with accessing broadband services on mobile devices such as smart phones, netbooks, laptops.

Currently Nigeria's locally broadband based services have increased tremendously. Thanks to Galaxy Backbone, many more ministries, departments and agencies now have online presence. More government services are also online and so much have improved with the introduction of the single service portal 'services.gov.ng'. Several Nigerian states across North South States have established very comprehensive websites. Virtually, every political leader at the Local, State and National levels are using social media to engage with the polity.

One of the success stories of Internet usage in Nigeria today is that of JAMB online. It was discovered that spikes in internet usage coincided with the release of JAMB results or the beginning of the JAMB registration process. Another good example is the American University in Yola which was at one time responsible for 52% of all Nigerian Internet traffic, as a result of students having free access to hardware and high bandwidth. Consequently, internet usage can grow faster if there is compelling local content and access, including continuing investment in public sector broadband infrastructure by Galaxy Backbone.

IEC Telecom unveils satellite-based networking management solution

Satellite communications specialist, IEC Telecom has introduced its latest satellite-based networking management solution, OneGate Aid Compact to improve the efficiency of first responders in regional communities across the Middle East and Africa amid the COVID-19 pandemic.

OneGate Aid Compact is an agile and future-ready network management solution that operates from a virtual platform and is designed to keep mobile humanitarian teams connected at all times, enabling full control and visibility over active telecommunication links.

Urban areas utilise GSM networks, while remote missions are heavily reliant on satellite communication. Moreover, mandatory social distancing prevents from staff reinforcement or rotation and as a result, field workers are heavily dependent on satellite networks to receive remote counselling and training. With an increase in data usage, it is not enough to simply have access to the satellite network, but be in a position to manage available resources and channel essential communications on mission-critical operations.

"Successful operations during the COVID-19 pandemic are dependent on timely and proper communication in affected communities. This is especially critical to first response groups or mobile hospitals who need to act fast in areas with no infrastructure. Now more than ever, telecommunications in general and satellite communications, in particular, are critical to support our frontline workers. OneGate Aid Compact was developed as a solution to support continuous communication. It provides satellite link in remote areas and serves as GSM back-up under terrestrial network coverage," said Nabil Ben Soussia, managing director IEC Telecom Middle East, IEC Telcom Group.

IEC Telecom's OneGate Aid Compact is powered by Thuraya IP+ for stationed use and Thuraya Voyager for vehicular use over Thuraya's L-Band network. It enables first response teams with optimised network traffic availing services such as big data transfer and live conferencing. In times of COVID it means that front line staff will be able to share operational reports in real time and have access to telemedicine.

OneGate Aid Compact also provides the gateway for remote maintenance, enabling technical support teams to monitor and troubleshoot at any place and at any time. It may also be enhanced with an augmented reality toolkit, providing field workers with a 'virtual pair of hands' displayed on the screen of the device in use (smartphone or tablet). As such, limited staff onsite is exponentially expended via digitally present teams in the HQ and network support teams at IEC Telcom.

"In addition to the critical communication to support the frontline, we've seen a drastic increase in the use of video calls, which is a natural response to prolonged isolation," added Ben Soussia. "In order to support front line staff and our communities, in cooperation with Thuraya we have doubled our data packages for April at no additional cost."

WHO offering COVID-19 tracking app to governments worldwide

The World Health Organisation (WHO) is readying the launch of a new app aimed at stemming the spread of Covid-19. Scheduled for a global launch later in May, the app will let users check their symptoms in order to determine if they are infected with the virus. According to the WHO CIO Bernardo Mariano as saying that any government would be able to use the technology that powers the app to introduce their own offering.

So far, the App Economy has arrived in full force — and every single one of us is a part of it. Already in 2013 the global community have downloaded 70 billion mobile apps. That's 10x the number of people on the planet. Research firm Gartner1 is particularly bullish about the market outlook. It estimates the total number of mobile app downloads (both free and paid) will soar to 269 billion in 2017, up from 102 billion in 2013. That's a huge increase!.

As well as flagging cases of potential infection, the WHO app will also be able to provide users with information about local testing options for the virus. Additionally, it will offer users resources for safeguarding their mental health.

Mariano noted that the WHO's app would be of particular benefit in developing regions such as Africa and Latin America, noting that countries with vulnerable public health services would be able to implement the app swiftly rather than spending time and effort developing their own. The WHO also acknowledges the potential advantages of implementing contact-tracing technology to the app, which would be based on Bluetooth. Reuters confirmed that the organisation has approached Apple and Google about the proximity detection technology that the firms have developed together and are planning to launch imminently.

As well as the new app, the WHO has spearheaded initiatives to provide accurate scientific information and alerts via messaging partnerships, including with WhatsApp. It intends to launch a similar campaign via SMS for millions of users with low-end devices.

While the social networking category is 6th measured in download volumes, it's a growing category and generates around 3% of total revenues.

Recent results show that 75% of apps in its search engine get 90% of the downloads. This is because its app search engine is far less leader board-driven than the Apple and Google Play app stores. "So if you contrast our results with typical Apple App Store results, then with Xyo pe ple find all kinds of apps and games and often many of the less-well known titles."

New Ka-band satellite broadband launched in Iraq, Syria and Armenia

TS2 SPACE has recently launched new Ka-band satellite services. Using the HYLAS 2 spacecraft, the company now provides high-speed data services to Iraq, Syria and Armenia.

Abanti's second satellite, the Hylas-2, was ordered from Orbital Sciences Corp. in late 2009. Equipped with 24 Ka-band repeaters and based on its Star 2.4 platform, the satellite is expected to have three times the capacity of the Hylas 1 and to be used chiefly to serve markets in the Middle East and Africa.. Hylas-2 will be used mainly for providing broadband applications in that region, and for cellular backhauling.

Avanti finally raised 95 million EUR to fund a third satellite, Hylas-3. It will primarily serve the African continent, boosting Avanti's presence in emerging markets to 80%. It will, in principle, be a European EDS satellite payload.

The Ka-band spot beams are providing two-way communications services to facilitate high-speed delivery of data to end-user applications such as corporate networking, broadband Internet access, business continuity services and video distribution.

Marcin Frąckiewicz, CEO and founder at TS2 SPACE, commented: "With the launch of new Ka-Band service on Hylas-2, TS2 is proud to introduce latest technology to customers in Iraq, Syria and Armenia. New service allows downlink speeds up to 20Mbps, five times the previous maximum, using a smaller antenna. Higher performance is gained at a much lower cost, which allows up to four times higher connection speed at the same cost, if compared to previous Ku-band service, without compromising connection reliability and stability".

New Ka-band service is based on the field-tested and proven technology provided by iDirect. Ka-band service requires smaller antenna, reducing the equipment and transportation costs and making the installation easier.

TS2 SPACE is a leading provider of satellite communications systems. It provides global telecommunications services within the coverage of international satellites. The company offers all capabilities of using satellite technology for data transmission, phone calls, and Internet access.

Gogo 'sees' growth amid COVID-19 setbacks

In-flight connectivity market-leader, Gogo, launched with an air-to-ground cellular network, explains that while the aircraft online business increased to 2,480 as of March 31, 2020 from 2,412 as of March 31, 2019, due to an increase in 2Ku and ATG aircraft the company's first quarter service revenue decreases significantly primarily due to the impact of COVID-19

Gogo, a leading global provider of broadband connectivity products and services for aviation has announced its financial results for the quarter ended March 31, 2020, reflecting new comprehensive actions in response to the COVID-19 related decline in air traffic. "We started the year well ahead of plan, but Commercial Aviation demand fell sharply in March due to COVID-19 and has deteriorated further in Q2," said Oakleigh Thorne, Gogo's President and CEO. "There has also been a slowdown in new activations and an increase in account suspensions in our Business Aviation segment, which we expect will negatively impact BA revenue in Q2."

"The Gogo team responded quickly to COVID-19 with actions to reduce costs, maintain our strong global franchise and ensure our long-term financial viability," Thorne said. "I think we are well positioned to get through this crisis and am extremely proud of the efforts and sacrifices of our Gogo team in these difficult times."

According to the company, service revenue decreased to $73.8 million, down 20% from Q1 2019, primarily due to the impact of COVID-19, the full impact of American Airlines switching to the airline-directed model, the de-installation of Gogo equipment from certain American Airlines aircraft during 2018 and the first half of 2019, and the recognition of product development-related revenue from one of our airline partners in the first quarter of 2019.

It said, equipment revenue increased to $6.3 million, up 56% from Q1 2019, due primarily to more installations under the airline-directed model.

Together with Eutelsat Communications, one of the world's leading satellite operators, the company sealed a new satellite capacity agreement for high-speed inflight connectivity services. With this deal, Gogo will leased HTS bandwidth on EUTELSAT 10B satellite, to be leveraged over Europe and the Middle East. The new satellite is set to launch in 2022. "We are advancing capacity capabilities given the growing demand for high-speed inflight connectivity services," said Oakleigh Thorne, president and CEO of Gogo. "Through our partnership with Eutelsat, Gogo 2Ku will continue to enable the best passenger experience for

global airlines." "We are thrilled about our ongoing relationship with Gogo, a long-standing partner and a leading provider for inflight connectivity," said Philippe Oliva, Eutelsat's Chief Commercial Officer. "This agreement highlights the relevance of our newly ordered EUTELSAT 10B for inflight connectivity and we look forward to supporting Gogo as they increase capacity in Europe and the Middle East to provide the best services to their airline partners."

"To ensure our long-term liquidity, we are aggressively executing on our previously announced 16 levers to manage costs," said Barry Rowan, Gogo's Executive Vice President and CFO. "Our stronger than expected cash position exiting 2019 and through the first four months of 2020 has positioned us to manage through this difficult period and we are committed to continuing this heightened level of financial and operational discipline."

Gogo operations

Gogo has been providing commercial airlines with the power of a Ku-based network for years. With the industry-leading Gogo 2Ku antenna design, proprietary modem that enhances performance and speed, regulatory approvals in 200+ countries, and over 180 satellites and two data centers, the Gogo global satellite network provides the infrastructure and service fliers need for high-speed inflight internet with zero compromise.

Once the aircraft reaches 10,000 feet and the crew gives the okay to turn on portable electronic devices, passengers can log on the system. They are welcomed by a home page where they have to fill their personal and credit card in-formation.

Its biggest upside is the connection speed: passengers are able to browse the Web; access online music, games, podcasts and webcasts; send and receive e-mail; and connect to virtual private networks while flying. The promised easy-to-use service provides passengers with full Internet access on any Wi-Fi-equipped laptop or personal electronic device at speeds similar to wireless mobile broad-band services on the ground.

According to Andrew Kemmetmueler, "Ku-Band is recognized as a very attractive

option to deliver significant bandwidth to client users over satellite. Unlike Iridium and Inmarsat solutions, where the satellites are operated by a single provider, Ku-Band is provided by a number of different operators. Depending on the geo-graphical location, different providers are capable of offering the service. For an airline, there is a need to either integrate service from multiple Ku-Band operators, or select an aggregator like Panasonic who has secured service over a large coverage area. Ku-Band is attractive for its ability to offer very high speeds (20 + Mbps) to the end user. This has been particularly attractive to commercial and business aviation, given the desire to support high-speed applications such as television and other streaming video.

At Gogo, for instance, we have access to more than 100 Gbps of capacity on our Ku-band network, which is exclusively dedicated to the aviation market. Ka satellite providers share bandwidth with numerous other markets. In fact, one operator of Ka band satellite internet in the United States also serves an additional 675,000 residential customers. That puts a significant dent in its capacity capabilities.

However, the company has continued to invest thousands to install terminals, wire airplane cabins, and start up a service. It says an engaged audience on board is what will create value for airlines. Unless a substantial percentage of passengers (at least half) are getting online in the air, there are limited opportunities for Wi-Fi to create the loyalty factor airlines want or the active audience that could represent meaningful additional value for airlines and airline partners.

As the government across ghe world set to open the airspace, the expectations for in-flight Internet seem clear. Passengers want more service and more speed. Airlines stand to gain more value and loyalty from their passengers if more people use it. Satellite communications is the unanimous choice as the right technology to deliver that kind of service over both land and sea. With a single high-capacity satellite carrying nearly 100 times the capacity of a typical Ku-band satellite, at a similar capital cost per satellite, the economic equation becomes obvious.

SANSA and the rise of space exploration in South Africa

The vision of the South African National Space Agency, SANSA's is to position "South Africa as the leading innovator of space science and technology solutions on the African continent and beyond while also serving humanity without borders". To this end, Raoul Hodges, Managing Director of SANSA Space Operations, says he's very proud of the team at SANSA Space Operations, their work within the Space industry.

SANSA is taking on a leading role in the international space arena as the agency continue to use Space Science and technology as a vehicle to increase South Africa's intellectual capital, advanced technology capital and our countries global new knowledge share. This, the space agency believes is an absolute necessity and a cornerstone if South Africa is to create and sustain a vibrant national Space Science and technology programme that responds to the changing needs of humanity, increases our global space market share, increases our global competitiveness and creates a larger measure of self-dependence in the space arena and be among the leading innovators.

In 2019 SANSA's facility became part of various international ground stations that are tracking Chandrayaan 2 and ensuring that it lands safely on the Moon. Chandrayaan 2, carried 13 different payloads, which were distributed across three modules. "The work being conducted at Hartebeesthoek is of great significance in the advancement of space science and engineering. The mission demonstrates our capabilities to operate competitively within the international space market, according to SANSA Space Operations.In order to ensure the success of the mission and improve the collaboration, ISRO deployed one of their Scientist, Debdas Paik to Hartebeesthoek and was responsible for briefing the SANSA team on Chandryaan-2 mission objectives, mission critical phases and about the significant contribution is being provided by the facility.

Space, by its nature, is high risk and globally relies heavily on government as the anchor client for the national space industry. SANSA, as the lead implementer of the space programme, is providing the necessary anchor to the local space industry.
South Africa is also playing a big role in the international space weather monitoring community, as it moves to become a key provider of space weather information to the global aviation sector for the African region. Dr

Phil Mjwara, Director-General in the Department of Science and Technology (DST), this week paid a visit to the Space Weather Regional Warning Centre for Africa. Based in Hermanus in the Western Cape, the SANSA facility is the only such centre on the continent, and has been designated by the International Civil Aviation Organization (ICAO) as one of two regional centres around the world that will monitor space weather for the global aviation sector, providing crucial safety-related services such as solar storm forecasts and warnings.

Space weather events are capable of seriously disrupting modern technologies such as satellites, GPS, power grids, and navigation and communication systems. High-frequency radio communication infrastructure, as well as ground and air-based navigation systems, can be disabled or knocked out entirely by solar

storms, while radiation exposure poses a hazard for airline crew and passengers, especially during long-haul flights.

To mitigate the risks to aircraft and airports, the ICAO has recommended that the aviation sector familiarise itself with the potential impacts of space weather events, and ensure that space weather information forms part of all flight plans in the near future. The organisation has made it a regulation that this information be filtered down to aircraft crew and cabin members.

In addition, the South African second nanosatellite was recently launched into space, that was three times the size of its predecessor, TshepisoSat. It is one of the continent's most advanced cube satellite and a precursor to the MDASat - a constellation of nine nanosatellites developed to provide cutting-edge very high frequency data exchange communication systems to the maritime

industry. "The launch of ZACube-2 represents a significant milestone in the nation's ambition to becoming a key player in the innovative utilization of space science and technology in responding to government priority areas," said Minister Kubayi-Ngubane. The satellite is a technology demonstrator for Maritime Domain Awareness (MDA), and will monitor the movement of ships along the South African coastline with its automatic identification system (AIS) payload. The AIS navigational data will be provided to the South African Government in support of its broader Operation Phakisa initiative to grow our maritime economy.

To this end, SANSA is contributing to the improvement of the quality of the lives of South Africans in a sustained and conserved environment through the use of Space Science and technology for day-to-day societal benefits. This will entail prioritising programmes and projects that would facilitate the service delivery objectives of the country in its various forms, towards a conserved environment and better decision making.

SANSA's mandate

South Africa's advances and ambitions in Space Science and technology warrant co-ordination, and as such the Department of Science and Technology (DST) has established the South African National Space Agency (SANSA) to implement this co-ordination driven by the department's national space strategy, as determined by the Minister.

SANSA's mandate revolves around promoting the peaceful use of space; supporting the creation of an environment conducive to industrial development in space technology; fostering research in Space Science, communications, navigation and space physics; advancing scientific, engineering and technological competencies and capabilities through capital development outreach programmes and infrastructure development; and fostering international co-operation in space-related activities.

SANSA is broadly required to promote the peaceful use of space; foster international co-operation in space-related activities; facilitate the creation of an environment conducive to space technology industrial development. This will be achieved by fostering relevant research, and advancing our scientific and engineering capability through human capital development, outreach programmes and the development of infrastructure.

The South African Government recognises the potential role of Space Science and technology to deliver on a wide spectrum of national priorities including environmental and resource management; urban planning and rural development; economic growth and global competitiveness; food security and health; job creation and poverty alleviation; human capital development; technology development and innovation;

science advancement amongst the youth and public engagement in science; and fostering global partnerships. To this end, SANSA was established to ensure better co-ordination and attainment of the above objectives. In particular, the National Space Strategy outlines four thematic areas under which the South African space programme has to be pursued.

SANSA is the primary point of contact and face of South Africa in the global space arena and a vehicle for strategically positioning the country amongst the community of space faring nations. Space activities, by their nature, rely on international partnerships, therefore global partnerships and international engagements are transversal, threading all activities within the agency, its programmes and functional areas.

The most notable long-term return on investment in the Space Science and technology is the creation of opportunities that instil in our youth the recognition and motivation that they, too, can play a role in future scientific and technological breakthrough. Capturing the hearts and minds of the youth to pursue scientific and technological studies and careers is the single largest sustainable economic multiplier for a country, especially amongst developing nations. Science advancement is another cross-cutting goal of SANSA that has to be driven by all functional units of SANSA and the corporate office.

Cost of access to space

According to SANSA's report, South African currently rely on other countries satellites for its geospatial information requirements. Commercial agreements with international suppliers have to be concluded to obtain access to the satellite and or request high resolution images on demand. Currently the SPOT (French: Satellite Pour l'Observation de la Terre, "Satellite for observation of Earth") series of satellites are utilised for the country coverage and this has been in use since early 2000 for the annual mosaic and other applications for the country's needs.

Licence fees to access the satellite have now significantly increased over the past three years from R16 million per annum in 2012 for the SPOT 5 satellite to R36 million per annum from 2013 for the SPOT 6&7 satellites for a negotiated multi user licence agreement. This is a major cost element in the goods and services budget and a pressure point that cannot be sustained at the current budget levels. The SPOT 6&7 licence agreement has a few months remaining, should funding not be forthcoming, the impact will be catastrophic to continuing with the national geospatial information for South Africa as the renewal of this licence or an acquisition of another sensor will be unaffordable for SANSA.

Sensor Portfolio and Data Products

Meanwhile, the acquisition, archiving and dissemination of satellite datasets is thus a core function of SANSA Earth Observation. Satellite datasets are a critical input in stimulating innovation and the development of value added products and services within the entire earth observation landscape across the African continent. SANSA acquires satellite data from many international satellite vendors for national use. These include Landsat 7 and 8, SPOT 6 and 7, MODIS and CBERS-4. The centralised acquisition under a single-license multi-user arrangement, as is the case with SPOT 6 and 7, eradicates costly and multiple acquisitions of the same datasets by the public sector and ensures the long-term archiving of the valuable data stock. An estimated 40 government entities, on both the national and provincial level, use these data resources. SANSA has also negotiated favourable licensing to allow for discounted access to this data to the South African private sector and the Southern African Development Community region.

To meet the wide user demands, SANSA anticipates widening its sensor portfolio to increase its range of satellite data products to improve the diversity of its offerings at various spatial, spectral and temporal resolutions. The GEO Open Data Sharing Principles have significantly increased the range of open and free datasets that SANSA will archive and distribute at no cost to users in South Africa and the Southern African community. The inclusion of the open access Sentinel data into the SANSA sensor portfolio will be further explored, looking at interim measures, whilst awaiting the agreement between the European Commission and the African Union.

According to SANSA, the recently signed BRICS virtual constellation partnership will further unlock potential additional datasets into the sensor portfolio such Superview, Kanopus-V1, Resourcesat-2, GF-1 and ZY-3/02 in addition to the CBERS-4 data that is already being directly received. SANSA will play a critical role in supporting Operation Phakisa: The Oceans Economy initiative through the direct reception and provision of Synthetic Aperture Radar (SAR) data. The SAR data will be used for ship surveillance, water pollution detection and monitoring of fishing activities. SANSA will avail its sensor portfolio and research capability to support maritime spatial planning and coastal infrastructure mapping.

Accordingly, maintaining the ICT Infrastructure for the data and imagery archive and storage facilities, data processing and management systems, access to communication networks, running the ground station facility and maintaining observation networks across the country and the remote islands for research purposes are becoming significant as these are becoming prone to technology obsolescence and need upgrading and/or replacements at shorter intervals.

ITU launches Innovation Challenges 2020

The International Telecoms Union (ITU, has released details of its Innovation Challenges 2020, an open global competition platform for innovators and ecosystem builders to present their ideas and projects, empowering them to transform their communities into thriving digital societies.

Adopting a Covid-19 theme for 2020, this year's competition seeks entries designed to nurture an inclusive digital world.

The completion supports the ITU's drive for countries to have policies and strategies for ICT-centric innovation and calls on innovators, entrepreneurs, policy-makers, leaders and change makers to bridge the innovation divide

There are three challenges to choose from:

The Digital Change-maker Challenge covers a wide range of topics from cybersecurity and regulation, to digital inclusion and climate change, and calls for participants to provide innovative solutions to real-life problems faced by stakeholders in their communities, especially considering value chain competitiveness and global disruption due to COVID-19.

The Ecosystem Best Practice Challenge looks for ecosystem builders to identify best practices that allow innovators to develop sustainable and resilient solutions to navigate technological change and bridge the digital divide.

The Women in Tech Challenge, in cooperation with the EQUALS Global Partnership, invites tech innovators to help and empower women in various sectors, including agriculture, fashion, and health.

Applicants should submit their ideas and innovations via the Co-Create Portal by 31 July 2020.

The winners will be invited to an ITU event to pitch their proposals, connect with mentors and expert to scale-up their project and become member of a network of past winners.

The International Telecommunication Union (ITU) is a specialise agency of the United Nations. The oldest organisation of the UN systems. Today, the ITU has over 190 members states that are parties to its trenties: The ITU convention and ITU constitution.

Since the beginning of space age, the ITU has aided the exploration and uses of space through international coordination and frequency allocation. The ITU is tasked with ensuring national, equitable, efficient and economical use of the radiofrequency spectrum. Within ITU, this task is managed by ITU Radiocommunication (ITU-R) sector. It also administer orbital position, called sloto in geostationary earth orbits

Spacecom and ST Engineering iDirect partner on HTS low power demonstration on AMOS-17

Spacecom operator of the AMOS satellite fleet, and its long-term partner, ST Engineering iDirect announced the successful demonstration of VSAT return capabilities on AMOS-17.

The demonstration resulted in an exceptionally wide return link for a small VSAT of 40Mbps (15Msym) using the iDirect iQ 200 modem's Adaptive TDMA return over AMOS-17's high power C-band HTS beams. The combination of the 2.4m C-Band terminal and AMOS-17's high-performance beams generated a highly efficient solution.

The large return data rate enabled simultaneous transmission of multiple high data streams from South Africa to Europe with a small antenna, resulting in the low-power Communications-on-the-Pause (COTP) solution. This opens up many operational and business opportunities to customers, such as emergency deployments, government applications, coverage of events and backhaul services.

Conducted from the UK-based SMS Teleport, an AMOS-17 European Gateway partner, the modem and antenna were installed in a communications truck located between Johannesburg and Pretoria, South Africa. The truck was provided by Telemedia, a leading provider of broadcast and teleport services across Africa.

The iQ 200 is a DVB-S2/DVB-S2X modem with Adaptive TDMA returns, combining high-performance features with mobility, making it an ideal solution for real-time, cost-effective, small to medium enterprise applications, such as IP trunking for disaster response and emergency services as well as mobility solutions such as maritime.

"By utilizing the iDirect Evolution platform and iQ 200, we can now offer a unique low footprint, low power and high capacity return links from any remote location, enabling users to enter new markets and facilitate new applications," said Tsachi Dahan, VP of Vertical Solutions at Spacecom. "AMOS-17's C-Band spot beams provide superior throughput and efficiencies over Sub-Saharan Africa with connections to Europe, the Middle East and parts of Asia. We look forward to presenting this unique value proposition to our customers brought about by this combination of satellite and ground segment."

"We are excited to be involved in this important demonstration that brings out the greater potential of combining the right ground segment and high throughput satellite capacity," commented Jerome Clapisson, Regional Vice President of Sales, Europe at ST Engineering iDirect. "This opens up a whole new array of applications for users that span many different applications and markets, and is synonymous with our goal of expanding market access to our customers by setting an industry benchmark in performance and efficiency."

NSR report: Maritime satcom buoyed by broadband demand despite COVID-19 impact

NSR's Maritime SATCOM Markets, 8th Edition report finds mixed impact to Maritime Satcom Markets in the near-term, a challenging middle period, yet optimism for longer-term sector health. On the footsteps of a strong 2019, with 24,000 VSAT-enabled vessels and over $2.8B in retail revenues, 2020 had initial signs of another strong year.

However, widespread economic shutdowns due to COVID-19, unprecedented pause to the Cruise sector, and collapsing oil prices have caused significant near-term disruption. While ships continue to require crew, transport goods, and perform essential services, these bright spots cannot mask the near-term systemic risks.

"The Maritime sector is perhaps the '2nd worst' impacted mobility market due to COVID-19," states Principal Analyst and Report Author Brad Grady. "Unlike the Airline industry, which has largely parked their aircraft awaiting a 'return to normal', everything from Cruise Ships to Merchant Vessels remain "online" with crew or other shipboard-functions - even if their operational duties have slowed or vanished. The immediate effect is that 2020 bandwidth demand will see a 7% increase over 2019 figures, even while In-Service Units and Retail Revenues decrease.

As Service Providers launch or re-launch Crew Welfare-focused applications, Cruise Ships are re-tasked repatriating crew members, and all Maritime end-users look at ways to safely operate in what is likely to become a 'new normal'; the demand for connectivity will continue to increase on a per-vessel basis. What's in question –

How many vessels will be active over the next ten years?

Amongst the five core maritime segments (Merchant, Passenger, Offshore, Fishing, Leisure), Offshore faces the longest road to revenue recovery – not matching 2019 Retail Revenues until 2027 as crude pricing challenges are met with a sharp decrease in petroleum demand.

Fishing markets have one of the highest one-year drop in revenues, yet regulatory demands, falling service prices, and cheaper terminals will also make it one of the fastest growing Maritime markets. The Leisure segment is seeing a significant and sustained boost in requirements as owners enjoy social distancing on their yachts.

Africa's top telcom satellite regulator

Umaru Danbatta, Nigerian Communication Commission chief executive says the commission is addressing radio-frequency spectrum through the introduction of frequency management free from harmful interference vis-a-viz allocation, assignment, notification, coordination, monitoring and registration.

The Nigerian Telecommunications market space is fully liberalized and totally private sector driven. It transited from full public driven sector through partial liberalization and now fully liberalized. Every segment including networks and applications services are open to competition and substantially licensed.

In October 2003, a new Nigerian Communications Act was passed, replacing the Nigerian Communications Commission Act of 1992, thereby giving the commission more independence and power to regulate the industry. According to the content of the Act, Section 3 states that there is established a commission to be known as the Nigerian Communications Commission with responsibility for the regulation of the communications sector in Nigeria.

The Nigerian communications commission is the regulator of telecommunications service provision in the country. The commission is given the mandate of assuring transparency and level playing field in its efforts to regulate the industry. The commission has open policy in its attempt top regulate the industry and, any effort by any groups or individual to interfere with the regulation will not succeed.

As at today, the main ICT sector policies are now determined at the national level by the Ministry of Communication Technology and regulated by the Commission. The Nigerian Communications Act empowers the Commission to regulate satellite capacity provision and administering radio frequency channels for use by telecommunications service providers.

Accordingly, Section 1 d, e and i Nigerian Communications Act, provides that the commission shall encourage local and foreign investments in the Nigerian communications industry and the introduction of innovative services and practices in the industry in accordance with international best practices and trends, and to also ensure fair competition in all sectors of the Nigerian communications industry and also encourage participation of Nigerians in the ownership, control and management of communications companies and organisations.

The Act also to ensure an efficient management including planning, coordination, allocation, assignment, registration, monitoring and use of scarce national resources in the communications sub-sector, including but not limited to frequency spectrum, numbers and electronic addresses, and also promote and safeguard national interests, safety and security in the use of the said scarce national resources.

In the satellite industry industry, "The Communications Satellite segment falls into network services as well as applications services. This segment, in Nigeria, however, is dominated by foreign satellites with only Nigerian Communications Satellite Limited, playing in that space" says Engr Eugene Juwah. The open sky policy, OSP therefore implies the provision of non-discriminatory market access for both domestic and non-domestic satellite and telecommunications service providers.

Worthy of note is that the Network service segment is equally liberalized and open to Nigerians and foreigners alike who intend to launch satellites of Nigerian origin. "The Nigerian Communications Satellite Limited, NigComSat is licensed by the Commission for the provision of Satellite services in Nigeria," says the Nigerian Communications Commission.

A key development in VSAT deployment is that newer satellites themselves have much greater power than before. In turn, this means that smaller VSAT antennas can be used to receive signals from them. Between the satellite operators and end-users stand a large range of satellite service providers, operating in different sectors and markets. At the Nigerian Communications Commission, our outlook is not confine solely to the 'public' Internet, and thereby abandon the many other usually more business orientated IP-based applications.'

In Nigeria, VSAT is complimentary to other platforms. The commission is progressing toward the realization of its full potential in service delivery, as we pursue the goal of cost-effective VSAT-based services for service providers who are ready and willing to bring connectivity for both the rural unconnected and corporate interests' alike as well as cross-border connectivity solutions.

The goal of the Nigerian Communications Act is to re-position the communications Satellite sub sector as it covers every individual and business across the Nigerian landscape. This will expand the footprint of these services and, thus, foster a wholesome environment that is truly citizen centric.

In addition, the commission equally has the duty of creating an enabling environment for efficient management including planning, coordination, allocation, assignment, registration, monitoring and use of scarce national resources in the communications sector, including but not limited to frequency spectrum, numbers and electronic addresses, and also promote and safeguard national interests, safety and security in the use of the said scarce national resources.

As it stands, international coordination of satellite systems is required to be undertaken as per the provisions of the International Radio Regulations of the International Telecommunications Union (ITU). In this regard, coordination of frequency assignments for the individual satellite networks is necessary with satellite networks of other administrations for mutual coexistence and interference free operations of these networks.

Using the power of telecommunication networks and infrastructure, the Nigerian Communications Commission, NCC empower citizens and businesses alike in an attempt to create an equitable and an inclusive growth of the nation. This will help place Nigeria in a leadership position not merely in the telecom sector, but in also in other sectors that rely on it, says the Executive Vice Chairman and Chief Executive Officer of the commission.

The Nigerian Communications Act provision encourages local and foreign investments in the Nigerian communications industry and the introduction of innovative services and practices in the industry in accordance with international best practices and trends.

Accordingly, the commission has strived to ensure fair competition in all sectors of the Nigerian communications industry and also encourage participation of Nigerians in the ownership, control and management of

communications companies and organizations.Part of the duty of the commission is the promotion of fair competition in the communications industry and protection of communications services and facilities providers from misuse of market power or anti-competitive and unfair practices by other service or facilities providers or equipment suppliers.

Industry licensing

According to Nigerian Communications Commission, licensing is one of the most direct ways in which telecom operators contribute toward the economy of their host countries. Today, the major telecom service providers are integrated players providing various ndustry licensing

According to Nigerian Communications Commission, licensing is one of the most direct ways in which telecom operators contribute toward the economy of their host countries. Today, the major telecom service providers are integrated players providing various telecom services. The Nigerian Communications Commission, NCC requires a license for all entities that provide broadband access, with the most prevalent licenses being VSAT, 3G mobile, cable TV and the Multimedia Communication Services (SCM). The latter is the most common public ISP license, allowing service delivery using wireless technologies.

Accordingly, Section 32 of the Nigerian Communications Act empowers the commission to issue communications licences for the operation and provision of communications services or facilities by way of class or individual icences on such terms and conditions as the Commission may from time to time determine taking into consideration the objectives of this Act and the provisions of section 33(3) of this Act.

Also, subject to subsection (3) of this section, the Commission shall from time to time determine and publish to the general public the communications services that qualify for class or individual licences or that are exempted from licensing.

However, in February 2006, "The Nigerian Communications Commission, NCC introduced unified access service licenses with a single concession covering the provision of fixed, mobile and any other telecommunications services for a period of 10 years". It was granted to 13 companies in total, including the major players in the industry. The licenses cost $2.11m each and cover a period of 10 years. The introduction of unified access service licenses was a major change in the market, since it officially ended the exclusivity period of the operators in the provision of mobile telecommunications services.

In line with the provision of the Nigerian Communications Act, a person may apply to the Commission, in writing and in such form as the Commission may prescribe, for an individual licence in respect of any matter requiring an individual licence under this Act. For the purposes of subsection (1) of this section and notwithstanding the provisions of section 33(1) of this Act, the Commission may from time to time specify additional criteria and qualifications that shall be met by persons wishing to apply for individual licences

Spectrum management powers

The International Telecommunication Union (ITU) is the primary organ that oversees orbital and spectrum resource allocation and co-ordination. ITU Radio Regulations govern the use of spectrum on an international basis and enable nations to coordinate satellite networks in order to avoid harmful interference and to allow for maximum efficient utilization of the orbital resources.

Every National administration like the Nigerian Communications Commission, NCC is required to manage and administer frequency spectrum for the communications sector and assisting the National Frequency Management (NFM) Council in developing a national frequency plan.

As technology and market changes, and new frequency bands become available for use, the Nigerian Communications Commission, NCC periodically review the allocation of spectrum in Nigeria, and reallocate frequencies consistent with international standards and the interests of Nigeria's telecommunications industry and consumers.

According to the commission, the NCC have also been responsible for efficient management of electromagnetic spectrum in recognition of public interest in appropriate allocation and use of this scarce resource. This responsibilities include planning for and allocation of frequency ranges, consistent with international conventions and standards; assignment of specific frequency bands to authorized public operators and private users; monitoring of the proper use of radio transmission within the scope of frequency authorizations.

Notwithstanding the provisions of any other written law but subject to the provisions of Communications Act, the Commission have the sole and exclusive power to manage and administer frequency spectrum for the communications sector and in that regard to grant licences for and regulate the use of the said frequency spectrum, says the Nigerian Communications Commission.

Why regulate satellite filing?

According to the Nigerian Commission, NCC, spectrum and associated orbital slots are valuable and limited resources. In the world of communications, spectrum is in very high demand for satellites and other services like mobile and broadband technologies competing for it. Orbital slots from which commercially attractive markets can be served are becoming increasingly congested. There is need to manage efficiency of use in order not to hinder competition, innovation and growth. Consequently, in order to avoid interference, while ensuring adequate separation between satellites, a priori planning procedures which guarantees equitable access to orbit / spectrum resources for future use.

Management of Satellite filings

The Federal Ministry of Communications is the Administration of Nigeria that interfaces with the ITU on Filing and coordination matters. However, the Nigerian Communcations Commission, NCC interfaces between the applying entity and the Federal Ministry of Communications.

So far, the procedures for Management of Satellite filings" has gone through Stakeholders consultation and public enquiry. It outlines procedures to be taken by companies in Nigeria wishing to submit applications to ITU through Nigeria for processing of satellite filings. It also covers details for coordination and registration to achieve international recognition.

The document describes roles and responsibilities of the Nigerian Communications Commission, NCC and the operator applying for the service, for Coordination – Article 9 RR, Notification and recording Article 8, 11 RR and relevant appendixes 30, 30A, 30B. According to the Nigerian Commission, satellite like any other wireless technology does not respect borders. Unlike the other wireless technologies however, Satellite has an international outlook as it transcends many geographies. Coordination therefore is done within the framework administered by the ITU. Two mechanisms for the sharing of orbit and spectrum resources for satellite applications have been adopted and implemented.

However, same filing is applicable for the Geostationary Earth orbit Satellites, GEOs and and non-Geostationary Earth orbit Satellites, Non GEOs. Though, GEOs take precedence and are protected from interference from Non GEOs. No. 8.1 RR, "International rights and obligation of administrations in respect of own and other administrations frequency assignments shall be derived from the recording of those assignment in the Master International Frequency Register (The Register) or their conformity, where appropriate with a plan."The International rights are subject to the provisions of the Radio Regulations and those of any relevant frequency allotment or assignment plan.

The Nigerian Communications Act, NCA confers spectrum management functions for the communications sector on the Commission and this includes the maintenance of records with respect to the use of the electromagnetic spectrum for wireless telegraphy at places within and outside Nigeria.

ICT goes all out to fight COVID-19

Governments has put its best foot forward in using ICT tools to figure out the COVID-19 challenges and has already brought on board popular mobile applications and locally-developed solutions to control the damages caused by the pandemic. "So far, we have customised and launched a bunch of solutions partnering with global communication platforms and now we can predict what will be the scenario after 15 days," said Zunaid Ahmed Palak, state minister for information and communication technology.

The ICT division of the government has already established partnerships with all four popular mobile communication applications -- Messenger, WhatsApp, Imo and Viber -- and is offering different services using the channels.

As part of a series of initiatives, the ICT division yesterday declared its partnership with Viber, which has 1.5 crore active users in Bangladesh, and through online self-assessments, users can now find out if they are running the risks of coronavirus infections. "We earlier launched coronavirus assessment tools on Messenger and some websites but our target is to offer ICT support to all the citizens of the country and that's why we have introduced the same service on Viber with extensive information," Palak said.

About 1.67 lakh people have so far taken services from a government website – livecoronatest.com, said Ashraf Abir, managing director and chief executive officer of MCC Ltd, a local ICT firm that developed the site.

"We have shared all the contacts with the Directorate General of Health Services and doctors are talking with the patients who seem to bear high risks of contagion," Abir said. Palak said there are options to call 333 or 16263 and use other platforms of the government to get coronavirus-related information and services.

Earlier the government sent short messages to mobile phone users and launched an interactive voice response service for the same purpose, he added. Gathering all the information in a data analytics platform, the government is inching towards new estimation through the use of artificial intelligent and big data analytics, Palak added.

"A good number of local data analytics experts with the support of some non-resident Bangladeshi are trying to get an idea what the future holds for us," he said.

The state minister said though there is no data privacy act in the country, users should not worry about privacy protection as there will be no leakage of information. In the next phase, the government needs to go for contact tracing, a method used to slow down the spread of infectious outbreaks, according to Palak.

The ICT division earlier launched bot on the WhatsApp platform to disseminate coronavirus-related information easily and introduced a healthcare call centre on Imo for 22 lakh Bangladeshi expatriates living in Saudi Arabia.

Nigeria broadband penetration hits 39.58%

According to the latest industry statistics released by the Nigerian Communications Commission (NCC), the country's telecoms regulator, total number of active users of internet in the country increased by 3.29 million to hit 132.01 million as at the end of February this year.

Traditionally, the term broadband referred to high-speed communications networks that connected end-users at a data transfer speed greater than 256 Kbit/s. Global organisations have chosen to define it more in terms of an ecosystem. It has however been chosen to define broadband in a manner that reflects the user experience. The broadband vision for Nigeria is one of a society of connected communities with high speed internet and broadband access that facilitate faster socioeconomic advancement of the nation and its people.

The regulator showed that of the total number, the Global Service for Mobile Communication (GSM) operators maintained their unchallenged domination of the market with 131.65 million users on the networks of mobile network operators (MNOs), including MTN, Globacom, Airtel and 9Mobile.

Other operators providing internet services in the country as captured by the NCC data apart from the GSM are Voice Over Internet Protocol (VoIP) and fixed netwok which have on their various networks as at the end of February, 353,780 and 9,866 users respectively. In terms of new internet users recorded in the month by GSM operators, indigenous Globacom led the pack beating MTN Nigeria this time as Glo attracted 1.74 million new Internet users while MTN welcomed 0.96 million customers on its network.

Airtel Nigeria trailed with additional 0.67 million users coming on its network within the 28 days of February while 9Mobile, on the contrary, lost 100,000 customers to sustain its perpetual decline. Consequently, MTN remained in its position as the operator with the highest internet users at 56.49 million, followed by Airtel which serves 36.17 million while Globacom and 9Mobile possess 30.95 million and 7.94 million active internet subscribers respectively.

Although data from Internet Live Stats suggest that as at Saturday May 9, the share of Nigerian population with access to internet hovers around 46.1 per cent, while the country's share of world Internet users stood at 2.5 per cent as total users of internet in the world hit 3.425 billion.

This indicates that with internet penetration in the country standing at 43.1 per cent against 39.58 broadband penetration in the country, high speed internet is fast spreading to users.

According to the Nigerian Communications Commission (NCC), the broadband penetration refers to the amount of the Internet access market that high speed or broadband, which include at least 3G and 4G, Internet has captured.

Russia plans first Arktika-M satellite for monitoring Arctic climate this year

Russia will launch its first Arktika-M satellite for monitoring the Arctic climate and environment at the end of the year, General Director of the Lavochkin aerospace company Vladimir Kolmykov told Sputnik.

"As of now, the number one Arktika-M spacecraft has been developed and is undergoing radio-electronic testing … the launch is planned for the end of 2020," Kolmykov said, adding that the second Arktika-M satellite is still under development and will be launched in 2023.

In February, a space industry source told Sputnik that the launch of the first Arktika-M satellite from the Baikonur space center was planned for December 9, 2020. According to the source, the satellite will be launched using a Soyuz-2.1b carrier rocket with the Fregat booster.

Russia's Arktika-M remote-sensing and emergency communications satellites will gather meteorological data in the polar regions of the Earth, which will allow to improve weather forecasts and will enable scientists to better study climate change.

Meanwhile, Russia has also introduced a digital topographic mapping satellite to replace the film-return Yantar-1KFT/Kometa series, which last flew in 2005. The original version of the satellite (Bars) was conceived in the early 1990s, but it took almost 20 years for a modified version (Bars- M) to be launched. The first one, Kosmos-2503, was launched by a Soyuz-2.1a rocket from Plesetsk on 27 February 2015, and the second one, Kosmos-2515, went into orbit on 24 March 2016. Both circle the Earth in sun-synchronous orbits at an altitude of about 560 km. Built by RKTs Progress, the 4.0-metric-ton satellites use a newly developed unpressurised satellite bus and an imaging complex called Karat built by the LOMO, which can cover a swath of 1,340 km with a maximum resolution of 1.10 m in seven spectral bands, according to press reports and company statements. The satellites have a five-year design lifetime, and at least four more are known to be under construction.

Inmarsat launches solution for the rail industry

A new Inmarsat Rail Telemetry and Communications Solution for the global rail industry provides real-time data transfer and push-to-talk communications to connect drivers and railway staff working in remote areas across the globe, to drive operational efficiencies and improve the overall safety of the railway.

Railways are more critical than ever in supporting the global movement of goods in remote areas. However; there are many challenges facing today's railway operators, including optimising network capacity, carrying out vital maintenance work, improving health and safety and minimising the impact of adverse weather conditions.

These are exacerbated in large regions where sections of the railway pass through black spots areas of minimal or zero cellular network coverage when railway staff are unable to communicate, or send and receive any data from trins to the control centre, leading to inefficiencies and potentially safety concerns.

The new Rail Telemetry and Communications Solution leverages our Broadband Global Area Network, which offers industry-leading reliability of up to 99.9% uptime. Low form factor satellite terminals, such as the new Cobham EXPLORER 323, are mounted on locomotives providing real-time GPS, telemetry and PTT capabilities anywhere in the world.

This means control centres can efficiently and safely monitor and schedule the movement of locomotives, rolling stock and goods across an entire rail network, while enabling communications with crew wherever they are located.

Steven Tompkins, Director of Sector Development at Inmarsat, commented: "Inmarsat's new Rail Telemetry and Communications Solution builds on projects with leading rail operators in Latin America and development work with our hardware and service provider partners. We are confident the solution provides the most reliable data and communications service for train companies, and will lead to a paradigm shift in the safety and efficiency of remote rail operations."The Cobham PRISM PTT+ solution integrates easily into the locomotive's existing radio, so the rail operator doesn't have to get rid of their existing trusted equipment.

PRISM PTT+, a service powered by Cobham SATCOM's innovative PRISM (Private Routing & Intelligent System Management) technology enables the BGAN PTT Solution to switch between connectivity types such as UHF or VHF, 3G/4G and satellite making the solution cost-effective and easy to use. The switching process is unique in the market because it is completely seamless and offers an economical approach to voice communications.

"As well as being relied on to transfer critical data in real-time, Inmarsat's Rail Telemetry and Communications Solution is unique in providing a PTT voice communication feature that can switch between connectivity types seamlessly, without any lag in reconnection," continued Tompkins.

Spacecom, Comtech Corp. demonstrate 1.3 Gigabit C-band link over AMOS-17

Spacecom and Comtech Telecommunications Corp. announced the successful demonstration of a 1.3 Gbps link using Comtech EF Data's CDM-760 Advanced High-Speed Trunking and Broadcast Modems operating over AMOS-17 C-band HTS payload. The exceptionally high throughput of 1.3 Gbps on a single link was established between two Telemedia facilities over AMOS-17's C-band spot beam using a single CDM-760 modem per facility. Telemedia is a leading provider of broadcast and teleport services in South Africa.

In addition, using the DoubleTalk® Carrier-in-Carrier® adaptive cancellation functionality of the CDM-760, the team established a symmetrical 270Mbps/270Mbps link between two Telemedia sites using a total of only 62.8MHz on AMOS-17, achieving spectral efficiencies of 8.6 bits/Hz in such a high capacity C-band link.

Ping tests showed that these links had a round-trip delay of less than 500ms, including the satellite link, modems and external routers, which is extremely low latency for a GEO satellite link.

According to Eran Shapiro, Director of Business and Technology Ventures at Spacecom, "We were thrilled to partner with Comtech EF Data and Telemedia to demonstrate the very high throughput customers can enjoy on AMOS-17 C-band spot beams, without having to compromise on service availability or on solution complexity.

The throughput and efficiencies of AMOS-17's spot beams are unique over Sub Saharan Africa. Comtech EF Data's modems and team proved this, while only using one modem per site. Engaging the African market with key enabling connectivity technologies for commercial and government sectors is a strategic goal for Spacecom. Together with Comtech EF Data, we are able to address important market segments with cost-effective, easy to deploy and maintain solutions."

Mark Toppenberg, President of the Commercial Group at Comtech EF Data stated, "It is exciting to see the AMOS-17 satellite performance that fully utilizes the functionality, horsepower and efficiency of Comtech EF Data's high-performance satellite modems. Customers will really benefit from the high data rates that can be achieved even with small antennas. The combination of HTS throughput, C-band reliability and low latency makes the solution ideal for IP trunking, mobile backhaul, critical applications and remote enterprise offices."

NSR: Flat panel satellite antennas on track for $12 billion over next decade

NSR's Flat Panel Satellite Antennas, 5th Edition report, now released, forecasts cumulative revenue from flat panel satellite antenna sales to reach $12 billion by 2029. Mobile applications, particularly government and commercial aviation, drive the opportunity, at 98% of the market value over the next decade. Fixed applications, mainly consumer and enterprise broadband, drive volume with over 582,000 Flat Panel Satellite Antennas to be shipped in the same timeframe

"Commercial Aviation and Maritime are being hit very hard this year," states Dallas Kasaboski, Senior Analyst and report author. "With over 70% of every airline's fleet currently grounded, the number of commercial aero shipped units dropped by 55% so far in 2020; however, this is an equipment market, with long lead times. Due to the necessity of a low-profile antenna, and the priority of government customers, ultimately the market will see less of an impact in 2021 and beyond." NSR's FPA5 notes that commercial and government aeronautical, along with commercial land-mobile, demonstrate strong presence of FPAs, exceeding 77% of their respective markets by 2029.

However, in most markets, FPAs will not be competitive with opportunity only reaching 3% of all satcom units, with a sizable challenge in broadband markets. "The overall broadband market outlook has been reduced significantly due to the exits of OneWeb and LeoSat. FPAs also have a long road to becoming cheap and reliable enough to work in a mass market.

Manufacturers are pivoting to scale up, and drop costs, but parabolic equipment will be too competitive in serving GEO-HTS, resulting in low overall market penetration," adds Kasaboski. However, Non-GEO HTS capacity, including potential constellations from SES, Telesat, Amazon, SpaceX, and ViaSat, is where FPAs will dominate, especially with connected vehicle and consumer broadband markets

Flat panel equipment has long been the purview of premium markets, installed only where necessary. This trend is expected to continue, but FPAs are becoming a necessity in more markets. Low-profiles, fast-tracking and scanning, as well as terminals capable of delivering multiple capacity types from multiple orbits, are factors growing in importance as many customers and end-users seek to "future-proof" and deliver next-generation solutions. However, reaching a wider market will require almost an order of magnitude increase in scale and decrease in price to enter certain markets and remain competitive.

Mining industry embraces IoT revolution

The latest Inmarsat report has revealed that the global mining sector is undergoing an Internet of Things (IoT) revolution with respondents reporting significant increases in adoption of connected technologies.

Specialist market research company Vanson Bourne was employed by Inmarsat to interview 200 respondents with either decision-making or influencing responsibilities for IoT-related initiatives at organisations numbering over 500 personnel. Mining organisations reported successes in implementing projects to safeguard workers via remote tracking, monitor drilling and observe acid mine drainage remotely. However, despite this progress, a range of challenges are hindering the sector's ability to reap the rewards that IoT has to offer.

'The Rise of IoT in Mining' is the third IoT-focused research project undertaken by Inmarsat and focuses on the use of, attitude to and predictions for IoT across the global mining sector. As part of the initiative Inmarsat is also offering mining companies the opportunity to measure their IoT readiness versus the 200 respondents to the survey, using their free online IoT maturity tool.

According to the research, most organisations (65%) have fully deployed at least one IoT project, while 33% are trialling or have trialled a project, with only 2% of respondents not having begun an IoT project. These findings echo the predictions reported in Inmarsat's 2018 mining research, where only 2% had fully deployed an IoT solution, 29% were trialling one and 69% were planning on beginning IoT projects within the next two years. Noticeably, there is a considerable geographical variance in IoT adoption and maturity across different regions, with 98% of North American respondents having successfully deployed IoT-enabled projects, compared with only 50% in Africa and 38% in South America.

While this increase in full deployments represents progress, the use cases and data management are on the simple side and there are many challenges to overcome if the mining industry is to fully realise the potential of IoT, particularly in regard to using it as driver for organisational change. A lack of skills, investment and cultural challenges, as well as unreliable connectivity, patchy cybersecurity processes and under developed data management processes were also highlighted in the report and will all need to remedied in the coming years.

Commenting on the study, Joe Carr, Global Mining Director at Inmarsat said: "Two years on from our last research Inmarsat wanted to get a measure of what had changed in the mining industry. IoT has begun to take a foothold in the sector with increased rates of adoption across the board. What we discovered was an industry that, historically, has been slow to adopt radical ideas now beginning to embrace the use of IoT, but still working out how to make the most of it."

The mining industry faces significant challenges around skills, security, connectivity, investment and data management and these will need to be addressed for the industry to progress past a point of using IoT in a simple, siloed capacity. Despite the challenges being faced, mining organisations are looking to increase their investment in IoT and are overwhelmingly positive about the value of that the IoT can bring to their operations and the benefits it is either already delivering or will deliver in the future.

UNICEF, Airtel partner to provide remote learning for children in Africa

The United Nations International Children's Emergency Fund (UNICEF) says it has partnered with Airtel Africa to provide access to remote learning for children in 13 sub-Saharan countries. Fayaz King, UNICEF Deputy Executive Director, Field Results, who made the disclosure said they would also provide cash assistance for their families via mobile cash transfers.

King said that UNICEF and Airtel Africa would use mobile technology to benefit an estimated 133 million school-age children currently affected by school closures in 13 countries across sub-Saharan Africa during the COVID-19 pandemic.

"The partnership aims to benefit children and families in Chad, Congo, Democratic Republic of the Congo, Gabon, Kenya, Madagascar, Malawi, Niger, Nigeria, Rwanda, Tanzania, Uganda and Zambia.

"The adverse effects of school closures on children's learning are well documented. Education experts warn that gains made in increasing access to learning in the previous decade are at risk of being lost or even reversed completely.

"In most poor households around the world, the pandemic means a reduced or total loss of income due to the movement restrictions in place.

"Remote learning, supported by digital tools, is a core part of UNICEF's response to ensure continuity of learning for those children with access to technology at home," he said in a statement King noted that Airtel Africa would zero-rate selected websites hosting educational content, which would provide children with remote access to digital content at no cost. According to him, COVID-19 is affecting access to information and education at an unprecedented scale and worldwide, most children are not in school.

He said that children not going to school could lead to a number of increased vulnerabilities and setbacks. "UNICEF is partnering with Airtel Africa to deliver better outcomes for children and families affected by widespread closures.

"The partnership will also provide UNICEF with a means to facilitate vital cash assistance to alleviate financial barriers for some of the most vulnerable families across the region.

"This includes many affected by the growing socio-economic hardships resulting from the suspension of income-earning activities.

"This will help ensure families have additional resources to cope with the ongoing health and economic crisis due to the COVID-19 pandemic," King said.

Similarly, Raghunath Mandava, Airtel Africa, Chief Executive Officer, said that some effective ways to cushion families from the effects of the crisis were by providing free internet access to selected educational websites.

UK's Space race heats up as its ready for launching rockets into space

The UK's Space race heats up as Skyrora effectively made the UK ready for launching rockets into space after a team successfully built a mobile launch complex and completed a full static fire test with the Skylark-L rocket on it – in only five days. Skyrora's combined achievement also signifies the first vertical static fire test of this magnitude in the UK since the Black Arrow Programme, 50 years ago. The Skylark L rocket could be ready to launch from a British spaceport as early as spring 2021 and the inaugural launch of the low Earth orbital (LEO) Skyrora XL rocket by 2023

The ground test at the mobile launch complex at Kildemorie Estate in North Scotland earlier this month, saw Skyrora's launch vehicle, Skylark-L perform all actions of a launch while restrained to the ground and prevented from taking off.

Skylark-L is a bi-liquid propellent launch vehicle. It is Skyrora's first sub-orbital flight vehicle, ready to reach a height of approximately 100km, just on the Karman line, and carry a payload of up to 60kg.

Skylark-L uses a propellent combination of Hydrogen Peroxide and Kerosene which are pressure fed into a Skyrora 30kN engine. Building up to the static fire test, the rocket engine itself has gone through three hot fire tests before integration into the vehicle. When commercial, the company plans to use their own Ecosene, an equivalent Kerosene fuel made from un-recyclable plastic waste. In Skyrora's rocket suite, its aim is to start with launching sub-orbital rockets and move to orbital by 2023.

The full static firing test, fully checked out the design and in-house manufacture, making sure the vehicle itself is ready for launch. It was also successful in the feed system validation tests leading up to the full static fire test. During the test, Skylark-L was supported by Skyrora's transporter-erector that was fixed to a trailer.

In order to complete this test, the Skyrora team accomplished the build of a mobile launch complex in record time right in the heart of the Scottish Highlands. The mobile complex was made up of several modules including, a command centre, oxidiser and fuel handing containers and a compressed gas container. During the test, the Bells and Two Tones Fire and Rescue team were onsite ready to perform any necessary procedures if anything was to go wrong

Avanti Communications provides COVID-19 response to Niger government

Avanti Communications (Avanti), the leading provider of satellite technology across EMEA supports the Niger Government's response to Covid-19. As the world seeks to stay connected from behind closed doors, satellite connectivity is playing an important role in guaranteeing secure and reliable communication for government bodies, first aid responders and health organisations.

Using HYLAS 4 capacity, Avanti provides resilient and secure satellite connectivity and equipment to 10 government sites across the country, keeping lines of communication open for key government bodies in Niger. Avanti are collaborating with the National Agency of Information Society (ANSI), the technical arm of the government of Niger responsible for coordinating ICT solutions in the Covid-19 response in Niger.

Headquartered in UK and providing services across Europe and Africa, Avanti is the first mover in high throughput Ka-band satellite data communications in Africa. The Group has invested $1.2bn in a network that incorporates Ka-Band satellites, ground stations, datacentres and a fibre ring. Avanti has three Ka-Band satellites in orbit and a further two fully funded Ka-band satellites. Avanti covers an end market of over 1.7bn people.

The first site was set up on 15 April 2020 and the remaining 9 will be installed over the next few weeks. Avanti CEO, Kyle Whitehill, says 'At Avanti, we are deeply concerned about the spread of the pandemic and we want to help in any way we can. The telecommunications industry has an important role to play in this global crisis and we are privileged to be able to use our satellite technology to support the Niger Government in its initiative to fight Covid-19.'

ANSI CEO, Ibrahima Guimba-Saïdou, commented 'In Niger we are levering all aspects of ICT in our fight against COVID-19. As such assuring good availability and good connectivity at our strategic locations is mandatory. The Avanti VSATs are reinforcing our technical capabilities.'

Avanti is the first mover in high throughput satellite data communications in EMEA. It has rights to orbital slots and Ka-band spectrum that cover an end market of over 1.5bn people. The Group has invested $1.2bn in a network that incorporates satellites, ground stations, datacenters and a fibre ring. Avanti has a unique Cloud based flexible customer interface that is protected by patented technology.

Avanti's first satellite, called HYLAS 1, launched in November 2010 and was the first superfast Ka-band satellite launched in Europe. Avanti's second satellite, called HYLAS 2, was launched in August 2012 and extends Avanti's coverage to Africa, the Caucasus and the Middle East. Avanti also owns a multiband satellite called ARTEMIS, with a fourth and a fifth satellite under construction called HYLAS 3 and HYLAS 4.

Eutelsat's HOTBIRD to launch first HD African travel channel

Eutelsat Communications' HOTBIRD video hotspot has been selected by Travel Africa Network for the broadcast of its first High Definition African travel channel, with 100% African content dedicated to promoting tourism and hospitality in Africa.

The multi-year contract will enable Travel Africa Network to broadcast high-quality content throughout Europe and MENA, covering African gastronomy, culture, the best places to travel and stay and destination documentaries.

With its unique pan-European coverage, the high-power HOTBIRD satellites at 13° East form one of the largest broadcasting systems in EMEA, delivering content to more than 135 million TV homes in Europe, North Africa and the Middle East.

Commenting on the deal, Nicolas Baravalle, Regional Vice President, Sub Saharan Africa of Eutelsat of Eutelsat said: "We are proud to welcome Travel Africa Network to the HOTBIRD line-up. Their confidence reflects the unparalleled reach of our 13° East of both installed households and luxury hotels, and we hope it will lead the way for more African channels targeting Europe and MENA."\

Maggie Mutangiri, CEO of Travel Africa Network said: "We are delighted to launch the first dedicated African travel channel on HOTBIRD, enabling us to broadcast high quality content to the widest-possible audience to promote African travel experiences and attract more visitors to our beautiful continent. We look forward to a long and fruitful relationship with Eutelsat as we look to expand our offer in the future."

Founded in 1977, Eutelsat Communications is one of the world's leading satellite operators. With a global fleet of satellites and associated ground infrastructure, Eutelsat enables clients across Video, Data, Government, Fixed and Mobile Broadband markets to communicate effectively to their customers, irrespective of their location.

Over 6,800 television channels operated by leading media groups are broadcast by Eutelsat to one billion viewers equipped for DTH reception or connected to terrestrial networks. Headquartered in Paris, with offices and teleports around the globe, Eutelsat assembles 1,000 men and women from 44 countries who are dedicated to delivering the highest quality of service.

Satcom Global enhances Aura VSAT coverage via SES-14 and SES-15 HTS

Satcom Global's flagship Aura VSAT service now boasts enhanced coverage through new High Throughput Satellites (HTS) and beam enhancements, offering superior connectivity to maritime users in popular trading routes, fishing waters and leisure hotspots in the Americas and Asia.

Satcom Global has strengthened the Aura VSAT network with the addition of two new High Throughput Satellites, SES-14 HTS and SES-15 HTS, delivering a boost in coverage and service quality for Aura users operating around Latin America, the Caribbean, Mexico, Central America, North America and the North Atlantic, including Hawaii.

In addition to the latest HTS joining the Aura network, new spot beams have been illuminated on SES's newest satellite, SES-12 HTS, to increase capacity for vessels sailing in popular shipping routes around the South China Sea, the Gulf of Thailand and waters around Papua New Guinea. Endorsed by some of the biggest names in shipping, the growing Aura network continues to evolve, supporting the developing needs of a wide variety of maritime customers. \

Planning for the addition of HTS from its inception, Satcom Global completed a successful upgrade of Aura to iDirect's Velocity platform last year, enabling the seamless integration of these recent HTS coverage enhancements into the network, bringing higher capacity per vessel and improved satellite network management. The platform also supports Satcom Global's commitment to flexibility and adaptability, enabling the satellite communications provider to deploy managed HTS and multi-spot beam architectures, consisting of increasingly more beams, frequencies and throughput. The scalable, cutting edge platform provides enhanced network support and control functionality, capable of supporting the growing connectivity needs of customers long into the future.

The all-electric satellites SES-14 HTS and SES-15 HTS were launched from the Guiana Space Center in Kourou, French Guiana. SES-14 HTS was manufactured by Airbus Defence and Space and is now positioned at 47.5 degrees West. SES-15 HTS, manufactured by Boeing Satellite Systems, comprises Ku-band wide beams and Ku-band High Throughput Satellite (HTS) capability, and took six months to reach its orbital position at 129 degrees West orbital and complete testing. SES-12 HTS, launched from Cape Canaveral in Florida by Space X, was added to the Aura network in March 2019, located at 95 degrees East, and now offers new spot beams which became available to Aura users in early 2020.

Saudi Space Commission gets UN listing

The United Nations Office for Outer Space Affairs has posted the logo of the Saudi Space Commission on the official website of the Office, according to Saudi Press Agency. Based in Vienna, the United Nations body seeks to promote the peaceful use and exploration of space through international cooperation.'

The inclusion of the Saudi Space Commission in the UNOOSA's list marks an important milestone for the Kingdom's nascent space exploration agency. Commenting on the development, Dr. Abdulaziz Al-Sheikh, Chief Executive Officer of the Saudi Space Commission said the UNOOSA's move represents an important step to enable the Saudi Space Commission to work at the international level to protect the interests of Saudi Arabia, enhance the Kingdom's presence in the international organization and expand its space industry globally.

He said the establishment of the SSC reflected the importance of the space sector for the Kingdom. Saudi Arabia seeks to benefit from space sector by uniting local efforts in the field and enhancing international cooperation in a way that gives the Kingdom's economic, scientific and strategic benefits.

Dr. Al-Sheikh also said that the Commission has completed the preparation of the national space strategy and the Space Regulation draft as well as a study to establish the Saudi Space Company and they have been submitted for review and approval. On this occasion, Al-Sheikh congratulated Prince Sultan Bin Salman, the chairman of the Saudi Space Commission. Dr. Al-Sheikh also thanked the King Abdulaziz City for Science and Technology, which represented the Kingdom during the past years. He said that the Saudi Space Commission continues to work with the KACST and other relevant bodies, while taking advantage of Saudi research and development centers that have contributed to the growth of the sector and its related services and technologies.

The practical value of space technology was illuminated to Mazlan Othman, the director of the United Nations Office for Outer Space Affairs (UNOOSA) in 1997 when forest fires burnt more than 400,000 hectares in Malaysia and Indonesia, engulfing the entire region for weeks with thick, choking clouds of smoke. Although satellite imagery was available from developed nations, it was expensive and inadequate to assist her native Malaysia in fighting the forest fires. Othman explains that "we needed satellite photos of hot spots, but the accuracy initially available was only a resolution of 1 kilometer. That was insufficient and satellites with better resolution only came over Malaysia once every 20 days." Othman makes the key observation that "we realized that we could not rely on others for our specific needs." Since then, Malaysia has championed the development of a regional system of disaster monitoring satellites, a cause the UNOOSA supports.

Maritime connectivity market faces COVID-19 setback

In its latest research titled, "Prospects for Maritime Satellite Communications," Euroconsult projects that the previously growing maritime connectivity market will experience a significant setback due to the Covid-19 pandemic. Maritime VSAT connectivity reached an all-time high of 28,200 connected vessels at the end of 2019 but because of the current health crisis, the previous projection of 49,300 terminals by 2023 has been reduced to 40,600 units.

In 2019, the Maritime satellite VSAT communications market experienced high growth with the total number of terminals increasing by 17.5 percent year over year, and VSAT services revenue growing by 11 percent to approach $1.3 billion. Increasing demand from passengers, as well as regulatory pressure on communications and crew welfare were major factors pushing maritime operators to install new generation satellite systems on their vessels.

"Despite the current setback, the fundamentals of maritime connectivity should continue to apply, with strong demand from the shipping industry as well as for leisure and business connectivity and operational applications," said Pacôme Révillon, CEO of Euroconsult. "In light of technology advances and the appetite for applications and bandwidth we expect the industry to return to growth in two years' time."

The research provides detailed analysis of five market segments including merchant shipping, the cruise industry, offshore energy production, fishing, and private yachting, all of which are expected to reflect some slowing in the current environment. Merchant shipping is the largest market segment for VSAT with 17,700 connected vessels and revenues of $565 million in 2019.

"Because of the current limits on international trade and the economic downturn resulting from the pandemic, new ship deliveries and the subsequent VSAT installations they entail are forecast to slow," said Xavier Lansel, Senior Consultant at Euroconsult and Editor of the "Prospects for Maritime Satellite Communications" research. "Despite the presence of fixed contracts, docked vessels will likely result in a lower average revenue per user for connectivity services."

The cruise industry was also a major demand driver for maritime satellite connectivity. In some cases, service provider revenues reached $110,000 per month for the largest cruise ships. This is expected to be the market segment most impacted by the current health environment, with most ships temporarily docked.

Euroconsult forecasts that the cruise industry slowdown will continue for several years prompting cost-reductions and delaying demand for new vessels. Even as fast internet connectivity has become a requirement for cruise ship passengers there will be a sharp decrease in VSAT services revenue in 2020, and projections are that it will take until 2025 for revenues to reach 2019 levels again.

World Bank supports Gambian telecoms reform plans

According to reports, the World Bank has allocated $30 million to Gambia for use in telecommunications and energy. The funding, in the form of grants aimed at improving financial sustainability and the delivery of services, will support the implementation of reforms in the telecommunications and energy sectors, say press agencies. New procurement procedures will also be adopted to minimise what is called 'over-the-counter procurement'.

Initiatives financed by the new funds will aim to ensure that public investments in projects fall within the framework of priorities defined by the country's National Development Plan – including economic stabilisation, growth stimulation and structural transformation.

Under the plan, the country's government says it intends to undertake major reforms in a bid to enhance macroeconomic management for sustainable and inclusive economic growth and poverty reduction. This, the plan states, will be achieved through prudent fiscal management, debt sustainability measures, broadening the tax base and improving tax efficiency, as well as implementing public finance management reforms.

It is partly in this context that the Gambian government committed last year to reforming state-backed fixed line operator Gamtel and its mobile subsidiary Gamcel, which trails well behind the country's private sector mobile operators in terms of size. It was decided early in 2019 that the two firms should be restructured and that shares in Gamcel be divested, though this process does not appear to have been completed yet.

In May last year Gamcel was reported to be calling for a government financial bailout to avoid the risk of its operations closing down altogether.

Photo: SANSA

SPECIAL REPORT

The future of digital learning in Africa

Millions of homebound students are communicating with their teachers and classmates. Telemedicine is bringing isolated patients face-to-face with doctors and caregivers like never before, says John Finney, CEO, Isotropic Systems. In fact, there's been more digital healthcare delivered in the past six weeks than the past 20 years, according to the ITU. Isolation, however, hasn't been completely stamped out for those who don't have access to high-speed broadband. Eliminating that gap will receive a heightened priority in the weeks and months ahead.

According to UNESCO's Institute for Statistics (UIS), the international community must recruit 24.4 million primary school teachers and 44.4 million secondary school teachers to achieve the ambition of universal education outlined in the United Nation's Sustainable Development Goals by 2030. An estimated 263 million children in the world, including 25 million who are unexpected to ever receive any formal education, are currently not partaking in education.

The report noted that Sub-Saharan Africa and South Asia are currently the most affected by the teacher shortage. More than 70 percent of countries in Sub-Saharan Africa face teacher shortages in primary schools, while 90 percent face shortages in secondary schools.

Though, e-learning does not herald the demise of bricks and mortar institutions. Rather, there might be an expanded role for providers to use e-learning to enrich traditional classroom-based learning, at all levels of education, as well as to meet the needs of students who cannot travel to a local campus.

The role of satellite will become significantly more important and in demand as a result of what we've learned through this initial phase of the pandemic, he said. With its reach, immediacy, nimbleness, and flexibility, satellite will enable us to be far better prepared for whatever comes our way in the post-COVID-19 world – whether

we're a school, a hospital, a government, or business. Together, the world is literally seeing the promising opportunities, amazing capabilities and even some persistent shortfalls of a connected world play out before our eyes, every day throughout this challenging pandemic.

Crisis drives change and whilst COVID-19 underlines the growing and expanding need for new levels of connectivity. Nevermore that now, every single country in the world relies upon data connectivity to enable sharing of information and there's no mistaking the ability of satellite to fill the communications gaps with global coverage. That's something that satellite will always do better than terrestrial. Satellite simply and effectively brings the capacity where it is needed in a very short timeframe.

Meanwhile, the United Nations International Children's Emergency Fund (UNICEF) says it has partnered with Airtel Africa to provide access to remote learning for children in 13 sub-Saharan countries. "Remote learning, supported by digital tools, is a core part of UNICEF's response to ensure continuity of learning for those children with access to technology at home," he said in a statement.

Fayaz King, UNICEF Deputy Executive Director, Field Results said that UNICEF and Airtel Africa would use mobile technology to benefit an estimated 133 million school-age children currently affected by school closures in 13 countries across sub-Saharan Africa during the COVID-19 pandemic. "The partnership aims to benefit children and families in Chad, Congo, Democratic Republic of the Congo, Gabon, Kenya, Madagascar, Malawi, Niger, Nigeria, Rwanda, Tanzania, Uganda and Zambia. He said that children not going to school could lead to a number of increased vulnerabilities and setbacks. "UNICEF is partnering with Airtel Africa to deliver better outcomes for children and families affected by widespread closures. "This will help ensure families have additional resources to cope with the ongoing health and economic crisis due to the COVID-19 pandemic," King said.

Virtual learning environment

Africa now has more children in primary school than ever before, more girls going to school and more women are now literate. E-learning is an extended form of classroom teaching where learning, either online or offline is facilitated by the use of computer, telecommunication devices, networks, and storage capacity. On top of its easy delivery of information and interactive nature, the main benefit behind using the ELearning instead of the traditional way is that

Learners develop communication as well as personal skills such as autonomy, analytical perception, abstraction and others.

Some of ICTs that have been used in the delivery of curriculum include: Electric Board, Audio Cassette, radio for Interactive radio Instructions, Video/TV-Learning, Computer, Integrated ICT infrastructure and Support Application Systems. Despite the new policy direction, there is still limited digital equipment at virtually all levels of education. While the average access rate is one computer to 15 students in most of the developed countries, the access rate in Kenya, for instance is approximately one computer to 150 students, based a recent report..

There are known schools that have adopted high level digital education in Nigeria. Greensprings School, located in Lagos state, is one of the first schools in Nigeria to provide students with such learning edge technology and it has undoubtedly made teaching and learning more enjoyable and productive. In October 2012, the school officially launched their virtual learning environment (VLE) program tagged Greensprings Virtual Learning Environment Program. Teachers at both primary and secondary schools went through extensive training in the use of interactive whiteboards, android tablets and laptop computers.

Later in 2013, the school adopted the use of multimedia technology called EUREKA to complement their lectures notes. The school adopted this medium because it is easier for students to assimilate through multimedia. The application had over 4,000 topics covering nursery, primary, secondary, IGCSE and A-levels sections.
A report from The European EUN Consortium Study from 27 countries suggests that there are two possible reasons for the slow move away from traditional classroom teaching methods. One is that teachers are still learning how to use Virtual Learning Environments in innovative ways, and two, Virtual Learning in their current form hardly support the desired change.

According to the report, the vision of the Government of Kenya is to facilitate ICT as a universal tool for education and training. And in order to achieve this vision every educational institution, teacher, learner and the respective community would be equipped with appropriate ICT infrastructure, competencies and policies for usage and progress.
In the United States three in five children under the age of 18 and more than 78% of children between the ages of 12 and 17 go online. For the most part, students' educational use of the Internet occurs outside of the school day, outside of the school building, outside the direction of

their teachers. They use the Internet as a: "virtual textbook and reference library, virtual tutor and [most importantly] study shortcut, virtual study group. Students think of the Internet as an important way to collaborate on project work with classmates, study for tests and quizzes, and trade class notes and observations. virtual guidance counselor… virtual locker, backpack, and notebook. Students think of the Internet as a place to store their important school-related materials and as a way to transport their books and papers from place to place. Online tools allow them to keep track of their class schedule, syllabi, assignments, notes, and papers."

Internet in Africa

Africa's population of approximately 933 million inhabitants represents 14% of the total world population. The estimated number of Internet users1 in Africa is rising representing less than 15 per cent of the Internet users in the world. According to Internet World Stats, Internet use is growing fast in Africa: more than 600% for the whole of Africa compared with the total world Internet usage growth, which was just over 200% in the same period. Based on a recent study, the number of Internet users in a country can be considered a "digital indicator" of the adoption of ICT in society, and the integration into the global networked economy.

The American technology institute MIT (Massachusetts Institute of Technology) has made available complete BSc. and MSc. level curricula that can be accessed and downloaded through the Internet. According to the institute, "While recognizing that people in the developing world who may benefit most from the open sharing of knowledge are hindered by a lack of Internet access and connectivity, we must not let this problem obscure our vision of the future, but rather, take it as a challenge."

Interestingly, the report revealed that e-learning helps teachers and students to share accountability for learning and achievements. Accordingly, the hardware components of a digital classroom in the school consists of teacher's personal computer, student's personal computer electronic white board, radio for communication between the teacher's PC and student's PC, headphones and microphones. In addition, the application softwares include Classroom Management by mythware, Eureka and needed Microsoft Office applications. With these applications, teachers manage the class; broadcast his/her screen to one or more students; monitor the desktops of students, the teachers can as well, remotely, start up and shut down all students' PC; have a group teaching and group chat with the students; simultaneously distribute a file or directory to multiple students; etc. The students can also submit their works to the specified directory on the teacher's PC; and demonstrate the operations of his/her desktop to the teacher and other students.

Angkie Yudistia
Leading Entrepreneur in IT Business

Angkie Yudistia, born in Medan, was able to pursue her dreams without stopping even in the midst of being 'special' since childhood. Ms. Yudistia lost her hearing in her childhood, a disability often seen in children as hearing impairment. Growing up, Ms. Yudistia has turn arunggu disease, into becoming a business owner and partner with one of the biggest technology company in Indonesia

Angkie Yudistia

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While working for her bachelor's degree in Mass Communication and for her Master's degree in Marketing Communications in the London School of Public Relations, Jakarta, Ms. Yudistia was able to achieve numerous honoraries for her confidence and enthusiasm to try new possibilities, such as being a finalist in the Abang None Jakarta Barat 2008, and received the title 'Miss Congeniality' from Natur-e in the same year. She had won the Most Fearless Female of 2008 from Cosmopolitan magazine, and when interviewed about it, she answered that her confidence in dealing with her flaws had made her the winner of the competition.

Participating in contests was not enough. Ms. Yudistia built a business solely intended for the disabled called Thisable Enterprise at the age of only 25, and became the founder and CEO of her company. In 2011, Ms. Yudistia published a book called 'Invaluable Experience to Pursue Dream'. Through her book, she explained that she wanted to motivate the disabled to rise and fight their disability and flaws, and let no one tell them otherwise not to. She was inspired by the late Ibu Kartini in publishing her work.

Thisable Enterprise is a social enterprise with a vision to empower and to enlighten the disabled in Indonesia. Built in 2011, Thisable Enterprise has several integrated services, from Corporate Social Responsibility, Learning Center, Micro Enterprise, Employment Service, and Marketing Communication Activation.

Corporate Responsibilty is one form of social activity that is done regularly to build awareness of the disability. Learning Center has created educational programs for PWD's to advance their knowledge and skill to take part in the working world.

They will receive on integrated education program with the help of professionals while being assisted by aid workers from the non-PWD's volunteers to ensure effective learning environment. At the end of the program, graduates will be equipped with a certificate that can be utilized for future careers. Thisable has Micro Enterprise which has products that support daily needs and are also created by Indonesia's disability. Thisable offers a per-agency and dropshipping system, which is the sale of products that allow selling of goods with only capital information or photos of the goods. Its

products include: Thisable beauty care, Thisable decoration, Thisable accesories, Thisable dolly, Thisable shoes and also Thisable hijab.

Thisable has two legal main institutions, namely Thisable Foundation and PT Berkarya Menembus Batas in accordance with their functions respectively. Foundation is used for enhancing education for disability, and PT Berkarya Menembus Batas is used for supplying human resources, including Recruitment, Assessment and Competency Test, Training and Product Knowledge, Placement and Onboarding, and Refresh Training.

After she started her business in 2011, for the first two years, Thisable activities built more awareness because of the rarity of benchmark for

social enterprise on disability, 3-4 years of education to reduce the high gap between disability graduates (and extra school) with manufacturing industry. In the 5th and 6th year of entrepreneurship program, Thisable tried to expand by supplying disability human resources to several industry sectors based on the constitution No. 8 of 2016, about the obligation to accept disability workers in minimum 1% for private company and 2% for the economy. The strategy of Thisable enterprise is for the first 3 years shared with investors, 4th-6th year for itself, and in 7th year it opened opportunities for some investors in order to grow to the economy's level.

Ms.Yudistia obtained and utilized human resources. She had some of requirements at minimum for undergraduate programs, because she built the system that had benchmarks initially, and now because social enterprise is getting more dynamic, it requires logical and mental understanding of the system and the disability community. She therefore opened recruitment through social media.

Thisable also makes ICT/ Smart Technology as a foundation of its business. Thisable has www.thisable.or.id for recruitment, and social media platform as well. Technology is not only to build a good communication and share information, but thisable also became a business partner with one of the biggest technology company in Indonesia, Go-Life (go-massage, go-clean, go-auto, go-glam) to increase more customers, so that disability can develop their economy. Thisable Enterprise grew as a Social Entrepreneur, which takes responsibility for the community

Corporate Social Responsibility

Thisable Enterprise takes a social responsibility for the disabled's employment because unemployment rate is increasing annually. Ms. Yudistia takes the initiative to make many programs involving citizens of Bandung. Thisable Enterprise provide training for free in order to decrease the unemployment rate and create jobs. It is also strongly supported by the Government of the Jakarta, some of other cities in Indonesia, and the Government as they have the same goal, namely to create 100,000 jobs in the period 2013-2018. Thisable Enterprise thus acts as an organization that help realize the Mission of Government. To run programs that have been prepared

by Thisable Enterprise, funds come from the owner and contributors.

Impact of social media

As technology advances, with the advent of tablet computers and smart phones, social media business can now be conducted from practically anywhere and at any time, including from home. This results in flexibility that allows women to take care of the family and children while simultaneously managing their business. Furthermore, these technologies also reduce the costs involved in opening a business, as social media businesses do not require the capital that is usually required in traditional businesses – to establish a physical store, for instance. Instead, they can keep their supplies at home, take pictures of the products, and promote them through their social media accounts, which can be accessed using their tablets or smart phones.

These technologies are also easy-to-use. As mentioned, social media provides simple ways to upload photos, write updates and to contact people. Ms Yudistia said, "Today, social media is getting more and more sophisticated and easy to use. In Indonesia alone, social media users are very high. Companies, from large companies to small businesses, have their corporate accounts. They use social media to find customers, establish relationships with customers or merely promote. Therefore, I try to maximize social media to conduct every activity in business. In this alone, we are cooperating with Go-jek Indonesia, one of the largest online transportation companies in Indonesia. They have millions of employees for both cars and motorcycles, up to food delivery business, massage services, workshop services, makeup artist services and others. I see this as an opportunity for the disability to express their expertise. Therefore, through a gimmick app, then each customer can directly choose the person who will serve them well by looking at the profile through the apps."

Following its introduction, social media such as MySpace, Facebook, and Twitter have attracted millions of female users, many of whom have integrated these sites into their daily lives. With social media, personal and direct interactions increase because the account owner can communicate directly with those on her friend list. These social media platforms also contain useful and easy-to-use features, such as photo uploading, video uploading, instant messaging and photo tagging. In Indonesia, among the

549,740 users registered on Facebook as the owners of small and medium enterprises, 176,300 of them are women. Social media applications are easy to use since business owners can tag pictures and provide information to potential customers in a single click. The growing interest of women in developing online businesses may also be supported by the more social nature of some women and the tendency of many of today's customers to prefer online shopping for its convenience.

Facebook and Instagram have more followers and it's easy to share. Thisable also uses Whatsapp application to grab more disabled people to join the group. To build more awareness is faster with social media, because now it is easy for both stakeholders to look for information whatsoever they want to know. It seems trivial indeed, but the impact is very tasteful.

Even for branding itself, with more trust in the internet, anyone can check what credibility companies are doing by searching on the internet. Today, all disabilities already have a smartphone, but unfortunately sometimes they do not all understand how to use it positively. Thus, blind people have a feature of "talkback" apps to support communication and information from their smartphones and can even use voicenotes if they stand for typing, and deaf people have been facilitated by the number of visuals. People who have no hands, instead of typing, can now use voice command from their mobile phone. Ms.Yudistia said,

"I advise people with disabilities or special needs to maximize the use of technology in every aspect of their lives. Technology not only helps them to communicate, but also opens opportunities for them to gain better opportunities, for example, getting information, job information or even doing work activities on the technology itself. Especially with the unemployment rates quite high in Indonesia, making the chance of the disabled will be smaller to work in ordinary companies. That way they can take advantage of the technology".

Yudistia said; "Of course social media allows us to reach even greater. We can interact directly, respond directly, without having to spend too much money as did the company of antiquity. Especially with my busy life as a housewife who must take care of family, children and home, social media is very easy for me to move more flexible and can reach the maximum target again".

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China's new large rocket Long March-5B makes maiden flight

China's new large carrier rocket Long March-5B made its maiden flight, sending the trial version of China's new-generation manned spaceship and a cargo return capsule for test into space. The white large rocket blasted off from the Wenchang Space Launch Center on the coast of southern China's island province of Hainan, according to the China Manned Space Agency (CMSA). About 488 seconds later, the experimental manned spacecraft with no crew, together with the test version of the cargo return capsule, separated with the rocket and entered the planned orbit.

The successful flight inaugurates the "third step" of China's manned space program, which is to construct a space station, said CMSA. Specially developed for China's manned space program, Long March-5B will be mainly used to launch the modules of the space station.

Successful deployment of first Guatemala satellite

On April 29th, 2020, the CubeSat developed by a team from the Universidad del Valle de Guatemala was successfully deployed from the Japanese Experiment Module "Kibo" of the International Space Station. This CubeSat, named "Quetzal-1" was selected as the winner of the Second Round of KiboCUBE programme. The live streaming of the deployment was broadcasted online, and many people in Guatemala watched the successful deployment of their first national satellite through live streaming.

Quetzal-1 was developed as Guatemala's first satellite, and the Universidad del Valle de Guatemala will operate the CubeSat after its deployment from "Kibo." The knowledges earned from the observation data of Quetzal-1 will be applied in Guatemala's future remote sensing technology.
KiboCUBE is a cooperative programme between UNOOSA and JAXA to offer opportunity to deploy CubeSats from "Kibo." This programme aims to improve space technology of the developing and emerging space nations of the United Nations member states.

Mr. Hiroshi Sasaki, Director General,

JAXA Human Spaceflight Technology Directorate
We are relieved that the CubeSat (Quetzal-1) of the University del Valle de Guatemala, which was selected as the 2nd KiboCUBE program, was steadily released, and we would like to extend our respect to UNOOSA and the University del Valle de Guatemala for their efforts. We hope that the experience and knowledge obtained through the development and technical demonstration of Quetzal-1 will lead to the further development of remote sensing technology in the Republic of Guatemala in the future. We are also proud to contribute to the development of space technology in Guatemala through the utilization of the Japanese Experiment Module "Kibo". Lastly, congratulations on the successful deployment of the first satellite of the Republic of Guatemala from "Kibo"!
Ms. Simonetta DiPippo, Director, United Nations Office for Outer Space Affairs (UNOOSA)

Together with JAXA, our partners in the KiboCUBE project that made this deployment possible, we are delighted to welcome Guatemala to the growing community of space-faring nations! We stand ready to continue to support the utilization of this CubeSat and the overall development of the space sector in Guatemala. Today you made us immensely proud of having being part of this historic achievement.

Blockstream Satellite 2.0 now live

We are pleased to announce Blockstream Satellite 2.0 is now live, bringing a standards-based transmission protocol, more bandwidth, additional coverage areas, and the ability to sync a Bitcoin full node all the way from the genesis block up to today. This marks a major update since the 1.0 network launch in August 2017, the expanded network coverage update, and the Lightning-powered message API launched December 2018.

Blockstream Satellite 2.0 moves to the DVB-S2 protocol, bringing improvements in spectral efficiency, signal reliability, and delivering higher bitrates. A standard protocol like DVB-S2 represents a significant upgrade over the custom protocol used in 1.0, by providing compatibility with hardware-accelerated DVB-S2 equipment—avoiding the need for a dedicated computer for decoding.

The DVB-S2 protocol is also more resilient as it works under lower signal-to-noise ratios, making it more reliable at the edges of coverage zones, less affected by weather interference, and less sensitive to equipment tuning.
The 2.0 update increases data capacity by more than 13x, from approximately 120 kbps to roughly 1.6 Mbps, with a spectrum bandwidth increase of only 4x, from 300 kHz to 1.2 MHz. With increased bandwidth, we've also increased the maximum file size for user-broadcasted API transmissions from 10 KB to 1 MB.

HK opens 5G subsidy scheme

The Office of the Communications Authority (OFCA) in Hong Kong has launched a subsidy scheme aimed at promoting new 5G projects across the territory. Under the scheme, the government will subsidise 50% of the actual cost directly relevant to the deployment of 5G technology in an approved project, subject to a cap of HKD500,000 (USD64,500). Around 100 qualified projects will be subsidised, with the scheme aiming to promote projects such as smart city applications.

An OFCA spokesperson commented: 'Public and private entities/bodies are welcome to submit applications for projects which are able to bring substantive benefits to the business/sector concerned through the deployment of 5G as well as demonstrate innovation or cross-sectoral synergy.'
TeleGeography's GlobalComms Database notes that three of Hong Kong's four mobile network operators (MNOs) launched commercial 5G services on 1 April, with the fourth – SmarTone – still pushing ahead with its own 5G network rollout.

Geely Satellite Program nearing completion with development of OmniCloud satellite-based AI Cloud

On the 50th anniversary of China's first satellite launch, Geely Technology Group subsidiary, Geespace announced that its first two satellites will undergo final validation testing in June before being shipped to Jiuquan Satellite Launch Center for launch into low-orbit. Along with the launch of its first satellites, Geespace is also launching its OmniCloud satellite-

based AI cloud platform.

In 2018, Geely Holding entered the aerospace industry with the establishment of Geespace under Geely Technology Group with the purpose of developing, launching and operation of low-orbit satellites, the first of which will be launched in the second half of 2020. Today, the first two satellites from Geespace have been successfully produced and verified with all performance metrics meeting design specifications ahead of further environmental testing.

In June, the satellites will undergo final validation in various environmental tests such as vibration tests simulating the condition of the satellites in a launch environment and thermal vacuum tests that simulate operating in extreme sub-zero temperatures in the vacuum of space. After completing the tests, the satellites will be shipped to the Jiuquan Satellite Launch Center in North West China for launch.

The first two Geespace satellites are designed to provide users with high-precision centimeter-accurate positioning services and support the operation of OmniCloud, a new satellite-based AI cloud platform that was developed by GeeSpac

Myanmar to launch its first satellite in 2021

Myanmar plans to launch its first satellite in 2021, using Japanese technology, Nikkei Asian Review reported. Engineers and researchers in the country will develop an ultrasmall satellite and launch it into Earth orbit with the help of Japan's Hokkaido University and Tohoku University. The satellite will be an earth observation satellite, which will be used to raise productivity in agriculture, as well as to prevent and reduce damage from disasters and monitor environmental pollution, according to the report.

China smartphone market rallies on 5G demand

China's smartphone market rebounded in April on the back of brisk demand for 5G models, which accounted for 40 per cent of shipments, government data showed. The China Academy of Information and Communications Technology (CAICT) reported shipments increased 17.2 per cent year-on-year to

40.8 million units, with the number of 5G units shipped jumping to 16.4 million from 6.21 million in March.

Since the start of the year, vendors shipped 30.4 million 5G units, accounting for 34.4 per cent of total shipments. Device makers started releasing 5G models in China in August 2019 after the first batch of smartphones was granted quality certificates.

But total smartphone shipments were down 17.9 per cent to 88.5 million in the opening four months. CAICT said domestic brands accounted for 89.4 per cent of the total. The market suffered declines in February and March. IDC recently forecast shipments in China would not record annual growth until Q4, after Covid-19 (coronavirus) lockdowns and an economic downturn resulted in the largest-ever annual decline in shipments during Q1.

Communications ministry publishes policy objectives for 850MHz, 900MHz band spectrum

Australia's Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) has published policy objectives which it said are intended to 'help guide decision making for the proposed allocation of the [850MHz and 900MHz] bands, which are pivotal to the delivery of mobile services across Australia'.

With the Australian Communications and Media Authority (ACMA) having previously proposed to optimise and allocate frequencies in the aforementioned bands using a 'market-based process' in Q4 2021, the DITRDC has listed five policy objectives, noting: 'In some cases, different objectives may need to be balanced against each other, or require trade-offs to be made.'

Of the five policy objectives, the most notable is 'supporting the deployment of 4G and 5G technologies', with the DITRDC highlighting the fact that, at present, the 850MHz and 900MHz bands are not properly optimised for 4G or 5G services. As such, it said that a reconfiguration of the bands would support the deployment of 4G and 5G networks and enable more efficient use of the spectrum, while it also pointed to the fact that lower-band spectrum 'is important for broader 4G and 5G

coverage, including in regional Australia, and will complement holdings of 5G-suitable mid and high-band spectrum'.

Meanwhile, the other four communications policy objectives were listed as: promoting competitive market outcomes for the long-term benefit of consumers; encouraging investment in telecommunications infrastructure, including in regional Australia; supporting continuity of services, and; supporting a national Public Safety Mobile Broadband (PSMB) capability.

For its part, the ACMA is expected to begin consulting on its plans for the 850MHz and 900MHz bands 'soon'.

Kazakhstan's operators partner for rural broadband network

Kazakhstan's three main operators have agreed to collaborate on a shared network to boost mobile broadband coverage in remote regions. The agreement has been signed by Beeline (KaR-Tel), Kcell and Tele2. The latter two operators are owned by Kazakhtelecom, the country's incumbent fixed-line provider.

Under the deal, the network will expand access to all towns with populations of between 250 and 1000 people, as well as covering national and regional highways and railway lines. KT's subsidiaries will construct 65% of the network infrastructure, with Beeline providing the remainder. Each operator will deploy and manage the required infrastructure for their own coverage zones, allowing the other partners to use it as necessary.

Rajant and Hitachi announce the successful deployment of autonomous hauling system in Australian coal mine

Rajant Corporation, the provider of Kinetic Mesh® wireless networks, and Hitachi Construction Machinery Australia are improving operational safety and productivity through the use of autonomous haulage systems in an Australian coal mine. Hitachi selected Rajant Kinetic Mesh because it is the only industrial wireless network enabling vehicle-to-vehicle (V2V) communication, which allows autonomous vehicles to talk directly to each other, providing enhanced coverage and reliability.

"Rajant is a Hitachi central wireless network

partner for the mining industry when it comes to automation," according to Hitachi's Greg Smith: General Manager AHS Business Unit, Australia. "Deployed in 200 of the largest mines globally, Rajant has the network Hitachi relies on for our autonomous haulage systems, significantly reducing human exposure to safety hazards in mining's hostile environments."

"We have more than a dozen autonomous vehicle partners today, and that list is growing continuously," shares Robert Schena, CEO of Rajant. "In our Australian coal mine deployment with Hitachi, there are currently six autonomous haul trucks in production, scaling to over 45 during 2020/21, with Rajant. The mine's existing Rajant wireless network deployed across a vast number of mobile and fixed infrastructure easily met the requirements to support and enable Hitachi's Autonomous operations. Additionally, Hitachi systems can be retrofitted onto existing vehicles expanding their scope and market significantly."

Distinct to Rajant Kinetic Mesh is the proprietary InstaMesh® networking software protocol, which dynamically optimizes Kinetic Mesh performance as network characteristics change, without the need for a controller node or human intervention. Mobile nodes can communicate directly with each other to enable V2V communications between both manned and unmanned vehicles.

In closing, Greg Smith adds, "Hitachi has experienced and witnessed that Rajant networks dynamically adapt to evolving conditions and make multiple connections over multiple frequencies per node for continuous, mobile connectivity. This level of mission-critical reliability is a mandate for V2V and particularly for autonomy."

Smart patrol robots built with Advantech's UNO-2484G Edge Gateway deployed to fight Coronavirus

Since the outbreak of COVID-19, Shenhao Technology Co., Ltd has deployed smart robots that use Advantech technology to monitor body temperature and conduct identity detection in schools, banks, and other public places.

Shenhao, a leading provider of IoT products and solutions aimed at smart city applications, offers a smart patrol robot known as Health Guardian 1 equipped with Advantech's UNO-2484G edge gateway to support disease prevention and inspection. Because measuring body temperature manually exposes public safety personnel to potential health risks, robots that feature infrared sensors capable of scanning temperatures within a 5-meter area have been deployed. These robots conduct temperature measurements and identity detection, and all collected data is sent to a centralized server or management dashboard for health screening. To enable autonomous movement and navigation, the robots are also integrated with simultaneous localization and mapping navigation (SLAM navigation) technology. Thus far, Health Guardian 1 robots have been widely deployed in the southern cities of China.

Embedded computers play a significant role in ensuring the stable operation of robots and collecting accurate raw information. Accordingly, Health Guardian 1 robots were equipped with Advantech's UNO-2484G fanless, x86 industrial edge gateway for collecting data and executing commands without collision or accident. The UNO-2484G gateway is a highly ruggedized embedded operation system powered by an Intel® Core™ i7 processor that delivers high-performance computing. A built-in Intel® i210 Ethernet controller and 8 GB memory facilitate I/O-based control and convenient operation. Moreover, the system's rugged chassis protects against vibration, and the modular design enables flexible configuration for a wide range of applications.

A1 Telekom Austria Group and Museum TV signs strategic partnership

A1 Telekom Austria Group announces that it has formed a strategic partnership with Museum TV, a French channel devoted to art. The cooperation comprises the Central & West Europe area.

Through its direct2home platform operated in Aflenz, Austria, A1 Telekom Austria Group is the new provider of satellite distribution and contribution services for Museum TV. The channel will be uplinked on Eutelsat 9B at 9° East - the leading satellite position for Central & West Europe.

Museum TV features several museums and works of art signed by well-known artists, such as Leonardo da Vinci or Andy Warhol. The programs of the channel are filmed with 4K/Ultra HD technology, which allows them to present their work in its truest form and offers an enriching viewing experience. The connoisseurs of art can enjoy the program of Museum TV as of now in a premium quality.

"A1 Telekom Austria Group is our long-trusted partner and we are pleased for the opportunity to distribute our channel in the best way possible on the TV broadcasting market. Museum TV aims to deliver high-quality picture with a nice and simple introduction to art through a stroll in the museum – you can enjoy one of the most famous pieces in the world's history or discover new perspectives and artists'', states Nela Pavlouskova, representing Museum TV.

Elena Petrova, Head of Broadcasting Wholesale at A1 Telekom Austria Group, adds: "We are excited to cooperate with Museum TV and distribute its high-quality premium content dedicated to art. We are pleased to provide safe and secure technical delivery of the channel via A1 Telekom Austria Group's direct2home platform to all pay TV operators across Europe on EUTELSAT 9B".

China tests 3D printing in space for first time

A "space 3D printer" developed independently by China and two samples it printed in orbit successfully returned to Earth, according to the China Academy of Space Technology.
They came back in the return capsule of China's new-generation manned spaceship for testing, which was launched from the Wenchang Space Launch Center in southern China's island province of Hainan on Tuesday and touched down at the Dongfeng landing site in northern China's Inner Mongolia Autonomous Region.
It is China's first in-orbit 3D printing test, which has realized space 3D printing of continuous carbon fiber reinforced polymer composites for the first time in the world.

Developed by a research institute of the CAST, the 3D printing system completed the scheduled tasks in orbit The images transmitted by the experimental spaceship showed that the two samples were printed successfully and could be distinguished clearly.

Researchers will further check the performance of the returned printer and printed samples and give a comprehensive evaluation.

Carbon fiber has been widely applied in aerospace as a lightweight and high-strength material. Continuous carbon fiber is of great significance in improving the performance of composite materials.

The two samples in the test are both printed out of continuous carbon fiber filament materials, which will lay an important technical foundation for the application of 3D printing of composite materials in the future.

The printing system has also realized the automatic control of the whole process, according to the CAST.

The previous 3D printing experiments in microgravity all involved people, who could intervene when errors occurred in either activating, heating up the equipment or printing. This time, the system has completed all the scheduled tasks unattended, providing an important technical reference for the follow-up space 3D printing tasks in its structure, motion control, lighting and camera monitoring, the CAST said.

The system has also been tested more comprehensively than previous ones, as the new spaceship could provide a relatively longer microgravity environment after entering orbit.

Previous experiments were mostly conducted in weightless flights. A weightless flight usually includes dozens of parabolic maneuvers, each creating only about 20 seconds of microgravity. This test can not only examine the material forming process, but also test the reliability, movement accuracy and material quality of the printing system, the CAST said.

The returned samples can directly show the influence of microgravity on materials, structural mechanism, movement control and shape forming, with the experience more suitable to be applied in extra-vehicular activities and in-orbit construction of large structures, it said. The experimental spaceship also carried a CubeSat deployer based on the metal 3D printing technology.

China launches two satellites for IoT project

China has sent two satellites into orbit to test the space-based Internet of Things (IoT) communications technology. The satellites, Xingyun-2 01 and 02, were launched by a Kuaizhou-1A (KZ-1A) carrier rocket from the Jiuquan Satellite Launch Center in northwest China. They have successfully entered their planned orbit.
Developed by the Xingyun Satellite Co., the

satellites will conduct tests on technologies including space-based IoT communications, inter-satellite laser communications and a low-cost commercial satellite platform. They will also carry out initial pilot IoT applications, according to the company.

KZ-1A is a low-cost solid-fuel carrier rocket featuring high orbit precision and a short preparation period. The rocket, developed by a company affiliated with Sanjiang Group under the China Aerospace Science and Industry Corporation (CASIC), is mainly used to launch low-orbit small satellites. Recent launch was the ninth mission of the KZ-1A carrier rocket.

The launch also represented new progress of the CASIC's series commercial space projects, which include the Feiyun, Kuaiyun, Xingyun, Hongyun and Tengyun projects and the supersonic speed HyperFlight project, according to the CASIC. The Xingyun project is China's first self-developed space-based IoT constellation.

By around 2023, the Xingyun project will have completed construction of the space-based IoT constellation with 80 low-orbit communication satellites.
The project is anticipated to solve problems of the IoT businesses' communication blind zone as a result of deficient coverage of cellular wireless communication networks.
The Xingyun-2 01 and 02 satellites adopt the technology of inter-satellite laser links, which enables the in-orbit satellites to communicate over long distance and hence upgrade the real-time performance of communication services.

Defence signs agreement with Gilmour Space

Defence and Gold Coast company Gilmour Space Technologies have joined forces to work together on space technologies under a new strategic agreement.
The new partnership between Defence Science and Technology and Gilmour Space will research defence-related technologies including propulsion, materials and avionics technologies, to help develop a three-stage hybrid rocket that will launch small payloads and satellites.
Minister for Defence, Senator the Hon Linda Reynolds CSC, said this new collaboration demonstrates the Morrison

Government's commitment to innovation and supporting Australian defence industry.
"Technology advances have allowed rocket systems and launch service providers to offer access to space at a greatly reduced cost and infrastructure footprint," Minister Reynolds said.

Minister for Defence Industry, the Hon Melissa Price MP, said the agreement would open the door for Australian space companies to provide space capabilities to Australia's defence force and commercial customers.
"Recent advancements in the capabilities of micro and nano-satellites, small satellite constellations and additive manufacturing present a unique opportunity for Defence and Australian industry," Minister Price said.

Member for Fadden, the Hon Stuart Robert MP, said there is potential for more local work as a result of Defence's strategic agreement with Gilmour Space.
"Gilmour Space Technologies hopes to leverage their work with Defence to undertake more onshore manufacturing of rocket systems and components which, with further investment, could create up to 50 additional jobs by the end of the year," Minister Robert said.

Huawei releases media statement on foreign direct product rule changes made by US government

Huawei categorically opposes the amendments made by the US Department of Commerce to its foreign direct product rule that target Huawei specifically.
The US government added Huawei to the Entity List on May 16, 2019 without justification. Since that time, and despite the fact that a number of key industrial and technological elements were made unavailable to us, we have remained committed to complying with all US government rules and regulations. At the same time, we have fulfilled our contractual obligations to customers and suppliers, and have survived and forged ahead against all odds.

Nevertheless, in its relentless pursuit to tighten its stranglehold on our company, the US government has decided to proceed and completely ignore the concerns of many companies and industry associations.

This decision was arbitrary and pernicious, and threatens to undermine the entire industry worldwide. This new rule will impact the expansion, maintenance, and continuous operations of networks worth hundreds of billions of dollars that we have rolled out in more than 170 countries.

It will also impact communications services for the more than 3 billion people who use Huawei products and services worldwide. To attack a leading company from another country, the US government has intentionally turned its back on the interests of Huawei's customers and consumers. This goes against the US government's claim that it is motivated by network security.

This decision by the US government does not just affect Huawei. It will have a serious impact on a wide number of global industries. In the long run, this will damage the trust and collaboration within the global semiconductor industry which many industries depend on, increasing conflict and loss within these industries. The US is leveraging its own technological strengths to crush companies outside its own borders. This will only serve to undermine the trust international companies place in US technology and supply chains. Ultimately, this will harm US interests.

Huawei is undertaking a comprehensive examination of this new rule. We expect that our business will inevitably be affected. We will try all we can to seek a solution. We hope that our customers and suppliers will continue to stand with us and minimize the impact of this discriminatory rule.

Bangladesh online ICT training campaign targets self-employment for 70 percent youth

A total of 185,000 students have registered for the ICT Division's Learning and Earning campaign. The government has arranged training facilities at union level for about 40,000 students considering all of the youth cannot ACCESS the internet and computers.

The government has launched an ambitious online ICT training campaign targeting self-employment for 70 percent of the youth. A total of 185,000 students have registered for the ICT Division's Learning and Earning campaign.

The government has arranged training facilities at union level for about 40,000

students considering all of the youth cannot ACCESS the internet and computers.

State Minister for ICT Zunaid Ahmed Palak inaugurated the campaign via video conferencing on Sunday. He said IT freelancers will play a vital role in the post-coronavirus pandemic economy and Bangladesh can be a part of it.

The government has tasked 39 IT institutions with conducting three courses on web, graphics designing and digital marketing under the programme.

Softbank to reduce its stake in T-Mobile

Japanese technology giant, SoftBank is reportedly in talks with Deutsche Telekom to sell down its stake in the newly merged T-Mobile US. Softbank is the principal stakeholder of US carrier Sprint, which merged with T-Mobile in a $26.5 billion deal that created the US' third largest telco.

According to a report in The Wall Street Journal, Softbank is discussing strategies to reduce its stake in the newly merged entity. Earlier this year, Softbank revealed plans to sell off around $41 billion of what it deems non-core assets, in order to reduce its debt pile and buoy its share price.

Analysts had speculated that Softbank may opt to reduce its stake in web giant Alibaba as a way of raising some quick cash. However, reducing the size of its stake in T-Mobile alos now appears to be a key consideration.

The newly merged T-Mobile is the US' third largest telco, and now has the requisite scale and scope to challenge the country's 'big two' operators, namely Verizon and AT&T, for supremacy in the US' fledgling 5G market. Sprint's existing 5G spectrum portfolio has been crucial to launching 5G in the States and has given T-Mobile a decided edge in the race to rollout services.

IPTV subscriptions to grow at 21.9% CAGR in New Zealand

The total Internet Protocol television (IPTV) subscriptions in New Zealand is expected to grow at a robust compound annual growth rate (CAGR) of 21.9% from 165,900 in 2019 to 447,000 in 2024, driven by the improving broadband penetration in the country which supports delivery of IPTV service, according to GlobalData, a leading data and analytics company.

GlobalData's New Zealand Telecom

Operators Country Intelligence Report predicts that the pay-TV household penetration in New Zealand will increase from an estimated 62.2% in 2019 to 71.0% by year-end 2024 primarily led by the rising adoption of IPTV services and multi-play packages with integrated pay-TV access.

Deepa Dhingra, Telecom Analyst at GlobalData, says: "Though direct-to-Home (DTH) is the leading pay-TV technology in New Zealand, by subscription share, the share of IPTV subscriptions in the total pay-TV accounts will continue to grow from 14.8% in 2019 to 31.6% in 2024 due to growing consumer preference for fiber-network-based interactive TV services and relatively low-cost of IPTV packages.

"Growing competition in the pay-TV market and increasing availability of over-the-top (OTT) video alternatives will however weigh down on ARPU levels on the entire segment including IPTV services. While aggregate ARPU from pay-TV services will reach US$38.18 by 2024, IPTV services will yield ARPU of US$14.95 in the same year."

Bangladeshi IT firm prepares IoT application for Hitachi

IT firm DataSoft Systems Bangladesh Ltd has prepared an internet of things (IoT)-based application for Hitachi's new airCloud Pro Device, which allows the application to remotely control cooling and heating systems of the brand.

The IoT-enabled software will allow the user to access, manage and troubleshoot the system from anywhere across the globe by only using a smartphone.

The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

According to their website, the entire operational ecosystem of Hitachi is built as an IoT platform so that millions of devices can be plugged in to be a part of the network.

This means that options are open for air-conditioning systems of multiple networks of apartments and neighbourhoods to get integrated and be managed through an app, which was developed by DataSoft in

this case.

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Korea's KT adds 360,000 5G subscribers in Q1

South Korean operator KT added 360,000 5G subscribers in the first quarter of the year, the telco said in its earnings statement. The carrier, which launched commercial 5G services in April 2019, ended Q1 with a total of 1.78 million 5G customers.

"Since the launch of KT's 5G services, we are currently maintaining a much higher market share in 5G compared to the market share we have for the LTE handsets," Kyung-Keun Yoon, KT's CFO, said during a conference call with investors.

The executive also said that the company continues to maintain a very high ARPU for the new 5G subscribers. "With the impact of COVID-19, we have seen a drop in the roaming revenue and also a slowdown in the growth of net additions. But we continue to see growth momentum in the 5G services. And in the second half, we also have a greater lineup of handsets available, and we will also anticipate that the growth rate of 5G subscribers will also pick up pace in the second half as well," the executive said.

KT's revenues from mobile services increased 2.2% to KRW1.63 trillion ($1.3 billion), while service revenue grew 1% year-on-year to KRW5.11 trillion.

Net profit declined 12.8% to KRW226.6 billion due to a lower contribution from subsidiaries, which were negatively affect by the impact of the COVID-19 pandemic. The carrier total mobile subscriber base climbed 1.3% to 14.23 million, excluding MVNO customers and IoT connections.

Rival operator SK Telecom, South Korea's largest telecom operator, ended the first quarter of the year with a total of 2.65 million subscribers in the 5G segment. At the end of last year, the telco had a total of 2.22 subscribers using its 5G service.

Also, 5G subscribers represented 9.4% of LG Uplus' overall mobile subscriber base at the end of the first quarter. The carrier said that 5G subscribers amounted to 1.45 million at the end of Q1 2020, up 24.9% compared to the previous quarter.

Nokia selected by Taiwan Star Telecom as 5G network provider

Nokia has announced details of a new 5G deal with Taiwan Star Telecom (TST). The deal will see Nokia supply TST with its end-to-end AirScale Radio Access network portfolio helping the operator to launch 5G non-standalone (NSA) networks that will lay the foundations for 5G standalone (SA) in the future. Nokia is the only supplier in this deal.

Nokia previously installed TST's LTE network, which will now be migrated to 5G services utilizing Nokia's AirScale BTS and AirScale Radio Access solutions to deliver excellent coverage and capacity to end-users. Nokia's AirScale massive MIMO solution will be also be supplied, offering comprehensive coverage. Nokia Global Services will execute rollouts, network design and optimization along with technical software and hardware support using digital and automated services delivery. Nokia's end-to-end 5G solution ensures a simple migration path and a fast deployment for TST to support its requirements.

TST recently secured 40 MHz of bandwidth and is already underway with the initial phase of network deployment. Early deployment will see 126 commercial districts and retail zones covered which is expected to be completed by Q320 with 80 percent of metropolitan areas covered by 2023.

The deal also includes multiple Nokia Software products. Nokia's NetAct mobile network management system will deliver best-in-class tools for troubleshooting, administration, software management and configuration management. Nokia's Smart Plan Suite, designed as a cloud-native solution for the needs of 5G and IoT, will provide policy control and converged charging capabilities as well as enabling the creation of innovative digital services with the agility and flexibility required to react quickly to changing market conditions. Further, TST will deploy Nokia's Subscriber Data Management (SDM), a critical function in telecommunication networks. With the arrival of 5G and the evolution to cloud architectures, managing all subscribers' data and services efficiently is essential to ensure an operator's business profitability.

China to complete BeiDou system with launch of final satellite next month

China plans to complete its BeiDou Navigation Satellite System (BDS) with the launch of its last satellite in June, according to a BDS official. The final satellite is a geostationary earth orbit satellite of the BDS-3 system, the third iteration of BDS that has already provided positioning and navigation services to global users, said Ran Chengqi, director of the China Satellite Navigation Office. .

"The BDS-3 system plans to have 30 satellites, with 29 now in orbit. It will be fully completed in June with the launch of the last satellite," Ran said. "Both the satellite and carrier rocket have been sent to the launch site, and preparations for the upcoming launch are underway."

Chinese scientists started to build the BDS-3 system in 2009. Compared with the BDS-2 system, the technologies of the BDS-3 system have been greatly improved.

According to Ran, the completion of the global system will be announced after the launch. The BDS will offer its users all services, including high-precision positioning and short message communication, which "will bring new highlights to global navigation satellite systems."

ITU and Kacific join forces to boost emergency telecoms and ICT development in Vanuatu

International Telecommunication Union (ITU) and Kacific have joined forces to boost the capacity of Vanuatu to provide a reliable communications network when disasters strike – and to improve connectivity to boost socio-economic development.

The collaboration aims to bring connectivity, in particular to remote and outer islands, including parts of Vanuatu where existing telecommunications networks were recently destroyed in the wake of the Category-5 Cyclone Harold, which cut a deadly path through the north of the country in early April.

"This initiative will strengthen disaster resilience of Vanuatu," says Doreen Bogdan-Martin, Director of ITU's Telecommunication Development Bureau. "By building closer collaboration, partnerships and integrating innovative digital technologies in disaster risk reduction and management, we can go much further in terms of mitigating against disasters and saving lives."

The collaboration is already having a significant impact across the region, not least in hard-hit Vanuatu where Kacific and ITU provided equipment, such as Very Small Aperture Terminals (VSATs), to provide crucial connectivity to help relief efforts after normal network coverage was wiped out.

On April 7, the morning after Cyclone

Harold passed through Vanuatu, one community chief expressed his amazement and satisfaction that people could still access the internet even after all the big networks went offline. This was due to the community WiFi service offered by the VSAT provided by ITU and Kacific.

"Truly, this small network is amazing, and I can see how important it is for our communities in times like this," he said. "Thank you so much to ITU and Kacific for making communication easy and still connected during such a difficult time."

Telehealth Portal scales up digital health solutions in Pakistan

Pakistan is the first country in the world to have launched a free of cost telehealth portal through Whatsapp. The initiative has been made possible by Digital Pakistan and the Ministry of National Health Services, Regulations and Coordination (NHSRC), and will help people to connect with domestic and overseas doctors on WhatsApp to address COVID-19 health concerns.

One of the most challenging things about the Coronavirus pandemic is uncertainty: not knowing if you have contracted the virus, or if you need to see a doctor. The telehealth portal is helping people in every way.

After adding the helpline number (+92-300-111-1166) in your contacts, you can message to connect with a chatbot, which can communicate in seven languages to answer your questions. After some screening questions, you can opt to speak to a doctor and will receive either a Whatsapp or voice call.

"There are less than 150,000 doctors for our 210 million population. The common people sometimes have to take a whole day out to travel from their village to a city to consult a doctor. When the Corona crisis happened, the Prime Minister advised us to use technology to address the problems. We wanted to reduce the burden and risk on our healthcare facilities and our doctors," said Tania Aidrus, Special Assistant to the Prime Minister on Digital Pakistan.

"Keeping this situation in mind, we built our solution with Whatsapp so Pakistanis would not have to learn a new app or website. They can simply message the Whatsapp number and receive a call from the doctor," Tania further.

"Our doctors and healthcare professionals on the frontlines are doing and have already done so much. One outcome of the COVID-19 pandemic is the need to scale up digital health solutions. This Telehealth portal allows those doctors who are at home, or overseas Pakistani health professionals, to come to their support and lessen the burden," added Dr. Zafar Mirza, Special Assistant to the Prime Minister on Health.

The World Health Organization launched a similar service in partnership with WhatsApp. However, Pakistan's WhatsApp service is unique in connecting volunteer domestic and international doctors to citizens in need.

Prime Minister Imran Khan urged the nation's doctors to register with the portal. He termed healthcare professionals of Pakistan as 'warriors,' fighting to protect their fellow citizens from harm.

This initiative was completed with generous support from PTCL, VentureDive, Infobip, Eocean, Code for Pakistan, and NTC. Each of the partners provided essential technical support and free services to put the project together in record time.

GuarantCo and PIDG Technical Assistance support firms to respond to the COVID-19 crisis in Asia Pacific and Kenya

GuarantCo, with funding from the Private Infrastructure Development Group (PIDG) Technical Assistance, is providing a USD 500,000 grant to support Kacific Broadband Satellites Group (Kacific) efforts to respond to the COVID-19 pandemic by distributing satellite communication systems. These systems will allow free connections of up to 1,000 rural health posts and clinics across Asia Pacific.

A further USD 109,000 PIDG TA grant was provided to Acorn Holdings Limited (Acorn) which will allow them to continue operations on three student accommodation construction sites in Nairobi, complying with stringent rules and keeping their workforce in employment.

With its new broadband satellite Kacific1, delivering fast, affordable, and accessible connectivity, financed by GuarantCo and the Asian Development Bank in December 2019, Kacific covers 25 lower income and low middle-income countries across the Asia Pacific region. In these countries, rural medical facilities still rely on phone/SMS as primary mode of communication. An internet connectivity will therefore enable more effective monitoring and communication during the pandemic.

A long-lasting impact will be that broadband connectivity will enable these sites to conduct telemedicine more effectively, allowing national health systems to decentralise services more effectively to rural areas. Vanuatu will be the first country to take advantage of the service, with several countries expected to follow.

Following a Government of Kenya directive, mid-March 2020, all universities were ordered to close so Acorn, the first purpose-built student accommodation (PBSA) provider in Kenya, shut all its operating properties. Acorn also closed its three operational construction sites from mid-March to mid-April to implement Ministry of Health guidelines which enabled the company to institute recommended public health measures on hygiene, social distancing, access protocols, screening and medical emergencies. The construction sites have re-opened with a minimum staff at each site but with better access to PPE and sanitising equipment, made possible with the support of the PIDG TA grant. Acorn plans to increase the numbers of workers per site to allow the company to meet the completion deadlines and complete affordable, environmentally friendly student housing and sustain local jobs.

A number of other PIDG Technical Assistance grants for GuarantCo portfolio clients are currently being reviewed and will be communicated through social media in due course.

Philippe Valahu, CEO of PIDG said: "The COVID-19 crisis has already had a devastating impact globally and both the immediate response and the recovery will require a huge amount of support and innovation, something that will be particularly pressing in some of the poorest countries in the world where PIDG operates. I am delighted that we are able to give support to the projects we invest in so they can carry out vital work locally.

AsiaSat keeps the world connected as linear TV viewing witnesses upsurge amid COVID-19 lockdown

Recent media reports have revealed shifts in consumers' viewing behaviours as COVID-19 situation evolves with individuals and families spending more time at home, which noted a spike in

linear TV viewing, in terms of penetration and time spent across multiple markets and all generations.

News channels and programmes have seen a surge in viewership as news updates and government announcements on new regulations and the pandemic development become profoundly important to the public. During this period of uncertainty, satellite continues to be a reliable and cost effective means for content delivery, serving audiences nationally and abroad with critical and timely news and information.

As Asia's leading provider of broadcast platforms, AsiaSat strives to meet consumers' evolving demand for content and viewing quality. Among the 550 TV and radio channels originated from more than 30 countries and regions in 30 languages delivered by the AsiaSat fleet, more than 80 are news channels, with 60% of them in local languages targeting local markets as well as expatriates and travellers who want to stay abreast of the happenings in their home countries.

Over the past year, the number of HDTV channels increased across AsiaSat's core video satellites AsiaSat 5 and AsiaSat 7, as well as its new video hotbird AsiaSat 9 at 122°E. These HDTV channels have included the Asian Action Channel, CTI Asia, ET Mall, PILI TV, Trace Sport Stars, Trace Urban, TVB Xing He and tvN Movies on AsiaSat 9, and a selection of WarnerMedia's bouquet of regional HD channels on AsiaSat 7 including CNN, Cartoon Network, Boomerang and Warner TV, raising the share of HDTV services to 30% across the AsiaSat fleet.

"At AsiaSat, while committed to protecting the safety and health of our employees during this difficult period, we will continue supporting our customers to deliver high-quality and uninterrupted services to their audience even as demand for TV content surges unpredictably. With our growing HDTV services and wide-ranging news and entertainment programming, we are delighted to demonstrate satellite's ability to multicast high resolution content, particularly over a vast geographical area and with a growing population of receive antennas, which is more resilient in coping with unexpected soaring demand for services than streaming TV services that were required to lower streaming quality at times of network congestion," said Ina Lui, Senior Vice President, Commercial, Business Development and Strategy of AsiaSat.

Kacific commits satellite service to help remote medical clinics combat COVID-19 across Asia Pacific

As recent epidemics have shown, rural and remote communities, although isolated, are particularly vulnerable during an epidemic, once community transmission takes effect. To help governments during Covid-19, Kacific Broadband Satellites Group is offering over 1,000 small satellite dishes, at no cost, and make them available to healthcare departments throughout Asia Pacific, so they can rapidly connect rural and remote medical clinics to high-speed internet.

Internet connectivity will assist better tracking of developing clusters of infection in communities. It will also allow faster and more efficient response of medical staff in smaller towns and rural locations as they tackle the Covid-19 virus.

Connected clinics give remote medical staff access to up-to-date information, the ability to arrange medical supplies and transport, and the opportunity to work alongside city-based specialists. It gives them confidence and support to treat their patients in a difficult time. It also gives governments the ability to de-centralise their healthcare by leveraging as much as possible their entire network of clinics rather than only relying only on their central hospitals.

Connecting clinics contribute to the wider health system through sharing information and ensuring that patients, no matter where they live, can access appropriate medical treatment and factual information.

We can rapidly deploy our Very Small Aperture Terminals (VSATs) and quickly connect them to the internet, fast-tracking connectivity in a time where a rapid response is needed. Kacific will collaborate with local service partners or government task forces to ensure services are delivered optimally.

Kacific also extends exclusively to healthcare departments during the Covid-19 crisis, special bandwidth packages at US$1.7/Gbyte or less, depending on local regulations.

hough bandwidth will be prioritised and offered at lower cost for healthcare, communities and other facilities around these 1000 and more health facilities would also benefit as more bandwidth can be pushed through those satellite dishes.

Telenor Velocity introduces digital education solutions to facilitate learning, skill development

Telenor Velocity, digital startup accelerator by Telenor Pakistan has introduced its "EdTech Innovation programme" forging strategic alliances with EdTech startups for making a rapid shift to online learning and skill development. This initiative was launched in response to closure of educational institutions and offices due to coronavirus outbreak, according to a news release. The ongoing crisis has impacted students across the nation, but the circumstances have also resulted in a speedy transition to online learning, and e-education has become the need of the hour.

In Pakistan over 76 million people have access to the internet, however there was a gap when it comes to provision of online learning content and authentic educational platforms.

In order to bridge the gap and contribute towards building a knowledge economy, Telenor Pakistan brings forth a range of digital education solutions to facilitate the continuity of learning and skill development.

The programme varies from providing curriculum and skill-based education for school, college and university students to offering additional courses including personal development modules, digital skills, and STEAM (Science, technology, engineering, arts and mathematics) with a special focus on Robotics.

"We, at Telenor Pakistan, have been at the forefront of bringing technological interventions and innovative solutions for various segments of the society. Young minds in Pakistan are finding solutions to everyday challenges through echnology. This collaboration with EdTech startups to enable virtual education in the country is a testament to our commitment to provide best in class solutions and platforms to students helping them cope with the COVID19 pandemic" said Chief Digital & Strategy Officer at Telenor Pakistan Sardar Abubakr.

He further said, "Together, we aim to optimize new technologies to upskill our youth and have made sure that learning and upskilling never stops."While the coronavirus spread across the world may not have been contained yet, the education system continues to sustain itself by truly embracing the idea of 'learning anywhere, anytime'.

Telenor Pakistan was making significant efforts towards e-learning for students and job seekers. The organisation, under its ACTIVATE programme will be training 1000 students on design thinking and is vigorously creating programs that enable them to rapidly and efficiently gain new and important skills and competencies.

Virgin Galactic enters space act agreement with NASA to advance high mach technologies

Virgin Galactic Holdings, Inc. and its wholly owned subsidiary, The Spaceship Company (TSC), has announced the signing of a Space Act Agreement with NASA to facilitate the development of high speed technologies.

The Space Act Agreement (SAA), is set to enable and foster collaboration between NASA, Virgin Galactic and The Spaceship Company in order to advance the United States' efforts to produce technically feasible, high Mach vehicles for potential civil applications.

Virgin Galactic believes that it is able to leverage its robust platform of advanced technologies, significant vertically integrated design, engineering and manufacturing capabilities, and thousands of hours of flight testing to develop additional aerospace applications. Together with its industry partners, Virgin Galactic is seeking to develop a vehicle for the next-generation of safe and efficient high speed air travel, with a focus on customer experience and environmental responsibility.

In partnership with NASA, Virgin Galactic believes there are significant opportunities to apply higher speeds to drive technological development to allow industries to adapt to the changing economic and ecological environment. The collaboration will aim to inform the development of national strategies using economic and technical foundations with a focus on sustainability.

George Whitesides, CEO of Virgin Galactic Holdings said: "This is the beginning of an important partnership for Virgin Galactic and The Spaceship Company that will support the future development of aviation technology. Virgin Galactic's unique experience and innovative technology platform will, in partnership with the historic capabilities of NASA and other government agencies, enable the progression of new technical steps that will improve US competitiveness. We see this as an area with tremendous growth potential that we will continue to invest in, alongside our commercial spaceflight operations."

Dr. James Kenyon, Director of the NASA Aeronautics Advanced Air Vehicles Program said: "This Space Act Agreement will enable NASA to collaborate with Virgin Galactic and The Spaceship Company to allow our organizations to take advantage of new tools, techniques, and technologies developed over the last 50 years and to explore potential new solutions for the commercial aviation industry."

USDA invests US$23 million in high speed broadband in rural New Mexico

U.S. Secretary of Agriculture Sonny Perdue announced during a virtual press conference that USDA is investing $23 million for three recipients in New Mexico to provide broadband service in unserved and underserved rural areas. These investments are part of USDA's round one investments made through the ReConnect Pilot Program.

"The need for rural broadband has never been more apparent than it is now – as our nation manages the Coronavirus national emergency. Access to telehealth services, remote learning for school children, and remote business operations all require access to broadband," said Secretary Perdue. "I am so proud of our rural communities who have been working day in and day out, just like they always do, producing the food and fiber America depends on. We need them more than ever during these trying times and expanding access to this critical infrastructure will help ensure rural America prospers for years to come."

Pueblo of Acoma will invest a $942,955 grant to help provide fixed wireless broadband. Currently, the area completely lacks sufficient access to broadband service. Providing broadband will fuel long-term economic development and job opportunities in the service area, which includes 771 households spread over 22 square miles in Cibola County.
Penasco Valley Telephone Cooperative Inc. will use a $3.1 million grant to deploy a fiber broadband network. The service area includes 659 households spread over 363 square miles in Lincoln, Otero, Chaves, and Eddy counties.
E.N.M.R. Telephone Cooperative will use a $19.2 million grant to help build a fiber-to-the-premises (FTTP) network serving farms, businesses and critical community facilities in rural areas in New Mexico. The service area includes 789 households and three critical community facilities spread over 13 counties and 4,292 square miles.
In March 2018, Congress provided $600 million to USDA to expand broadband infrastructure and services in rural America. On Dec. 13, 2018, Secretary Perdue announced the rules of the program, called "ReConnect," including how the loans and grants will be awarded to help build broadband infrastructure in rural America. USDA received 146 applications between May 31, 2019, and July 12, 2019, requesting $1.4 billion in funding across all three ReConnect Program funding products: 100 percent loan, 100 percent grant, and loan-grant combinations.

To learn more about ReConnect Program eligibility, technical assistance and recent announcements, visit www.usda.gov/reconnect.
USDA is reviewing applications and announcing approved projects on a rolling basis. Additional investments in all three categories will be made in the coming weeks.
USDA Rural Development provides loans and grants to help expand economic opportunities and create jobs in rural areas. This assistance supports infrastructure improvements; business development; housing; community facilities such as schools, public safety and health care; and high-speed internet access in rural areas.

Maxar Selected to Deliver Change Detection and Land Cover Classification Services

Maxar Technologies has signed $20 million in contracts with the U.S. National Geospatial-Intelligence Agency (NGA) to deliver land cover classification and change detection services through a combination of the Janus Geography program and the General Services Administration's IT Schedule 70.
Maxar will produce updates and enhancements using its sophisticated change detection model and deliver land cover and classification solutions in support of NGA's needs. Automated change detection visually exposes areas of important change, enabling rapid and effective intelligence gathering across thousands of images from multiple sources. Land cover classification provides a global view of the current landscape by applying

machine learning to perform automated spectral, spatial and temporal classification, enabling a better understanding of how specific regions of Earth are being used on a micro scale.

Janus Geography provides near real-time access to commercially created geospatial data, enriched content and community-sourced information in a cost-effective manner to improve decision-making timelines. As a prime contractor, Maxar leads a team of industry and university partners with proven production capacity and innovation to deliver content management of topographic and human geography data from a variety of sources. The General Services Administration's IT Schedule 70 enables government customers to shorten procurement cycles, ensure compliance and get the best value for over 7.5 million innovative IT solutions from over 4,600 pre-vetted vendors.

"Maxar is constantly evolving our analytic capabilities and GEOINT solutions to empower customers to more quickly ingest intelligence for a breadth of defense and intelligence missions," said Tony Frazier, Maxar's Executive Vice President of Global Field Operations. "We are proud to be a prime contractor on NGA's Janus Geography program, demonstrating how industry can deliver innovative solutions that satisfy NGA's unique needs. As an industry leader in the geospatial community, Maxar has provided world-class commercial GEOINT solutions to NGA since 1999."

Disney+ viewership already exceeding seven exabytes per month

Six months after launching, Disney+ already represents a significant portion of internet traffic.
According to traffic monitoring data from Enea, Disney+ currently represents 1.2-2.2% of all mobile video traffic in North America and Europe. By contrast, Netflix accounts for 7-15% of traffic in the regions The firm adds that the streamer has reached 7 exabytes of data streamed per month and that it has been in the top 10 HTTP domains for the territories in which it has gone live. Specifically for Southern Europe, Disney+ is in the top 5 while the report also says that it is the second busiest HTTP domain in North America.

Additional research from Enea across 5,000 mobile subscribers in the US, UK, Japan and the UAE found that 29% are planning on subscribing to the streamer. The UAE was the country most interested,

with 49% of the respondents there expressing an interest in Disney+
The report comes after Disney confirmed that it has exceeded 54 million paying subscribers to Disney+. Company CEO Bob Chapek said that the fledgling streamer has "exceeded even our highest expectations."

Capella Space signs SAR imagery contract with the of DoD

Capella Space has signed a contract with the U.S. Department of Defense (DoD) for the purpose of providing airborne synthetic aperture radar (SAR) data to the U.S. Navy. Facilitated through the Defense Innovation Unit's Commercial Solutions Opening, Capella will also provide the DoD with in-house analytics services to interpret the data. This marks the latest in a series of contracts Capella Space has signed with federal agencies, including the U.S. Air Force and the National Reconnaissance Office.

Capella will provide the DoD with SAR data collected by an airborne collection campaign using Capella's synthetic radar flown on board a specially equipped and outfitted airplane. This aerial campaign will give the DoD early access to Capella's SAR imagery and user console ahead of its first operational satellite launch planned later in the year.

SAR systems image in all weather, day or night, and capture amplitude and phase history data enabling the extraction of highly valuable information such as material properties, moisture content, elevation, and precise changes and movements, which are not available with optical imagery. When fully deployed, Capella's satellite constellation will collect sub-0.5 meter SAR imagery, which can identify types of aircraft or vehicles on the ground and provide 24/7 monitoring and change detection in any weather and lighting conditions.

"Defense & intelligence agencies utilize Capella's SAR data for a variety of purposes, including disaster recovery, infrastructure monitoring and indications and warnings of potential threats," said Payam Banazadeh, CEO and founder of Capella Space. "The continuous work we receive from these Agencies is a testament to the future they see where Capella services play an important role in our national security. We're pleased to receive this contract from the Department of Defense. We have a highly motivated, innovative team, and we're committed to providing reliable, persistent Earth

observation data for the DoD and other federal agencies we work with."The U.S. Department of Defense is among a growing list of interested users of Capella's high-resolution SAR imagery. This award will further deepen the partnership between the U.S. Department of Defense and Capella. By establishing a trusted partnership with the U.S. Navy,

C6 launch systems successfully completes Canadian Space Agency-funded communications project

C6 Launch Systems Inc., announced the successful completion of a Canadian Space Agency funded research and development project paving the way for next-generation, low-cost space communications for small-sat rockets.
Named C6 STARS™ (Space Transmission and Reception System), the system was developed on time with a $71,990 Space Technology Development Program (STDP) contribution from the CSA. As a result, C6 Launch was able to expand the scope of the project to develop a comprehensive test plan for this critical technology, to move even closer to development and commercialization of their smallsat rocket.

"With C6 STARS, we have been able to demonstrate the reality of a low-cost, high-gain, compact space-grade communications systems for small-sat rockets from the launch pad to low earth orbit for payload delivery," said Daniel McCammon, Co-founder and VP Technology, C6 Launch. "The support of the Government of Canada and the Canadian Space Agency was instrumental in achieving this milestone."
An interim presentation delivered by C6 Launch at the International Aerospace Congress (IAC) 2019 in Washington D.C., received considerable interest from the space community.

C6 Launch expects to move to the next phases of commercializing C6 STARS with additional system evaluation during a planned engine Static Integration Test (SIT) in the fall of this year and further testing planned to take place at the CSA's David Florida Laboratory in Ottawa. Subject to those milestones, C6 STARS will provide communications capability the initial suborbital launch scheduled for late 2021 and the first orbital launch in mid-2022.

Telesat joins C Spire-led consortium on rural broadband access

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elesat has joined a group of tech firms led by Mississippi-based C Spire working to bridge the "digital divide" and help solve the rural broadband access and adoption problem.

Telesat, one of the largest and most successful global satellite operators, has joined a group of tech firms led by Mississippi-based C Spire working to bridge the "digital divide" and help solve the rural broadband access and adoption problem.

The firms, which also include Airspan Networks, Microsoft, Nokia and Siklu, joined forces last year and have been testing technology solutions, creating and building new business models and providing training resources for individuals and communities in digital skills to help improve internet access in rural areas.

In addition to Telesat's state-of-the-art global, geostationary satellite fleet, the company is building Telesat LEO, a low earth orbit network that will deliver fiber-like connectivity with a combination of high speeds, high capacity, affordability and ultra-low latency.

Telesat will provide analysis tools and its experience with LEO technology to help the consortium work on new business models designed to encourage and promote third-party engagement. Telesat has partnered with the Canadian government to provide backhaul to rural and remote communities as part of an effort to bridge the "digital divide" affordably and quickly connecting the remaining 2.2 million households across the country.

"Telesat is a leader in developing satellite technology solutions that help consumers and businesses, no matter where they live or work, bridge the digital divide with reliable, affordable and high-quality internet access," said C Spire Chief Innovation Officer Craig Sparks. "We're excited that they are joining our efforts to tackle this complex technical, economic and access issue."

Mississippi, with almost 28 percent of its residents lacking any broadband connectivity and less than 18 percent using broadband, is the primary testing ground of the group's work as nearly half of its 3 million residents live in rural areas. The state ranks 46th nationwide in broadband access and 47th in urban population.

Among the various fixed wireless technology solutions the consortium is deploying and testing in rural areas of Mississippi are TV white spaces, massive MIMO using 4G Band 41 LTE and C Spire's own 5G internet product, Sparks said, adding that the approaches could potentially be used in similar broadband-challenged rural areas across the continent.

C Spire is leading the effort as part of its broader Tech Movement to build a better future for the region through technology and education. "Improving broadband access and digital skills represent huge opportunities for rural areas. Every student, school and business should have the chance to reap the benefits from wider availability and adoption," Sparks said.

Telesat's efforts in Canada could have even broader implications beyond North America, according to Michael Schwartz, Senior Vice President of Corporate and Business Development for the firm, noting that 48 percent of the world's population does not have high-speed internet access. The firm's full constellation will be comprised of 298 LEO satellites that orbit the earth roughly 35 times closer than traditional satellites.

"Telesat LEO will provide new options for mobile network operators and internet service providers to backhaul traffic from rural communities to their core networks," Schwartz said, noting that the technology could make low-latency, fiber-like broadband accessible anywhere.

The broadband "digital divide" between U.S. cities and rural parts of the country is substantial. According to a 2018 Federal Communications Commission1 report, over 19.4 million rural Americans still lacked basic broadband at the end of 2017 with profound negative social and economic impacts on the nation's rural communities.

LeoLabs unveils first automated collision avoidance service for satellite operators

LeoLabs,Inc., introduced LeoLabs Collision Avoidance, a ground-breaking platform for automating and modernizing satellite operations, aimed at addressing the threat of orbital space debris. Powered by LeoLabs global network of radars and built on the LeoLabs SaaS data platform, LeoLabs Collision Avoidance offers a real-time stream of alerts and on-demand risk analyses that uniquely support collision monitoring.

Activity in low Earth orbit is expanding rapidly across many dimensions, with new constellations and services being deployed at record pace. Space organizations around the world can now take full control of their own operational safety against potential on-orbit collisions, confident that they are well informed. LeoLabs Collision Avoidance removes existing barriers to navigational security by delivering a comprehensive suite of cloud-based services for real-time alerts on close approach events and high-fidelity risk assessment. Users now have direct access to timely, high quality conjunction event data and analytics using a worldwide network of phased-array radars working around the clock on their behalf.

"LeoLabs Collision Avoidance was architected from the start to address critical requirements for speed, responsiveness, flexibility, and transparency of information," said Dan Ceperley, CEO and Co-Founder of LeoLabs. "Satellite operators now have access to the first service specifically designed for protecting commercial constellations as well as critical government satellites and designed to automate and modernize operations and planning." Unique features include streaming data feeds providing real-time conjunction alerts for owner-operator satellites, on-demand ephemeris screening with results returned instantaneously, automated radar prioritization and high-fidelity data products on all secondary objects in conjunction events, integration of external data sources, and robust web analytics tools for conjunction risk assessment.

For the first time, operators can get results without waiting on human execution for tasks such as ephemeris screening and increased radar prioritization. LeoLabs Collision Avoidance reduces operator effort and time-to-decision through automating and streamlining processes that previously required manual execution.

Cloud-based Services Powered by LeoLabs Dedicated Radars.

"100% of our Collision Avoidance services are cloud-based, with no local software to install." said Michael Nicolls, CTO and Co-Founder of LeoLabs. "Web dashboards provide operators and analysts with a tailored user interface enabling access from any location or device. Operators should think of the LeoLabs Collision Avoidance solution as a powerful front end to our global network of ground-based radars. Never before has a single end-to-end solution, from radars to web application, been available as a commercial off-the-shelf service. This turnkey SaaS solution puts a simple face in front of the sophisticated

cloud-based astrodynamics platform and network of ground-based radars."

The LeoLabs Collision Avoidance system is operational today and ready to serve the needs of commercial satellite operators, civil regulatory and space agencies, defense satellite operators, research satellite operators, and human spaceflight missions. Over the next 24 months, as LeoLabs adds additional high-fidelity phased array radars to its global sensor network, LeoLabs Collision Avoidance will expand collision alerts to include previously uncatalogued small debris.

FAB and AEB sign agreement related to the Alcântara Space Center

The Brazilian Air Force (FAB) and the Brazilian Space Agency (AEB) signed the Cooperation Agreement defining attributions and work processes in the implementation phase and in the phase of operation of the future Alcântara Space Center (CEA), in Maranhão. The signing of the agreement is one of the steps to enable the launch of non-military space vehicles using CEA.

The document concluding the Agreement was signed by the Chief of Staff of the Air Force (EMAER), Lieutenant-Brigadier of the Air Carlos Augusto Amaral Oliveira; by the President of AEB, Carlos Augusto Teixeira de Moura; and by the President of the Commission for the Coordination and Implementation of Space Systems (CCISE), Major-Brigadeiro do Ar Paulo Roberto de Barros Chã. The Deputy Chief of Staff of the Air Force, Major-Brigadier of Air Sérgio Roberto de Almeida also participated in the act; the Chief of the Third Subchefia of the General Staff of the Air Force, Major-Brigadier of the Air João Campos Ferreira Filho; the Vice President of CCISE, Brigadeiro do Ar José Vagner Vital; the Director of Space Transport and Licensing at AEB, Brigadeiro do Ar Paulo Eduardo Vasconcellos; and the Special Advisor to the Head of Logistics and Mobilization at the Ministry of Defense, Brigadeiro do Ar Rogério Luiz Veríssimo Cruz.

The Air Force Chief of Staff said that the cooperation established establishes a matrix of responsibilities for the consolidation of the CEA. "This will allow us to be able, as quickly as possible, to offer the services area that we already have available in the current Alcântara Launch Center and, thus, to make effective use of the Space Center", emphasized Lieutenant-Brigadier Amaral. According to the President of AEB, cooperation begins the phase of contact with companies interested in using the Alcântara facilities for activities in the space area. "This agreement clearly establishes the limits for each institution to operate. AEB does the initial work and takes care of the licensing and, from there, delivers the process to the Air Force Command to establish the contracts. It is an important step towards the start of non-military activities in Alcântara ", he said.

Understanding the Technological Safeguards Agreement

In 2019, the Technological Safeguards Agreement (AST) between the two countries was signed by the Brazilian Government and the United States of America at an official ceremony in Washington. Through this agreement, the United States authorizes Brazil to launch rockets and spaceships, national or foreign, that contain American technological parts. In return, Brazil guarantees the protection of American technology contained in these artifacts.

Currently, approximately 80% of the space equipment in the world has some North American component. For this reason, AST is essential for the Alcântara Space Center to enter the global market for launching cargo into space. It is in Brazil's interest to encourage this type of commercial activity, as it will generate substantial resources for local, regional development and for the Brazilian Space Program.

Intelsat and Andesat bring Mobile Broadband to Rural Communities in Perú

Intelsat and Andesat are partnering to bring end-to-end mobile broadband (3G) service to remote communities across Perú. The two companies have developed a new model that will quickly and efficiently bring life-changing 3G access to 154 rural Peruvian communities in 2020, and as many as 400 remote sites in Perú over the next 18 months.

"We're thrilled to extend our partnership through this innovative model and bring affordable, reliable connectivity to thousands of people throughout Perú. For more than 50 years, Intelsat has connected the unconnected and reliably delivered content and connectivity to people wherever they need it, even the most remote areas on earth."

"It will help us solve many things, being aware of diseases, access to knowledge. We no longer feel left behind. We now have what other villages and cities do," said newly connected Peruvian paramedic Carlos Rengifo, who is featured in the #TeConectamosPeru campaign that Andesat launched last week to promote the initiative.

Research shows that connectivity can have life-changing impacts for unconnected remote communities. The World Bank estimates that for every 10 percent increase in high-speed Internet connections, a country's gross domestic product rises approximately by 1.4 percent.

With internet connectivity, those living in remote areas can participate in e-banking, use telemedicine resources and access potentially life-saving weather reports. Internet access also brings medium and long-term effects to remote areas, expanding access to educational and vocational resources, helping businesses operate more efficiently and ultimately, strengthening the area's foundation for future economic growth.

Until now, bringing connectivity to the remote regions of Perú has been deemed too risky for any one mobile network operator (MNO) or communications service provider to tackle alone. The innovative and cooperative model pioneered by Andesat and Intelsat enables the companies to share infrastructure- and network-build expenses as well as revenues. In turn, Mobile Network Operators (MNOs) only pay for the traffic that their end-users consume.

The collaborative model holds the potential to be replicated throughout Latin America and help MNOs connect end-users in remote and rural areas. The Peruvian government alone has identified over 16,000 rural sites of National Interest in need of connectivity.

Andesat is using its Rural Mobile Infrastructure Operator license (OIMR) to connect remote sites in Perú, sourcing tower sites, designing and building towers and taking point on equipment for the connectivity initiative. Intelsat is leveraging its scale, infrastructure and expertise to assist Andesat in building out the integrated land-space, mobile broadband (3G) infrastructure, bandwidth capacity and service operations to meet evolving end-user demand.

"This initiative is going to change lives in a fundamental way," said Andesat Group CEO Pablo Rasore. "In addition to enabling the people of the remote regions of Peru to

communicate, it's going to enable Peruvians, not only to reach the world in a new and different way for the first time, but to be protagonists in building their own future."

One of Perú's regional Mobile Network Operators (MNO) is currently leveraging the Intelsat-Andesat model to bring voice and data services to new local subscribers, helping to cement its service-delivery reputation in the region and benefitting a potential universe of 60,000 towns and villages and a total of more than three million people.

"Intelsat and Andesat have long enjoyed a partnership in providing communication services to individuals, communities and businesses across Latin America," said Intelsat Regional Vice President of Latin America, Juan Pablo Cofino. "We're thrilled to extend our partnership through this innovative model and bring affordable, reliable connectivity to thousands of people throughout Perú. For more than 50 years, Intelsat has connected the unconnected and reliably delivered content and connectivity to people wherever they need it, even the most remote areas on earth."

Marlink deploys Brazil Teleport and meets Petrobras requirements for low latency and high speed services

Marlink has confirmed that its new local Teleport, network infrastructure and support capabilities meet new pre-requirements to provide VSAT services for Petrobras-chartered vessels operating offshore Brazil.

Offshore support and service companies with vessels on charter to Brazilian National Oil Company will enjoy secure and resilient connectivity from a single service provider.

Petrobras has set strict new connectivity and services standards for offshore vessels carrying Petrobras crew, following the decision to discontinue its in-house VSAT network by 2023. New bids and contracts for offshore vessels already consider such requirements that will apply to the vast majority of vessels operating in Brazil as existing contracts are renewed.

The main requirements are strict latency standards (~650 milliseconds), redundant direct interconnection to Petrobras data centres, and local

support in Portuguese language.

The VSAT technology selected by Marlink for the Brazil teleport is able to efficiently deliver compliant speeds to all types of vessels, including high bandwidth consumers like FPSOs and drilling rigs.

Marlink will fulfil the requirements through co-operation with global and local Brazilian partners and is committed to further developing its established presence and capabilities in the region in support of digitalisation of all maritime and offshore operations.

To further extend its range of customer solutions, Marlink also has agreements in place with satellite operators to provide a full range of licensed L-band services in Brazil.

Petrobras is a frontrunner in its specifications for high bandwidth and well provisioned connectivity for digitally-enabled smart operations to support its energy exploration and production activity, said Tore Morten Olsen, President Maritime, Marlink. Brazil is an important market for Marlink and our ongoing investment will ensure that our customers operating vessels offshore are able to meet – and exceed – these demands.

Echostar, Hughes and Intelsat support FCC's draft regulatory fee order

EchoStar Corporation and its Hughes Network Systems, LLC business segment join with Intelsat today in support of the draft Regulatory Fee Order under consideration by the Federal Communications Commission for its May 13, 2020, Open Meeting.

Jennifer A. Manner, Senior Vice President, Regulatory Affairs, EchoStar/Hughes stated: "The draft Order is extremely important to U.S. satellite operators, including EchoStar/Hughes as well Intelsat, as it rebalances the regulatory fee structure to ensure that foreign satellite operators providing U.S. service, like domestic operators, pay regulatory fees for the work from which they benefit. This cost allocation will have several benefits, including removing an incentive for U.S. operators to move off-shore."

Susan Crandall, Associate General Counsel, Intelsat US LLC, stated: "The draft Order's conclusion to require foreign-licensed satellite operators to pay regulatory fees is a fair result that treats all satellite operators providing service to the

U.S. equally."
Together, EchoStar/Hughes and Intelsat support the draft Order and, upon adoption at the upcoming Open Meeting, anticipate a fair outcome that will advance U.S. leadership in space innovation.

VOX Space readies to launch from Andersen Air Force Base in Guam

VOX Space has signed a new agreement with the Department of the Air Force, allowing the company's LauncherOne system to conduct missions to space from Andersen Air Force Base in Guam. VOX Space President Mandy Vaughn and U.S. Air Force 36thWing Commander Brig. Gen. Gentry Boswell, signed the Commercial Space Operations Support Agreement (COSOSA) Annex in early April, setting the stage for the STP-27VP mission, VOX Space's first launch from Andersen Air Force Base.

Virgin Orbit and VOX Space first expressed interest in launching from the Pacific island of Guam in mid-2019. Due to Guam's low latitude and clear launch trajectories in almost all directions, the company's uniquely mobile LauncherOne system can effectively serve all orbital inclinations, such as delivering up to 450kg to a 500km equatorial orbit.

The U.S. Department of Defense (DoD) Space Test Program (STP) procured the STP-27VP launch with VOX Space under the Rapid Agile Launch Initiative (RALI), leveraging the Defense Innovation Unit's (DIU) Other Transaction Agreement. One of the first missions to fly on LauncherOne, the STP-27VP manifest consists of several CubeSats from various government agencies performing experiments and technology demonstrations for the DoD.

"We're very grateful to Brig. Gen. Deanna Burt and her team at HQ USSF/S3, as well as Wing Commander Brig. Gen. Boswell, Vice Commander Col. Matthew Nicholson, and all of the excellent airmen and women of the 36thWing and Pacific Air Forces for their support," said VOX Space President Mandy Vaughn. "Lt. Gen. John Thompson and his team at the Space and Missile Systems Center have also provided visionary leadership throughout this process. We're very excited to demonstrate the flexibility and mobility that only LauncherOne can offer."

Because the system is not tied to a traditional ground-based launch site, LauncherOne will leverage key locations around the world including Guam to provide responsive and affordable flights to space for a broad variety of customers. Even now, VOX Space and Virgin Orbit are working closely with multiple allied governments and international organizations interested in establishing launch capabilities closer to home.

After successfully demonstrating all major vehicle assemblies and completing an extensive flight test program, the Virgin Orbit team is in the midst of final preparations for an orbital launch demonstration expected soon.

New WTA report offers key Insights into the challenges and opportunities of the new media market

The World Teleport Association (WTA) released Finding Growth in Media Services, a new research report that explores the challenges teleport executives and vendors face, the opportunities they have seized, and how their companies have changed to meet the needs of the next generation of media and entertainment.
"The headline story in our business is that media contribution and distribution is in unstoppable decline," said executive director and report editor Robert Bell. "That decline is certainly taking place in space segment, and satellite operators are working hard to adapt to that reality. But media consumption is growing fast, and teleport operators are finding creative ways to help their customers in media and entertainment seize the opportunities."

WTA members can access the report by signing in to their accounts on the WTA website. More about Finding Growth in Media Services
Since HBO, Turner and PBS put their program distribution on satellite in the 1970s, the media and entertainment business has been a major satellite customer for both distribution and contribution. Until now. On-demand streaming of video and audio content got its start in 2005. Today, it is growing at an explosive rate.

This change has had massive impact on media and entertainment companies, and on the transmission vendors that serve them. Ground-based service providers have consolidated, video fill rates for satellites have plummeted and pricing has followed. Yet there are still growth opportunities in the market for companies that have been forward-looking and agile enough to stay one step ahead of market demand.

Today's media customers still have major needs that teleport operators can service – they are just different needs than in the past. Legacy programmers need to continue extracting the maximum revenue and profit from their existing business of distribution to network affiliates, cable headends and homes. They also need help with the complex migration of their distribution to OTT and other new markets.

NanoAvionics to built NASA funded AERO-VISTA mission

NanoAvionics has received a contract to build two nano-satellites for the Massachusetts Institute of Technology (MIT) AERO-VISTA mission team at NanoAvionics' recently opened manufacturing facility in Columbia, Illinois, USA. Funded by NASA's H-TIDeS (Heliophysics Technology and Instrument Development for Science program), the mission is led by MIT and includes several partners: MIT Haystack Observatory, MIT Lincoln Laboratory, Merrimack College, Dartmouth College, and Morehead State University. Morehead State is responsible for bus contracting and ground operations services.

The two identical spacecraft: AERO (Auroral Emissions Radio Observer) and VISTA (Vector Interferometry Space Technology with AERO) will be based on NanoAvionics' standardized pre-integrated and pre-qualified 6U nano-satellite bus M6P. Both will house a novel electromagnetic vector sensor antenna developed by MIT's Lincoln Laboratory.
The aim of this first in-space demonstration is to study from a low Earth orbit (LEO) unexplained features about the nature and sources of radio emission from the Earth's aurora. With a targeted launch in 2022, the AERO-VISTA mission is expected to last three months.

"The aim of the NASA-funded mission is to greatly improve our knowledge of Earth's aurora by studying its fascinating radio emissions from orbit," according to Dr. Philip Erickson, Principal Investigator

(PI) of AERO. "This is an ambitious task, and takes a talented set of dedicated professionals to solve the many technical and science challenges of small satellite platforms. We're delighted to have NanoAvionics join the AERO and VISTA team as our satellite provider. We have a bright future ahead and I'm excited to work with NanoAvionics on making our goals a reality. The resulting understanding of our near-Earth space environment benefits all who seek to learn about the natural world."

Dr. Frank Lind, VISTA PI, states, "We are very excited about NanoAvionics joining the AERO-VISTA team. Ultimately space science missions are about people exploring our world. It takes a great team of people to make that happen. NanoAvionics is now a key part of our team and we are looking forward to designing and building our satellites with them."

Dr. Benjamin K. Malphrus, professor of Space Science at Morehead State University and co-PI on the mission said: "The room for discovery in this area is wide open and there are many aspects of the aurora that are not well understood. The vector sensor antenna is unlike anything that has previously flown. It has the potential to produce significant science returns.

"After a long and competitive search process, the team selected NanoAvionics to provide the two satellite buses. NanoAvionics is an innovative company with a highly capable bus and was an excellent fit for this potentially significant science mission. We have been extremely impressed with the NanoAvionics team and look forward to flying their 6U bus on the AERO-VISTA mission."

F. Brent Abbott, CEO of NanoAvionics US said, "Being part of this first-of-its-kind MIT research mission and working with such an august team is very exciting and the selection of NanoAvionics as the mission integrator shows the confidence in our technology and strong performance of our nano-satellite buses."

To accomplish the AERO-VISTA mission, the vector sensor onboard the two nano-satellites will measure amplitude and phase of radio emission in the Earth's aurora zone—the geographic area above the Arctic Circle where the Northern Lights appear. Using a sun-synchronous polar orbit will allow sensing of radiation not visible from Earth.

Airbus and Xenesis sign payload contract for

new Bartolomeo platform on the International Space Station

Airbus and Xenesis have signed a contract for a payload slot on the International Space Station (ISS) Bartolomeo platform for the demonstration of their Xen-Hub optical communication space terminal.

The Xen-Hub is a greater than 10 gigabyte per second optical communications terminal. The terminal was enabled with a technology transfer from the NASA Jet Propulsion Laboratory and is designed to increase satellite communications bandwidth.

The Airbus-built Bartolomeo platform offers external science and payload hosting capabilities on the ISS, providing new opportunities for science and research. The platform, launched from the Kennedy Space Center in Florida, was installed on the ISS Columbus module on 1st April. Bartolomeo was developed by Airbus using its own funds, is an investment of Airbus and is operated in a partnership with ESA, NASA and CASIS.

"Xenesis" payload will be one of the first from the U.S. to be installed on the Bartolomeo platform and is an opportunity to demonstrate the viability of their optical communication space terminal for multiple customers," said Debra Facktor, Head of Airbus U.S. Space Systems. "In addition, Airbus and the ISS National Lab are inviting additional users for research and test opportunities on the Bartolomeo platform."

The low orbit of the ISS offers a stable location for proving ultra-low latency communications, in excess of 10Gbs. Bartolomeo is located in an optimal position on the ISS, offering direct views of Earth from approximately 240 miles altitude, allowing Xen-Hub to maximize its pass time and increase the throughput of data.

"We are pleased to be partnered with Airbus for our optical communications test mission on Bartolomeo," said Jeff Glattstein, President of Xenesis. "The Airbus platform gives us the utmost confidence for a successful endeavor, allowing Xenesis to focus on our technology development while Airbus provides the guidance, support and infrastructure necessary to host the system on the ISS."

Bartolomeo is a cost effective and time efficient alternative to small satellites and cubesats for any kind of mission. It can accommodate up to 12 different experiment modules, supplying them with power and providing data transmission to Earth.

Bartolomeo is suitable for many types of experiments, including Earth observation, environmental and climate research, robotics, material sciences and astrophysics. It provides sought-after payload-hosting capabilities for customers and researchers to test space technologies, verify a new space business approach, conduct microgravity experiments or enter into in-space manufacturing endeavors.

Launch opportunities are available on every servicing mission to the ISS, which occur about every three months. The payload accommodation allows slots for a wide range of payload mass, from 11 to 990 pounds. Airbus will provide optical data downlink capacity of one to two terabytes per day.

Payloads can be prepared and ready to operate in approximately 12 months. Payload sizes, interfaces, preparation before launch and integration process are largely standardized. This reduces lead times and saves costs significantly compared to traditional mission costs.

Airbus offers this easy access to space as an all-in-one mission service. This includes technical support in preparing the payload; launch and installation; operations and data transfer; and an optional return to Earth.

NASA builds on investments in US small business' beneficial technologies

NASA has selected 139 proposals for follow-on funding though the agency's Small Business Innovation Research (SBIR) program. The Phase II awards will provide approximately $104 million to 124 small businesses located across 31 states.

NASA annually invests in U.S. small businesses with promising new technologies – companies developing better batteries, virtual assistants, lightweight materials and more. These technologies can benefit space missions, as well as improve life on Earth.

"Small businesses offer innovative solutions that benefit every area of NASA and often find applications outside of the agency," said Jim Reuter, associate administrator for NASA's Space Technology Mission Directorate in Washington. "This announcement is another step forward in NASA's Moon to Mars exploration approach. The agency continues to invest in and support small businesses, as they continue to mature important technologies for future missions that can also benefit us on Earth."

The Phase II awards will help advance NASA priorities, including the Artemis program, as well as other initiatives in aeronautics, human exploration and operations, science, and space technology. The selected companies are previous NASA SBIR Phase I award recipients who successfully have established the feasibility of their proposed technologies. As Phase II awardees, the companies will develop, demonstrate and deliver their technologies to NASA. Among the Phase II selections are:

A woman-owned small business in Gaithersburg, Maryland, that will develop a more reliable and highly efficient energy storage system. NASA could use the technology for electric and hybrid-electric propulsion systems in airplanes. The technology could also be used in renewable energy systems, such as solar, wind, and hybrid-electric vehicles.

A small business in Knoxville, Tennessee, that will advance a lighter-weight shield material for fission power systems – a technology that could help power sustainable operations on the Moon. The material could find other industrial applications on Earth.

A small business in Ann Arbor, Michigan, that will mature technology that could provide astronauts with a virtual assistant aboard spacecraft. The system would be able to interact with the crew and other spacecraft systems to perform tasks, diagnose problems and brainstorm solutions without help from ground teams. The technology could be adapted for use on Earth, including by the medical industry to support patient diagnosis and treatment.

"We are encouraged by the ingenuity and creativity we've seen from these companies in their Phase I work," said Jenn Gustetic, the NASA SBIR program executive. "We have also worked hard to reduce the time selected companies wait for their first Phase II payment, knowing how critical access to capital is for our aerospace research and development firms right now. The applications of their technologies, both

inside and outside of NASA, are promising, and we look forward to seeing what this next round of accelerated seed funding will do."

NASA commits to future Artemis missions with more SLS rocket engines

NASA has awarded a contract to Aerojet Rocketdyne of Sacramento, California, to manufacture 18 additional Space Launch System (SLS) RS-25 rocket engines to support Artemis missions to the Moon. The four RS-25 engines, shown here, are attached to the SLS core stage that will send the Artemis I mission to the Moon. Currently, the stage is undergoing a series of Green Run tests in a test stand at Stennis Space Center near Bay St. Louis, Mississippi. The additional engines will support future SLS flights to deep space.
NASA has awarded a contract to Aerojet Rocketdyne of Sacramento, California, to manufacture 18 additional Space Launch System (SLS) RS-25 rocket engines to support Artemis missions to the Moon.

The follow-on contract to produce 18 engines is valued at $1.79 billion. This includes labor to build and test the engines, produce tooling and support SLS flights powered by the engines. This modifies the initial contract awarded in November 2015 to recertify and produce six new RS-25 engines and brings the total contract value to almost $3.5 billion with a period of performance through Sept. 30, 2029, and a total of 24 engines to support as many as six additional SLS flights.

"This contract allows NASA to work with Aerojet Rocketdyne to build the rocket engines needed for future missions," said John Honeycutt, the SLS program manager at NASA's Marshall Space Flight Center in Huntsville, Alabama. "The same reliable engines that launched more than 100 space shuttle missions have been modified to be even more powerful to launch the next astronauts who will set foot on the lunar surface during the Artemis missions."
Each SLS rocket uses four RS-25 engines, providing a total of 2 million pounds of thrust to send SLS to space. The SLS rocket leverages the assets, capabilities, and experience of NASA's Space Shuttle Program, using 16 existing RS-25 shuttle engines for the first four SLS missions. These engines were updated with new controllers – the brains that control the engine – and upgraded and tested to fly at the higher performance level necessary to launch the SLS, which is much larger and more powerful than the shuttle.

The rocket engines are mounted at the base of the 212-foot-tall core stage, which holds more than 700,000 gallons of propellant and provides the flight computers that control the rocket's flight. The engines for the Artemis I mission to the Moon have already been assembled as part of the core stage, which is undergoing Green Run testing.

"We've already begun production on the first six new RS-25 engines," said Johnny Heflin, the SLS engines manager. "Aerojet Rocketdyne has restarted the production lines, established a supplier base and is building engines using advanced techniques that reduce both the cost and time for manufacturing each engine."
The engines are built at Aerojet Rocketdyne's factory in Canoga Park, California. Working with NASA, Aerojet has implemented a plan to reduce the cost of the engines by as much as 30% by using more advanced manufacturing techniques to modify some of the rocket components. Some of these modified components have already been tested during engine tests that replicate the conditions of flight.The new digital controllers are built by Honeywell Aerospace in Clearwater, Florida, a major subcontractor to Aerojet Rocketdyne.

The SLS rocket, Orion spacecraft, Gateway and Human Landing System are part of NASA's backbone for deep space exploration. Work is well underway on both the Artemis I and II rockets. The Artemis I core stage and its RS-25 engines are in the B-2 test stand at NASA's Stennis Space Center near Bay St. Louis, Mississippi. Here, the stage is undergoing Green Run testing, an integrated test of the entire new stage that culminates with the firing of all four RS-25 engines. Upon completion of the test, NASA's Pegasus barge will take the core stage to NASA's Kennedy Space Center in Florida where it will be integrated with other parts of the rocket and Orion for Artemis I.

CYTTA Corp sells SUPR stream compression systems to military satellite services provider

Cytta Corp announces the sale of SUPR Stream 2.0 Compression

systems pursuant to its strategic partnership with a worldwide primary Value Added Reseller. This VAR is a leading provider of classified government satellite services and has now successfully marketed the SUPR Stream 2.0 to their classified clients to enhance the capabilities of mission-critical communications.

The purchase order formally integrates Cytta's proprietary low-bandwidth video compression product(s) with the VAR's extensive remote communications systems integration offerings. Our SUPR Stream technology enabled the VAR to create and market a proprietary solution for its military clients. By integrating and deploying the SUPR Stream compression product, the VAR is now providing their customers with a new and advanced video delivery strategy.
This Agreement serves as a catalyst for Cytta to drive growth and market penetration into the nearly $5B market for government and military satellite communications technologies. Our SUPR Stream and IGAN products accelerate the provision of proprietary communication solutions and professional services to existing and new Government and IGO customers.
"This VAR is one of the largest remote communication service providers in the world and brings a wealth of experience, and strategic thinking that complements our technology and products. This is a powerful opportunity for Cytta to significantly speed the integration of our SUPR compression

products to multiple clients across many industries. The VAR's scale and global network focuses on providing communication solutions to existing and new government, IGO, and NGO customers. Their reach combined with our SUPR compression and IGAN communication products, will allow us to immediately serve a broader range of customers," said Gary Campbell, CEO of Cytta Corp.

Video and audio streaming are one of the most important communication tools available to the military and first responders. SUPR Compression technology is currently utilized by the military to stream high-resolution video from anywhere on earth, with a low bandwidth connection. It provides the ability to deliver high-definition video in operationally constrained environments. Adding the IGAN Matrix to the system is vital to connecting remote personnel with those on the front

lines allowing complete situational awareness through a real-time Observation.

Disney+ viewership already exceeding seven exabytes per month

Six months after launching, Disney+ already represents a significant portion of internet traffic. According to traffic monitoring data from Enea, Disney+ currently represents 1.2-2.2% of all mobile video traffic in North America and Europe. By contrast, Netflix accounts for 7-15% of traffic in the regions

The firm adds that the streamer has reached 7 exabytes of data streamed per month and that it has been in the top 10 HTTP domains for the territories in which it has gone live. Specifically for Southern Europe, Disney+ is in the top 5 while the report also says that it is the second busiest HTTP domain in North America.

Additional research from Enea across 5,000 mobile subscribers in the US, UK, Japan and the UAE found that 29% are planning on subscribing to the streamer. The UAE was the country most interested, with 49% of the respondents there expressing an interest in Disney+

The report comes after Disney confirmed that it has exceeded 54 million paying subscribers to Disney+. Company CEO Bob Chapek said that the fledgling streamer has "exceeded even our highest expectations."

Viasat Consumer and Canal Digital merger completed

The previously announced merger of Viasat Consumer and Canal Digital is now a reality and the two company has become a new joint venture company was completed. The two TV distributors have now become one, and the new company will go by the name Allente.

The closing of this transaction creates a large-scale player that can compete on a Nordic level, make sustained investments in content and technology, deliver even better combined customer offerings, and generate substantial revenue and cost synergies.

The new company, known as Allente, will offer TV distribution via satellite, streaming services as well as IPTV solutions, and fibre broadband via open networks to 1.2 million customers in Norway, Sweden, Denmark

and Finland.

"The TV industry is developing tremendously, however it is not every day that a new, major TV distributor enters into the playing field. We are incredibly proud of our employees and the efforts they have put in lately. It is impressive to see everyone's 'can do' spirit and how they always put customers first. We are looking forward to continue doing so in Allente," says CEO of Allente, Bjørn Ivar Moen.

NENT Group and Telenor Group each hold 50 percent of the shares in the new company, which is headquartered in Stockholm and Oslo. The joint venture will operate at an arm's length from NENT Group and Telenor Group, and is an open platform providing content from multiple providers.

Eutelsat selected by Telenor Maritime for maritime mobility services in Europe, Trans-Atlantic routes, the Caribbean, and South East Asia

Eutelsat Communications has secured a multi-year contract with Telenor Maritime to provide Ku coverage on a regional basis for sailing areas in Europe, Trans-Atlantic crossings, the Caribbean and South East Asia.

Eutelsat will leverage several of its satellites in order to deliver targeted capacity with guaranteed levels of throughput to specific sailing areas under a managed services agreement. It will enable the delivery of high speed internet connectivity to cruise and ferry passengers by extending GSM roaming to the vessel and/or selling access to on-board WiFi networks.From the outset of the contract, Telenor Maritime Vessels will progressively transfer vessels onto the network in a proactive manner.

At a later stage, Telenor Maritime will migrate vessels onto Eutelsat's Ka band satellite, Konnect VHTS in Europe when it is available, making it the first reference customer from the maritime industry on the new satellite.

Lars Erik Lunøe, CEO of Telenor Maritime said: "We are pleased to extend our collaboration with Eutelsat. Eutelsat was selected based on its ability to deliver the right platform/ and

service mix to suit our target markets and the flexibility to accommodate our high standards with respect to the latency of voice traffic, capacity management and deployment flexibility."

Philippe Oliva, Chief Commercial Officer of Eutelsat Communications said: "We thank Telenor Maritime for placing its trust in Eutelsat, and making us its main supplier of managed maritime connectivity services, enabling it to extend its offer of high speed connectivity to its customers. This contract testifies to the unparalleled coverage of Eutelsat's fleet as well as its flexible and innovative approach in delivering tailor-made solutions for its customers."

AMERGINT Technology holdings acquires Tethers Unlimited, Inc.

AMERGINT Technology Holdings has acquired Tethers Unlimited, Inc. (TUI), a leader in new space solutions for the small satellite market. The transaction will bring together AMERGINT Technologies, Inc. and TUI to provide integrated end-to-end solutions for satellite communications and in-space services to the space market. Terms of the transaction were not disclosed.

"Joining forces with AMERGINT makes tremendous sense for Tethers Unlimited," said Dr. Rob Hoyt, TUI's CEO. "Combining AMERGINT's ground-based processors and modems with TUI's software-defined satellite radios and mesh network solution enables us to provide flexible, affordable, secure and resilient end-to-end communications services that scale to meet the needs of the hybrid space architectures under development by the Space Force, the Space Development Agency, DARPA, USAF and the Intelligence Community."

Founded in 1994 by technologist Dr. Hoyt and the renowned science fiction author Dr. Robert L. Forward, for more than 25 years TUI has pioneered an array of innovative space technologies, including software defined radios for satellite communications and mesh networks, robotic systems for in-space servicing and manufacturing and assembly, and advanced propulsion solutions for orbital maneuvering and orbital debris mitigation. TUI supplies the space industry with high-performance satellite components including the SWIFT® software defined radio, the

Terminator Tape™ Deorbit Module, the HYDROS™ water-electrolysis thruster and the COBRA™ gimbal as well as research and development into robotics and in-space manufacturing systems.

"AMERGINT is thrilled to welcome Rob and the team at TUI into our family, and to bring together two engineering-driven, technology organizations that are focused on solving our customers' toughest challenges across the space ecosystem," said Larry Hill, CEO of AMERGINT Technology Holdings. "At a time when our customers are increasingly focused on integrated communications and data networks, we are excited to close the link between software-defined solutions from the ground architecture to the spacecraft."
Rob Andzik, president of AMERGINT noted, "Bringing the expertise of TUI and AMERGINT together enables us to provide the space and defense sectors with the next generation of solutions to manage the capture, processing, transport, and exploitation of vital mission data for communication and data links."

Moving forward, AMERGINT and TUI will increasingly offer integrated satellite communications offerings combining software-defined satellite radios with software-defined ground stations. The two companies will also build upon the full suite of technologies and products at both companies around space servicing and test systems to offer a wide range of solutions for government and commercial customers.

Kacific reconnects ASTCA network to outer island in American Samoa

American Samoa is an U.S territory with a population of just over 55,000 people, living across seven volcanic islands and coral atolls in the South Pacific. A recent fibre outage during the Covid-19 pandemic has shown the importance of satellite redundancy systems.

The eastern island of Ofu, part of the Manu'a group, suffered a cable outage in March 2020. Although Ofu is connected with a subsea cable system to American Samoa's main island 100 km away, two of the three branches of the looping cable system serving the Manu'a group were damaged by rough seas in separate incidents two weeks and 90 kilometers apart.

To restore service, ASTCA implemented a backup satellite option provided by Kacific.

ASTCA purchased a small satellite dish (1.2m in size) from the neighboring country of Samoa. The disassembled dish was picked up in Samoa and transported to Ofu (200 kms away) by a small dive boat. After receiving the equipment on site at Ofu, it took only a few hours for ASTCA engineers to install the VSAT and establish a stable uplink and downlink connection at more than 90Mbps, communicating with Kacific's Singapore-based Network Operations Centre.

"To have two very reliable links go down within weeks of each other for independent causes, we were really not ready for that," said Lewis Wolman, CEO of American Samoa Telecommunications Authority (ASTCA). "We never imagined that we could lose both legs of the subsea cable system and had neglected to provide satellite redundancy."

ASTCA had to act quickly to restore communications with Ofu Island. The drive for connectivity was made more urgent by the simultaneous public health danger of Covid-19.

The deployment, however, was much more difficult both logistically because of reduced transport options, and due to additional border regulations of both the governments of American Samoa and the Independent State of Samoa. The light, compact and simple 1.2m high-speed Kacific VSAT was critical to allow fast transportation and installation of that system.

"ASTCA is a public agency (state owned enterprise), so we have a fundamental commitment to universal access and full connectivity to all of our islands. The population of Ofu is approximately 500 people. We don't use the word "only", because our commitment is to everybody," continued Lewis. "The other reason is that we were then – and are now – in the middle of an emergency declaration. We could not communicate at a time we were having a public health emergency, that's obviously unacceptable."

Fa'asala Augafa, ASTCA CTO, added, "given the landscape and geolocation of the remote islands, we need satellite. Whether it is primary or secondary, we have yet to determine that. Our experience has taken away that thinking that cable is stable and will always be there."

Maxar Technologies reports first quarter 2020 results, announces award for multiple 1300-class communications satellites

Maxar Technologies announced financial results for the quarter ended March 31, 2020 and a multi-hundred million dollar contract award to build multiple 1300-Class communications satellites for an undisclosed customer. All dollar amounts in this press release are expressed in U.S. dollars, unless otherwise noted.

Key points from the quarter include consolidated revenues from continuing operations of $381 million, net loss of $48 million, diluted loss per share from continuing operations of $1.30, adjusted EBITDA1 from continuing operations of $77 million and Adjusted EBITDA1 margin of 20.2 percent, net loss and Adjusted EBITDA included charges of $18 million related to COVID-19 and $14 million related to a recent design anomaly detected in a final satellite test procedure and excluding the $32 million in charges described above, net loss would have been $16 million and Adjusted EBITDA would have been $109 million

"Our results this quarter reflect progress on our multi-year strategy to strengthen our company and position it for revenue, profit and cash flow growth. Importantly, we closed the MDA divestiture, which helped improve our balance sheet. We generated solid revenue growth in Earth Intelligence, and quarter-over-quarter consolidated backlog growth, demonstrating solid demand from customers and continued success of our diversification strategy," said Dan Jablonsky, CEO. "And the bookings momentum has continued into the second quarter with today's signing of a contract to build multiple 1300-Class communications satellites. This brings our bookings total in Space Infrastructure to over $700 million year-to-date and puts us on a path for another year of backlog growth for this segment."

Jablonsky continued, "As we respond to the global Coronavirus pandemic, we are focused on protecting the health and safety of our team members, families, customers and communities while continuing to deliver the products and services needed by our partners to complete their critical missions."

"We ended the quarter with roughly $500 million in liquidity and no significant debt maturities until the end of 2023," stated Biggs Porter, CFO. "This quarter's results were negatively impacted by an increase in estimated costs to complete programs and scheduling penalties in our Space Infrastructure segment because of the social distancing restrictions put in place across the world to help combat COVID-19. Separately we discovered a design anomaly on a commercial satellite program in late April prior to shipment. This was during the final stage of our thorough test process and resulted in schedule revisions and cost growth. Our results included negative impacts of $32 million in the quarter related to these items. Excluding these items, our results are in line with expectations."

Bridge Technologies partner with Appear TV to provide advanced IP-based production and distribution

On the back of their recent announcement of the new Integrated Services Monitoring (ISM) model, Bridge Technologies has demonstrated the value and robustness of their approach with technology collaborators Appear, in a setup which facilitates end-to-end delivery and monitoring of data, uncompressed to compressed, from production to end user.
ISM seeks to bring together the Bridge Technologies portfolio of products into a turnkey, easy-to-install media monitoring system. It represents Bridge's recognition of the increasingly merged and hybridized nature of the industry, where single entities may now operate on multiple layers of the broadcast and media cycle; from production through signal acquisition, contribution streams, picture archiving, OTT/streaming media, to traditional broadcast distribution with DTT or Satellite.

The advanced IP-based production and distribution setup – which would have also been demoed at NAB this year – is a successfully tested proof of concept for a full-length monitoring solution from production to end user, using standards SDI, SPTS, MPTS and OTT. The setup has been fully tested with four cameras with SDI outputs feeding an IP network processor to seamlessly bridge SDI and IP networks.

The encapsulated SDI-IP signal is forwarded to the Appear X10 that encodes SDI into SPTS multicast and to the Appear ABR transcoder for conversion to HLS OTT

and distribution. The Appear XC5000 carrier grade platform with built-in automatic routing of signals is also part of the setup for IP in/out distribution and RF transport. Furthermore, the multicast service can then be monitored by Bridge´s multitude of IP Probes – including the VB330, VB220, RDW, NOMAD, VB120 and RF modules.

In this particular broadcast setup, the key to the way both technologies allow for delivery from the beginning of the production process to the end of the broadcast process is their ultra-low latency performance in the conversion of live SDI to SDI-IP. This architecture allows for full motion, colour-accurate, ultra-low-latency video to be made available from any source to any application or user – anywhere in the world, be that a fixed studio, remote OB van or Headend environment, such that a geographically-dispersed team can work together on the same project.

Explaining why this particular setup facilitates a revolutionary approach to IP-based, end-to-end network structures, Chairman of Bridge Technologies, Simen Frostad said: "Individual, disparate solutions become a less and less tenable approach within an industry that is now trying to do a lot more with a lot less. ISM takes the incredible analytical ability embedded in every part of the Bridge Technologies portfolio, and deploys it in a way that captures and utilizes data in multifaceted ways to assist with accurate decision making across the whole media chain, end-to-end".

"Moreover, we make sure that the data generated is intuitive, meaningful and usable, not only by those with knowledge of IP network behaviour aiming to troubleshoot day-to-day operations, but by non-technical experts – be they production-based camera painters, or corporate-based strategic decision makers".

Marlink deploys Brazil Teleport and meets Petrobras requirements for low latency and high speed services

Marlink has confirmed that its new local Teleport, network infrastructure and support capabilities meet new pre-requirements to provide VSAT services for Petrobras-chartered vessels operating offshore Brazil.

Petrobras has set strict new connectivity and services standards for offshore vessels carrying Petrobras crew, following the decision to discontinue its in-house VSAT network by 2023. New bids and contracts for offshore vessels already consider such requirements that will apply to the vast majority of vessels operating in Brazil as existing contracts are renewed.

The main requirements are strict latency standards (~650 milliseconds), redundant direct interconnection to Petrobras data centres, and local support in Portuguese language. The VSAT technology selected by Marlink for the Brazil teleport is able to efficiently deliver compliant speeds to all types of vessels, including high bandwidth consumers like FPSOs and drilling rigs.
Marlink will fulfil the requirements through co-operation with global and local Brazilian partners and is committed to further developing its established presence and capabilities in the region in support of digitalisation of all maritime and offshore operations. To further extend its range of customer solutions, Marlink also has agreements in place with satellite operators to provide a full range of licensed L-band services in Brazil.

"Petrobras is a frontrunner in its specifications for high bandwidth and well provisioned connectivity for digitally-enabled smart operations to support its energy exploration and production activity," said Tore Morten Olsen, President Maritime, Marlink. "Brazil is an important market for Marlink and our ongoing investment will ensure that our customers operating vessels offshore are able to meet – and exceed – these demands."

Telesat reports financial results for the quarter ended March 31, 2020

Telesat has announced its financial results for the three month period ended March 31, 2020. All amounts are in Canadian dollars and reported under International Financial Reporting Standards (IFRS) unless otherwise noted.

For the quarter ended March 31, 2020, Telesat reported consolidated revenue of $209 million, a decrease of 6% ($14 million) compared to the same period in 2019. When adjusted for changes in

foreign exchange rates, revenue declined 5% ($12 million) compared to 2019. Revenue decreases were primarily due to a reduction of service for one of Telesat's North American DTH customers and lower revenue due to the completion of the term for prepaid services in a customer agreement that was accounted for as having a significant financing component. These decreases were partially offset by higher equipment sales and new revenue from services provided to users impacted by a failure of a competitor's satellite in 2019.

Operating expenses for the quarter were $45 million, an increase of $6 million from 2019. Changes in foreign exchange rates had no impact on operating expenses during the quarter. Operating expenses, which consist of compensation and employee benefits, other operating expenses, such as marketing, general and administration expenses, and cost of sales, increased because of a higher provision for bad debt, higher in-orbit insurance expenses, higher professional fees, and higher compensation expense. Adjusted EBITDA1 was $166 million, a decrease of 11% ($21 million) or, when adjusted for foreign exchange rates, a decrease of 10% ($19 million). The Adjusted EBITDA margin1 for the first quarter of 2020 was 79.6%, compared to 84.2% in 2019.

For the quarter ended March 31, 2020, the net loss was $278 million, compared to net income of $172 million for 2019. The negative variation for the quarter was principally the result of non-cash foreign exchange losses in 2020, arising from the translation of Telesat's U.S. dollar denominated debt into Canadian dollars compared to foreign exchange gains in 2019, and non-cash losses on financial instruments in 2020 compared to gains in 2019.

"Our first quarter results were consistent with our expectations at the outset of the year, notwithstanding the COVID-19 pandemic," commented Dan Goldberg, Telesat's President and CEO. "Although we expect to face some headwinds from the pandemic throughout the balance of this year and potentially beyond, we believe that it will be principally from customers serving the aeronautical and maritime markets, which we estimate (in the aggregate) represented roughly just 10% of our total 2019 revenue. Our focus at this time is to support our employees and customers through the pandemic, ensuring that our staff is healthy and that we continue to reliably and securely deliver the mission critical services we provide. I am pleased with and grateful for

the tremendous work the Telesat team is doing in this regard and, moreover, in the progress we continue to make on our signature growth initiative, the development of our planned revolutionary Low Earth Orbit (LEO) satellite constellation."

NASA selects Blue Origin National Team to return humans to the moon

The Blue Origin National Team, including Lockheed Martin, Northrop Grumman, and Draper, has been selected by NASA to begin to develop the Artemis Human Landing System. "NASA's Artemis program will be the next major milestone in the history of human space flight, and we're honored to be a part of it," said Bob Smith, CEO, Blue Origin. "Our National Team brings unparalleled heritage, passion and innovation that will enable Americans to return to the lunar surface and inspire another generation. It's time to go back to the Moon, this time to stay."

Using existing and in development technologies provides the head start needed to meet NASA's goal of landing at the South Pole of the Moon. Lockheed Martin's Ascent Element is based on Orion; Northrop Grumman's Transfer Element is based on Cygnus; and Blue Origin's Descent Element is based on the Blue Moon lander and BE-7 engine, which has been in development for several years.

"Lockheed Martin is honored to be partnered with Blue Origin and this National Team as we begin a moment in history that the world will point to for generations," said Rick Ambrose, executive vice president, Lockheed Martin Space. "The Artemis astronauts will descend to the surface and ascend off the surface inside an advanced crewed ascent element. The best way to accomplish this safely and quickly is to leverage NASA's investment in Orion, an existing human-rated deep space spaceship, which maximizes common training and operations."

"Putting humans back on the lunar surface is an inspiring goal for our nation," said Blake Larson, corporate vice president and president of Northrop Grumman Space Systems. "We are proud to support this team and NASA with our decades of experience, comprehensive capabilities, and our proven space systems, as we return to

the Moon.
"Draper's extensive portfolio and heritage in human exploration avionics is reinforced by current work on Lockheed Martin's Orion, NASA's SLS, Northrop Grumman's Cygnus and Blue Origin's engine, New Glenn and Blue Moon programs," said Seamus Tuohy, Principal Director of Space Systems, Draper. "We are prepared for this united team to return humans to the Moon, just as Draper did with Apollo."

Indigo Agriculture leverages satellite data to advance food Security across the globe

Indigo Agriculture, a company dedicated to harnessing nature to help farmers sustainably feed the planet, has announces its participation in the Development Data Partnership, an initiative led by the World Bank, the International Monetary Fund, and the Inter-American Development Bank. By offering real-time agricultural data generated through Indigo Atlas, Indigo's living map of the world's food supply, the collaboration will better inform decision-making in areas particularly vulnerable to the impact of climate change and help more efficiently direct resources in times of global food shortage. The first agricultural technology company to take part in this alliance, Indigo joins a partnership of leading international organizations and companies - such as Google and Facebook - committed to leveraging data to further public research and international development.

"As climate change reshapes how, where, and when our food is available - an issue made all the more critical by the recent spread of COVID-19 - we are pleased to be able to assist the public sector's efforts to solve our most pressing global challenges," says David Potere, Indigo's Head of Geoinnovation. "Indigo's satellite capabilities can be particularly helpful in advancing our understanding of the food system. We are proud to work with the World Bank to translate this capability into more timely, relevant, and precise decision-making to further ensure a durable global food supply."

Indigo Atlas, which combines remote sensing, ground equipment, historical, and weather data, is capable of identifying subtle differences in crop

performance across regions. Using this proprietary technology, the World Bank can monitor crop productivity in many global growing regions, effectively assessing the health and progress of nearly half of the world's calories in real-time. This information, which will help ascertain the food supply impacts of natural disasters, will primarily inform program prioritization, design, implementation, monitoring, and evaluation. No individual grower data will be shared through the partnership and full access to Indigo's crop forecast technologies will remain for Indigo customers only.

Work is already underway on two projects through the Partnership. The first of these initiatives focuses on the MENA region, where scarce agricultural land and water resources, together with a growing population, have exacerbated issues of food independence and security. In support of national and regional policies to address these challenges, Indigo will assess changes in cropland, crops, irrigation, and degradation of land over the past two decades to identify opportunities for more efficient and sustainable future land management.

Additionally, Indigo is deploying its satellite capabilities to estimate corn yield shortfalls in provinces across Zambia, a country which has faced two consecutive years of drought. By equipping the south African nation's agriculture and water specialists with an objective and comprehensive overview of the farms and irrigation systems throughout the country, the project aims to improve access to irrigation services in times of critical need. Insights gained from the analysis will be used to proactively optimize public sector services and infrastructure in a country on the front lines of climate change.

Airbus supplies EU with satellite communications

Airbus has won the new satellite communications framework contract for military and civil missions of the European Union and its member states. This four-year framework contract was awarded by the European Defence Agency (EDA) and is estimated to be worth tens of millions of euros.
"With this satellite communications programme, Airbus contributes to the construction of joint capabilities for European defence and to its missions to preserve civil and military peacekeeping", said Dirk Hoke, Chief Executive Officer of

Airbus Defence and Space.
The contract named 'EU SatCom Market' will allow EU member states to centralise their satellite communications requirements and obtain coordinated, more economical and effective access to these services. Some 32 contributing members, including 20 European defence ministries, can now swiftly and efficiently get access to satellite solutions and services through EDA, which has been supplying the members of the 'EU SatCom Market' project with satellite communications capabilities since 2012.
These satellite communications solutions can be deployed worldwide. They play an essential role in European civil and military peacekeeping and security missions, as well as in technical and economic development and cooperation missions. This is already the case in several EU civilian and military missions and operations where EU SatCom Market services have been successfully implemented for several years. The armed forces of EU member states also use these solutions.

Telesat joins C Spire-led consortium on rural broadband access

Telesat, one of the largest and most successful global satellite operators, has joined a group of tech firms led by Mississippi-based C Spire working to bridge the "digital divide" and help solve the rural broadband access and adoption problem.

The firms, which also include Airspan Networks, Microsoft, Nokia and Siklu, joined forces last year and have been testing technology solutions, creating and building new business models and providing training resources for individuals and communities in digital skills to help improve internet access in rural areas.

In addition to Telesat's state-of-the-art global, geostationary satellite fleet, the company is building Telesat LEO, a low earth orbit network that will deliver fiber-like connectivity with a combination of high speeds, high capacity, affordability and ultra-low latency.

Telesat will provide analysis tools and its experience with LEO technology to help the consortium work on new business models designed to encourage and promote third-party engagement. Telesat has partnered with the Canadian

government to provide backhaul to rural and remote communities as part of an effort to bridge the "digital divide" affordably and quickly connecting the remaining 2.2 million households across the country.

"Telesat is a leader in developing satellite technology solutions that help consumers and businesses, no matter where they live or work, bridge the digital divide with reliable, affordable and high-quality internet access," said C Spire Chief Innovation Officer Craig Sparks. "We're excited that they are joining our efforts to tackle this complex technical, economic and access issue."

Mississippi, with almost 28 percent of its residents lacking any broadband connectivity and less than 18 percent using broadband, is the primary testing ground of the group's work as nearly half of its 3 million residents live in rural areas. The state ranks 46th nationwide in broadband access and 47th in urban population.

Among the various fixed wireless technology solutions the consortium is deploying and testing in rural areas of Mississippi are TV white spaces, massive MIMO using 4G Band 41 LTE and C Spire's own 5G internet product, Sparks said, adding that the approaches could potentially be used in similar broadband-challenged rural areas across the continent.

C Spire is leading the effort as part of its broader Tech Movement to build a better future for the region through technology and education. "Improving broadband access and digital skills represent huge opportunities for rural areas. Every student, school and business should have the chance to reap the benefits from wider availability and adoption," Sparks said.

Telesat's efforts in Canada could have even broader implications beyond North America, according to Michael Schwartz, Senior Vice President of Corporate and Business Development for the firm, noting that 48 percent of the world's population does not have high-speed internet access. The firm's full constellation will be comprised of 298 LEO satellites that orbit the earth roughly 35 times closer than traditional satellites.

"Telesat LEO will provide new options for mobile network operators and internet service providers to backhaul traffic from rural communities to their core networks," Schwartz said, noting that the technology could make low-latency, fiber-like broadband accessible anywhere.

Sparks echoed Schwartz's outlook about the technology and stressed that more study and research must be completed before implementation. "We know that delivering high capacity broadband services is challenging – not because of the technology, but the economics. We are working hard with partners like Telesat to develop new business models with ways to close the broadband adoption and affordability gap in rural communities everywhere."

The broadband "digital divide" between U.S. cities and rural parts of the country is substantial. According to a 2018 Federal Communications Commission1 report, over 19.4 million rural Americans still lacked basic broadband at the end of 2017 with profound negative social and economic impacts on the nation's rural communities.

Microsoft announces definitive agreement to acquire Metaswitch Networks

Microsoft announced that it has signed a definitive agreement to acquire Metaswitch Networks, a leading provider of virtualized network software and voice, data and communications solutions for operators.
The convergence of cloud and communication networks presents a unique opportunity for Microsoft to serve operators globally via continued investment in Azure, adding additional depth to our hyperscale cloud infrastructure with the specialized software required to run virtualized communication functions, applications and networks.

This announcement builds on our recent acquisition of Affirmed Networks, which closed on April 23, 2020. Metaswitch's complementary portfolio of ultra-high-performance, cloud-native communications software will expand our range of offerings available for the telecommunications industry. Microsoft intends to leverage the talent and technology of these two organizations, extending the Azure platform to both deploy and grow these capabilities at scale in a way that is secure, efficient and creates a sustainable ecosystem.

As the industry moves to 5G, operators will have opportunities to advance the virtualization of their core networks and move forward on a path to an increasingly cloud-native future. Microsoft will continue

to meet customers where they are, working together with the industry as operators and network equipment providers evolve their own operations.
We will continue to support hybrid and multi-cloud models to create a more diverse telecom ecosystem and spur faster innovation, an expanded set of unique offerings and greater opportunities for differentiation. We will continue to partner with existing suppliers, emerging innovators and network equipment partners to share roadmaps and explore expanded opportunities to work together, including in the areas of radio access networks (RAN), next-generation core, virtualized services, orchestration and operations support system/business support system (OSS/BSS) modernization. A future that is interoperable has never been more important to ensure the success of customers and partners.

By enabling advancements in enhanced mobile broadband, ultra-reliable low latency communications and massive machine-type communication to enable IoT at scale, 5G offers significant potential for enterprises and governments and in turn creates new opportunities for operators. 5G will ultimately give operators a path to accelerate service innovation and deliver new transformative experiences that are faster, more resilient and more secure, spurred on by software advances to drive transformation at scale.

FCC to expand deployment and use of satellite earth stations in motion

The Federal Communications Commission took action to facilitate the continued deployment of earth stations used to provide satellite-based communications services on ships, airplanes, and vehicles. Satellite earth stations in motion, or ESIMs, provide continuous and consistent broadband services to moving platforms by connecting them with satellites.

Today's action expands the frequency bands available to these moving earth stations, promotes operational flexibility, and advances regulatory consistency between ESIMs communicating with fixed satellite service systems in geostationary satellite orbit and those in non-geostationary satellite orbit. The decision also adopts a regulatory

framework for earth stations in motion communicating with non-geostationary fixed satellite service space stations which is similar to the current framework for geostationary connections, including extending blanket earth station licensing. In addition to the new rules, the FCC is also seeking comment on potential interference from out-of-band emissions of ESIMs operating with non-geostationary satellite orbit space stations into the adjacent band used by the Upper Microwave Flexible Use Service (UMFUS).
Together these actions will simplify the regulatory approval process for this service and promote innovative and flexible use of satellite technology. ESIMs are a fast-growing segment of the satellite communications market.

HISPASAT rolls out 50 WiFi satellite hotspots bringing internet access to remote areas in Brazil

HISPASAT and EasyTV, the provider of innovative entertainment and digital content solutions, have joined forces to bring internet access to Brazilian towns located in regions that lack connectivity. The first phase of the project includes the installation of 50 new WiFi satellite hotspots in Brazil, powered by Facebook Connectivity's Express WiFi platform. This will enable EasyTV to provide practical and reliable high speed internet access using coverage in the Ka band of HISPASAT's Amazonas 5 satellite.

EasyTV is the first company that HISPASAT has worked with to provide connectivity service using the Express WiFi platform. The WiFi satellite hotspots installed by HISPASAT and EasyTV are located in remote communities in the state of Maranhão, where connectivity has been lacking due to insufficient telecommunications infrastructure.

The second stage of the project is already in progress. HISPASAT and EasyTV will install another 50 satellite connectivity hotspots in different towns in the north and north-east interior of Brazil over the next few months. The companies expect to increase this figure notably before the end of the year. HISPASAT will also look for new partners to roll out this network in other regions where connectivity is lagging. The ultimate goal is to the extend HISPASAT 's coverage up to 3,000 hotspots in Brazil

provided by the Amazonas 5 satellite. The arrival of Express WiFi has had an undeniable social impact on the lives of the residents in remote communities like Maranhão. Express WiFi makes it possible for residents to communicate with other states and countries. For example, they can manage appointments and purchase bus tickets, among many other possibilities, which up until now they could only do by travelling to the town centre far away from their homes. This giant gateway is open to all members of these communities". Welder further emphasized: "EasyTV is committed to expanding the use of Express WiFi as we look for new ways to improve connectivity for these Brazilian communities".

The Amazonas 5, which will provide the necessary space capacity for this project, features the new high throughput satellite (HTS) technology. This will make it easier to carry out a massive deployment of satellite connectivity services at a low cost in Latin America. In the case of Brazil, the satellite provides coverage in the HTS Ka band to more than 75% of the Brazilian population and is operated from the HISPAMAR teleport, a HISPASAT subsidiary, in Caxias do Sul (state of Rio Grande do Sul).

According to the release, Facebook Connectivity will also works with service providers and operators like HISPASAT to extend fast, affordable and reliable WiFi internet access through its Express WiFi platform. The platform enables service providers and mobile network operators to build, operate, increase and monetise their WiFi business in a sustainable and scalable manner. HISPASAT will install WiFi hotspots operated by satellites in different towns throughout Brazil. Additionally, HISPASAT will provide its satellite capacity and its managed services platforms, which will help decrease the time to market needed by local partners and ISPs, those who are responsible for marketing the service and providing customer support.

Virgin Orbit makes the inflight connection with Panasonic Avionics

Panasonic Avionics Corporation has been selected by Virgin Orbit to provide inflight connectivity for its airborne rocket launch platform. Panasonic's latest generation high speed inflight connectivity system has been installed on Cosmic Girl, the modified Boeing 747-400 that serves as the carrier aircraft for Virgin Orbit's LauncherOne system. Virgin Orbit is currently undergoing final rehearsals for an orbital launch demonstration expected

soon

The inflight connectivity service will enable Virgin Orbit to monitor the health of the launch system over land and sea. The high bandwidth capacity of Panasonic's connectivity network will ensure Virgin Orbit's mission control center can quickly and easily communicate with the rocket prior to launch

Ken Sain, Chief Executive Officer of Panasonic Avionics Corporation, says, "Virgin Orbit is set to deliver an exciting step forward in satellite launching technology, and we are thrilled to support their vision with our inflight connectivity." "Panasonic Avionics' proven inflight connectivity services are used by airlines around the world to provide operational connectivity for not just passengers, but aircraft and their systems, and we look forward to supporting Virgin Orbit by providing a critical live link between air and ground."

Virgin Orbit builds and operates the most flexible and responsive satellite launcher ever invented: LauncherOne, a dedicated launch service for commercial and government-built small satellites. LauncherOne rockets are designed and manufactured in Long Beach, California, and will be air-launched from Virgin Orbit's modified Boeing 747-400 carrier aircraft – allowing it to operate from locations all over the world in order to best serve each customer's needs.

"We designed LauncherOne to be more mobile and flexible than any other platform out there, and that's required us to implement innovative, cutting-edge solutions throughout the system. We're grateful to Panasonic Avionics for their support — helping us keep eyes on our flight crew, Cosmic Girl, and the rocket as we fly out to our launch point. We're certainly looking forward to having this technology in action during our upcoming launch demo," said Virgin Orbit CEO Dan Hart.

Intelsat launches end-to-end managed cellular backhaul solution for US mobile operators

Intelsat, operator of the world's largest integrated satellite and terrestrial network, today launched Intelsat

CellBackhaul, an end-to-end managed service that helps Mobile Network Operators (MNOs) provide cost-efficient and rapid 4G and 5G broadband coverage to Americans everywhere, including those living, working and traveling in rural areas of the United States.

Much of the U.S. is rural, and there are still many areas where communities, farmers, ranchers, tourists, industrial and construction workers, and emergency personnel currently have no access to mobile broadband coverage.
With Intelsat CellBackhaul as part of their network planning strategy, MNOs of any size can cost-effectively offer mobile broadband coverage to these areas – connecting more subscribers, land areas, roadways and IoT devices. In addition to expanding their coverage areas, MNOs can utilize Intelsat CellBackhaul for network densification, and to provide backup coverage, ensuring their subscribers stay connected, anywhere they go.

As an end-to-end cellular backhaul managed service, Intelsat CellBackhaul includes all of the elements an MNO requires for cellular-backhaul purposes such as network-design consultation, connectivity from the MNO's cell sites to their core network over Intelsat's high-performance integrated space and ground network, satellite antenna and modem, plus additional equipment installation and maintenance options, guaranteed Service Level Agreements (SLAs) and 24x7 network-operations support

"We innovate to help our customers connect more people, places, and devices they otherwise would not be able to connect, and we do that on a global scale," said Intelsat Director of Product Management for Networks, Gerry Collins. "Our service will enable our U.S. mobile network operators to quickly and cost-effectively expand their coverage and bring connectivity into unserved and underserved areas, including many previously considered unreachable or unprofitable."

As the U.S. Federal Communications Commission (FCC) moves forward with its planned $9 billion 5G Rural Fund, as much as 67% of the U.S. landmass in 49 states and three U.S. territories could be eligible for funds to bring 5G into rural communities and support connectivity needs of American farms and ranches – a tremendous opportunity for U.S. MNOs.

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