SPACEWATCH
AFRICA

Exclusive interview

Meet Africa's leading woman in Aerospace

"Maryanne Muriuki says Space Generation Advisory Council is the biggest youth space network on Earth."

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

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SPACEWATCH
AFRICA

BROADCASTING
Next-generation technologies driving new business model

The future of Africa is in small satellites

Africa is steadily moving towards a coherent space programme and nano-satellites have become part of this broader strategy. Just like a smartphones, satellites are also getting smaller and better. Nanosatellites are, in fact, about the size of a mobile. Satellites even as small as a chip have been launched. They are called femtosatellites and weigh about 5-10 grams. But, they can do almost everything a conventional satellite does, and that too at a fraction of the cost.

Being low cost, multiple nano-satellites can be launched into low Earth orbit. The satellites in these constellations can pass over a specific geographic area more frequently than single, big-satellite missions. This makes it possible for nano-satellites to be used for rapid responses to disasters, or to gather timely information relating to tele-medicine, environmental management and asset tracking. This has inspired cutting edge research and innovation to make nano-satellites address many spheres of our social economic lives, especially with the coming of Internet of Things.

On 21 November 2013, South Africa made history by becoming the first African country to launch its own CubeSat TshepisoSAT into space. The satellite was developed by students and staff from the French South African Institute of Technology with funding from the Department of Science and Technology and the National Research Foundation. TshepisoSAT was the first in a series of CubeSats deployed into space to study the ionosphere above Africa in collaboration with scientists of the South African National Space Agency, and others on the continent.

In December 2018, the South African National Space Agency (SANSA), announced the launch of South Africa's second nanosatellite, three times the size of its predecessor, TshepisoSat. According to the agency's report, the nano-satellite is one of the continent's most advanced cube satellite and a precursor to the MDASat - a constellation of nine nanosatellites that was developed to provide cutting-edge very high frequency data exchange communication systems to the maritime industry.

Last year, Kenya also launch its first locally made nanosatellite, a partnership of the University of Nairobi and Japan Aerospace Exploration Agency, from the International Space Station . The small satellite is a 10 cm by 10 cm cube, with the volume of just one litre. In 2015, the United Nations Office for Outer Space Affairs launched a KiboCUBE programme. The programme in collaboration with JAXA, offered educational and research institutions from developing countries the opportunity to deploy cube satellites from the International Space Station (ISS). Through the KiboCUBE programme, Kenya's first Nano Satellite Precursor Flight, 1KUNS-PF, came to fruition.

> "Nanosatellite constellations can pass over a specific geographic area more frequently than single, big-satellite missions".

Since 2000, more than 300 CubeSats have been launched, of which American start-up Planet Lab accounts for a third. It is expected that up to 3000 nano and micro-satellites will be launched over the next 5 years as 5G and Internet of Things takes shape across the world. While the cost of a big satellite can run into hundreds of millions of dollars, a CubeSat can be built for around a hundred thousand dollars, and launched for much the same, depending on the complexity of the mission. Earlier microsatellites were deployed initially to train students for the aerospace industry. But now these small spacecraft can even be used to track and trace vessels at sera, sensors and aircrafts.

Before the launch of the current satellite projects, South Africa's (SA) had between 1980 to 1994 began a military space program involving both a launcher and earth observation satellite. This period produced excellent space test facilities, but was stopped in 1994 without producing a flight ready satellite. The SUNSAT microsatellite project started in 1992 at the University of Stellenbosch with the aim to produce

engineers for a future satellite industry in South Africa and to foster international university space cooperation. This program was very successful and led to the launch of Africa's first indigenous orbiting satellite SUNSAT-1, launched in February 1999 on a USAF Delta II rocket.

The 64 kg satellite with a SPOT-5 type 3-band multispectral pushbroom imager at a 15 meter Ground Spatial Distance (GSD) from 800 km, took the first locally produced earth images from space. The satellite had a useful life of almost 2 years until the last contact made in January 2001. The second SA satellite, built by a university spin-off company SunSpace in 15 months, was the 83 kg Sumbandila microsatellite. Its primary payload was a 6.25 m GSD six-spectral band pushbroom imager. The satellite was launched as the second locally produced African satellite in a 505 km 9 am/pm sun-synchronous 97.25° inclination polar orbit on 17 September 2009 on a Soyuz-2 rocket.

Stellenbosch University (SUN) and Cape Peninsula University of Technology (CPUT) have both trained several satellite engineers at Master's and Doctorate levels. Some of these activities are also sponsored by the South African government to develop human capital for the country's future space program. Since the start of its satellite engineering programme in 2009, CPUT students developed South Africa's first nano-satellite, ZACUBE-1, in collaboration with the South African National Space Agency (SANSA) Space Science Directorate and SUN. ZACUBE-1 is a 1-unit CubeSat with an HF beacon payload. ZACUBE-1 contributed to the characterization of the antenna array of the Super Dual Auroral Radar Network at the South African Antarctic station.

The current ZACUBE-2, a successor to the earlier satellite, is fully 3-axes stabilized, and carry VHF, UHF, L-band and S-band communications systems as well as an HF beacon and ion sensors. Other space technology fields addressed by the CPUT programme include antenna and communication systems for nano-satellites.

CWG Plc appoints Adewale as new CEO

Adewale Adeyipo, an erstwhile Executive Director of Sales and Marketing Development, CWG PLC was recently announced as the new Chief Executive Officer of CWG Plc, one of the biggest integration company in Sub Saharan Africa. According to him, the position requires him to be responsible for the entire sales operations and engagement for existing and new product development; which ranges from conceptualization to market research, product development, go-to market strategy and if necessary, partnership with other stake holders to achieve the end result of generating incremental revenue /profit for the organization.

The new Chief executive will be assuming the role of the Acting CEO come January 1st, 2019 and that is because our current CEO's tenure with be concluded by 31stDecember 2018 and he has decided to move over to some other very strategic line up for the organization, coupled with some other personal goals he has lined up.

Greg Wyler named SSPI UK Space & Satellite Personality of 2018

Founder and Executive Chairman of OneWeb, Greg Wyler, has been named SSPI UK Space & Satellite Personality of 2018. The Board of SSPI UK Chapter voted Mr. Wyler winner of this annual award for his contribution to the UK space and satellite sector and his recognition of the UK as an important space hub, selecting London as a base for his business. The Board also recognises the work that Mr. Wyler's OneWeb project is doing to enable broadband access for all.

A pioneer of the commercial NewSpace sector, Wyler established O3b Networks in 2007, the aim of which was to connect the 'other 3 billion' with broadband connectivity using Medium Earth Orbit (MEO) satellites. The company, although now Netherlands-based and owned and operated by SES, was originally conceived in the UK and possesses a UK satellite licence.

In 2015, Wyler founded OneWeb with a vision to bridge the Digital Divide by 2027 using a network of Low Earth Orbit (LEO) satellites. OneWeb will launch 900 small satellites to circle the Earth and enable affordable access to broadband internet services for a variety of use cases including first responders, mobile network operators, schools and health clinics. The OneWeb project has already attracted more than $2bn investment and has located a key office in White City, London. A large part of the infrastructure is in the UK, and this has led to a push for the UK space agenda.

"We are delighted to present this award to Greg to thank him for the great contribution that he has made to the space industry in the UK", said Betty Bonnardel, President of SSPI UK. "We are embarking on a new era in

Adewale Adeyipo

UK space and Greg has enriched the sector in this country by bringing OneWeb to London and recruiting UK talent. This will also encourage other space entrepreneurs to have the courage to make their visions become reality. We look forward to watching OneWeb grow and flourish in the UK and across the world."

"When I started this journey 15 years ago, and I started connecting individuals to the internet... a lot of people have been asking me - why the mission? Why are you doing this?" said Wyler. "It's because of the impact I saw. The gift of information access, the gift of self-reliance, and the gift of opportunity." The Award was presented to Mr. Wyler at the Better Satellite Awards Dinner, held in London last December.

GVF elects Directors to guide the global association

The international satellite industry has confirmed executives to serve on the Global VSAT Forum (GVF) Board of Directors to lead the association as it continues to build greater awareness and use of the applications, services, and technological advantages provided by satellite-based solutions.

The election results come as GVF is already into its third decade of operation. In 1997, leading organizations in the satellite communications industry launched the GVF, a non-profit, international association to represent the interests of the satellite industry and aid in the promotion of satellite technology and services. Since then, GVF has become the unified voice of the global satellite communications industry with member organizations from every major region of the world. The broad-based membership represents every sector of the satellite industry, including fixed and mobile satellite operators, satellite network operators, teleports, satellite earth station manufacturers, system integrators, value added and enhanced service providers, telecom carriers, and users, together with, more recently Earth observation companies.

Elected to the GVF Board for a two-year term of office are Yasir Hassan, Director of Transmission Operations, ARABSAT;

ArunasSlekys, Vice President, Corporate Marketing, Hughes Network Systems; Paul Deedman, Director, Spectrum Regulation, Inmarsat; Nick Dowsett, Director, IntelsatOne Enterprise Solutions, Intelsat; and Keith Johnson, COO & EVP of Energy at SpeedCast.

"The satellite industry can be proud of its extraordinary achievements of the past two decades," said David Meltzer, Secretary General of GVF. "Having only recently taken up the leadership of the GVF Secretariat, it gives me great pleasure to work with an excellent group of industry executives who possess a wealth of experience and knowledge from a diverse group of companies."

Timothy Schermerhorn joins Intelsat

Intelsat S.A., operator of the world's first Globalized Network and leader in integrated satellite communications, today announced that Timothy Schermerhorn has joined the company as regional vice president, North America. Schermerhorn will be responsible for the development and implementation of Intelsat's sales and go-to-market strategies for the company's network, mobility and media customers operating in North America. He will be based in Intelsat's McLean office in Virginia and report directly to Kurt Riegelman, Intelsat's senior vice president, sales, marketing and communications.

"Tim is a proven leader whose expertise will be critical in driving Intelsat's strategy in North America," said Kurt Riegelman. "As we work to support our customers' digital transformation, Tim has a strong understanding of the complex communications challenges facing our broadband, mobility and media customers. His strong background will prove instrumental as we work to help our customers transform their business, execute against their strategy and achieve their growth objectives."

Schermerhorn joins Intelsat from Synacor, where as senior vice president, sales and marketing, he led the global sales, marketing and channel distribution strategies for the company's telecommunications service providers. Prior to joining Synacor, he served as vice president and general manager, broadband & media at Ericsson, Inc. In that role, he directed sales, business development and operations for Ericsson's leading broadband and media accounts. Prior to that, he held senior sales and general management roles at Intel Corporation, Advanced Digital Broadcast, Motorola and General Instrument. Schermerhorn earned a Bachelor of Science in Business Administration, Finance and Marketing from Syracuse University.

UAE hosts MSS multilateral coordination meeting

The UAE, represented by the Telecommunications Regulatory Authority (TRA), hosted in Dubai the seventh mobile-satellite service multilateral coordination meeting (MLM-7), headed by Eng. Khalid Al Awadhi, Manager Broadcasting and Space Services in the TRA, with participation of Russia, United Kingdom, Japan and Indonesia

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The meeting, which is held at the departmental level every five years, discussed the frequency coordination MoU related to MSS. The participants reviewed the MoU items, which saw a number of amendments and updates in line with the requirements of the current phase, and in turn supports optimal service delivery by relevant operators

In this regard, Eng. Khalid Al Awadhi, chairman of the meeting, said: "This meeting comes in the context of UAE's tireless efforts in ICT, where the UAE seeks to find means of international cooperation that stimulate investment in this sector, thus making it a solid platform for investors and creative minds to come up with projects that meet the aspirations of peoples".

Mr. Al Awadhi stressed that the meeting aims to develop the MSS frequency coordination MoU, in line with the major developments in the telecom sector, adding: "The UAE sought to clarify some of the points included in the MoU to facilitate their processing and achieve the best desired results. In addition, the meeting witnessed the cooperation and response of all participating delegations in order to resolve the outstanding issues and find solutions suitable for all.

This has subsequently led to commendable results, which will have a positive impact on the service in the period ahead." The meeting concluded with the signing of the MoU in its new form by all heads of participating delegations. At the end of the meeting, the participating delegations thanked the UAE for the excellent organization and facilities provided during the meeting.

It should be noted that the TRA has signed several memoranda of understanding in this area, holding a series of coordination meetings with its counterparts in several countries at the regional and international levels, with the aim of reaching the highest levels of efficiency and operation in all radiocommunication services.

NorthTelecom and Yahlive announce new video broadcasting re-commitment

In another strategic move, one of the leading global satellite service providers North Telecom has entered into a renewed partnership agreement with the renowned satellite broadcaster, Yahlive.

The agreement encompasses long-term video broadcasting services between NorthTelecom and Yahlive, where NorthTelecom will utilize Yahlive's satellite capacity for their broadcasting segment currently catering to the Persian community across the coverage areas. This will enable NorthTelecom to provide improved services to TV broadcasters for a more superior and well-rounded experience.

This move with Yahlive, the leading satellite operator in the Farsi-speaking market reaching more than 62 million viewers, will be a productive association for both entities, as it will ensure their mutual venture into a bigger market space in the broadcasting sector. It is noteworthy to state, that NorthTelecom in coming times will expand its presence in Asia and Europe segments quite significantly.

On this agreement, Mr. Hadi Nazari, CEO, NorthTelecom states: "Our association with Yahlive is not a new one. We have enjoyed a rewarding and symbiotic alliance and are positive that with this new partnership, we will strengthen our existence in the broadcasting industry, as our focus increases in this sector."

Commenting on the strength of the partnership, Sami Boustany, Chief Executive Officer, Yahlive said: "Yahlive is one of the fastest-growing regional satellite broadcasters in the region, broadcasting to more than 114 million viewers across MENA and South West Asia. Working closely with NorthTelecom has been essential to our success in the Farsi- speaking region and the expansion of this partnership is reflective is a significant component of our growing channel portfolio and milestones in the region."

Tunisia and Senegal sign an MoU in the ICT sector

In Africa, Senegal is classified 1st African country for the weight of Internet in the economy (I-PIB) estimated at 3.3%, due in particular to a very good international connectivity and a good domestic network of transmission.

Senegal and Tunisia signed a memorandum of understanding in the posts, telecommunications and digital economy sector. The agreement was signed by the respective ministers of foreign affairs Khemaies Jhinaoui, for Tunisia, and Sidiki Kaba for Senegal, on December 18, 2018, the first day of the official 48-hour visit of Senegal's president in Tunisia, following the invitation of Tunisian president Béji Caïd Essebsi. During the visit, Senegal's president who was accompanied by many ministers and high officials had discussions with his presidential host Béji Caïd Essebsi, the head of Tunisia's government Youssef Chahed, and Mohamed Ennaceur, president of the assembly.

Another work session was planned at the headquarters of the Tunisian trade, industry and handicraft union (UTICA).

All these meetings are aimed at boosting cooperation between the two countries in high potential sectors like the ICT as well as in many others like trade. A cooperation agreement has, by the way, been signed by Tunisian exports promotion centre (CEPEX) and its peer in Senegal (ASEPEX).

The Digital Senegal Plan is made up by the prerequisite and priority angles articulated around the slogan "the digital for all and all the usages in 2025 in Senegal with a dynamic and innovating private sector, in a powerful ecosystem".

The total costs of these reforms and the projects over the period 2016/2025 that this plan aims, are of 1,361 billion F CFA and 300 million; 73% will be financed by the private sector, 17% by the public and 10% in PPP mode.

This plan will offer real digital opportunities in the long term.

Exclusive agreements in pay TV industry

Does exclusive rights in pay-tv markets act as barrier to entry? Industry analysts argue that holder of rights stands to gain more profits by increasing the number of potential viewers. Read more in this article.

In Kenya, a satellite pay-tv provider and competitor, Zuku had approached the Competition Authority of Kenya to protest MultiChoice's exclusive rights over content such as broadcasting of the English Premier League.The company alleges that Dstv's amounts to a restrictive trade practice in violation of Kenya's Competition Act, Part III of Section A. Sporting events and particularly broadcasting live games draws a lot of consumers and is considered "must have" content for premium pay-tv packages and in some jurisdictions it has been regarded as an essential facility. An essential facility can be defined as an "infrastructure or resource that cannot reasonably be duplicated, and without access to which competitors cannot reasonably provide goods or services to their customers"

Zuku argues that SuperSport, a subsidiary of MultiChoice which owns the broadcasting rights for the English Premier League, EPL sells its exclusive content only to Dstv, a vertically integrated retail distributor. Similar cases have emerged in South Africa and Botswana with cases being brought against MultiChoice. There has also been a case relating to tying and bundling and exclusive content in Egypt where the Egyptian Competition Authority determined that obligating viewers interested in watching World Cup football matches to subscribe for a year was abuse of dominance. The case in South Africa also concerns MultiChoice's exclusive rights to SuperSports' content.

Sports programming is well known for drawing in a number of subscribers especially when broadcasting major sports events such as the World Cup. MultiChoice in South Africa also have so much exclusive sports content that it is in "excess of what is offered by Sky Sports in the UK", a firm that faced similar charges in Europe.

Two complaints were lodged with South Africa's Competition Commission regarding the monopoly MultiChoice's subsidiary SuperSport holds over premium sports content like the Premier Soccer League, the EPL, Springbok Rugby games and Super Rugby matches, cricket and the local sports tournaments. The complainants allege that MultiChoice's refusal to give downstream competitors access to their exclusive sports content is anticompetitive. Botswana's competition authority is investigating Dstv's channel bouquet bundling and pricing structure to determine whether the pay-tv operator's dominance enabled it to price its material excessively.

John Ugbe
CEO, MultiChoice Nigeria

Anti-competitive effects of exclusive rights in pay-tv

The Kenyan Act does not set the legal and economic tests for a restrictive trade practice assessment and therefore appropriate criteria for evaluating exclusive agreement cases may vary from one jurisdiction to the other. Competition authorities often deal with exclusive agreements in one of two ways; as an abuse of dominance where one of the contracting parties must be shown to have market power, or as an anticompetitive agreement. Exclusive agreements are not necessarily anti-competitive and thus an authority evaluating these cases will have to identify a theory of harm supported by strong evidence whereby the arrangement results in substantial foreclosure which has harmed competition, an effects based test. An assessment of exclusive agreements will generally include; establishing that there is an exclusive agreement, the definition of the relevant market and the suppliers within that market, the extent of competitive effects from the arrangement and balancing this with possible pro-competitive justifications for the agreement.

Exclusive rights in pay-tv markets act as a barrier to entry by raising competitors' costs and deterring or delaying entry into the market. As the holder of the rights stands to gain more profits by increasing the number of potential viewers, pay-tv operators have to pay higher prices for the exclusivity of the premium content to make up for the reduced profits the rights holder gets by selling to only one pay-tv operator. In Europe, authorities have recognized this as the pay-tv incumbents'strategy to foreclose rivals by raising their costs and deterring entry. It also has the added disadvantage of raising prices for consumers. For instance, in Kenya, MultiChoice's premium content allows it to charge almost twice as much as for its

Compact bundle compared to Zuku its closest competitor. Furthermore, because, the industry is characterised by network effects, the incumbent pay-tv operator enjoys the positive externalities of having grown a large customer base. The customer base enables the operator to continue to pay for the highly priced exclusive premium content and has the added benefit of locking in customers due to high switching costs. These switching costs mostly arise due to technology. In order to switch from one operator to the other, installation of hardware such as satellite dishes and decoders for the particular operator has to take place and the cost is incurred by the consumer.

In Europe, authorities have recognized this as the pay-tv incumbents'strategy to foreclose rivals by raising their costs and deterring entry. It also has the added disadvantage of raising prices for consumers. For instance, in Kenya, MultiChoice's premium content allows it to charge almost twice as much as for its Compact bundle compared to Zuku its closest competitor. Furthermore, because, the industry is characterised by network effects, the incumbent pay-tv operator enjoys the positive externalities of having grown a large customer base. The customer base enables the operator to continue to pay for the highly priced exclusive premium content and has the added benefit of locking in customers due to high switching costs. These switching costs mostly arise due to technology. In order to switch from one operator to the other, installation of hardware such as satellite dishes and decoders for the particular operator has to take place and the cost is incurred by the consumer.

Despite these arguments, there are arguments in favour of exclusive agreements on efficiency grounds. Accordingly, exclusive agreements and vertical arrangements reduce the transaction costs generated by asymmetric information, prevent free-riding, and protect intellectual property and brand-name however these factors need to be carefully balanced against the risk of anti-competitive outcomes.

So far, there is a notable shift in the treatment of exclusive content agreements in pay-tv markets by competition authorities towards a view that access to content is imperative for entrants to be able to compete with incumbents. In Europe, rights sharing remedies have been applied and conditions have been placed on the duration and scope of exclusivity. In some

Eutelsat to deliver global satellite and fibre occasional use network

The Switch and Eutelsat are joining forces to provide a new, independent offer delivering an satellite and fibre video contribution network. The partnership will provide The Switch's user community of over 800 of the world's leading content producers and distributors with the ability to transmit feeds on a minute-by-minute basis to and from large parts of the globe. Simultaneously, broadcasters and content producers within Eutelsat's satellite footprint will gain access to The Switch's extensive global fibre network, including 53 physical points-of-presence, as well as connections to U.S. tech leaders, major global broadcasters and more than 180 sports organizations, venues and rights holders.

This partnership leverages the resources of three Eutelsat satellites covering Europe, Africa and the Americas. However, further satellites may be added in the future to extend the reach of the solution with The Switch's global video transport network. Customers will be able to schedule transport to and from each region via SwitchIT™, The Switch's patented award-winning customer-control software platform. The integrating of The Switch and Eutelsat systems will enable customers to deliver their content faster, more smoothly and to more regions around the globe.

"We have seen a huge increase in the demand for worldwide uplinking from our connected customers and venues," said Keith Buckley, President and CEO at The Switch. "Partnering with Eutelsat allows us to combine our shared resources to bring a seamless, flexible offering to market."

"We are delighted to partner with The Switch to offer customers seeking connectivity a more efficient and cost-effective way to move content," said Michael Antonovich, CEO of Eutelsat Americas. "Having greater first-mile access to literally hundreds of additional broadcasters, venues and content producers in the U.S. and beyond greatly strengthens our position in the media landscape."

Over the past year, The Switch has invested heavily in expanding its network, products, and services internationally. This includes the launch of The Switch Access™, a broadband IP connection enabling low-cost connectivity from anywhere in the world, the addition of strategic partnerships on several continents, and increasing its team to include dedicated personnel in key international locations.

Yahsat and Hughes launch JV to advance connectivity across MEA and Asia

Al Yah Satellite Communications Company, a leading global satellite operator based in the United Arab Emirates and wholly owned by Mubadala Investment Company, and Hughes Network Systems, a subsidiary of EchoStar Corporation, a premier global provider of satellite communication solutions, announced the commencement of a joint venture to provide commercial satellite services across Africa, the Middle East and southwest Asia.

The agreement to form the joint venture was subject to regulatory and other approvals that have now been obtained. The newly formed company is bringing services to market as "YahClick, powered by Hughes," and is now operational.
The joint venture was launched during a ceremony at Mubadala's headquarters in Abu Dhabi in the presence of Khaldoon Al Mubarak, Chief Executive Officer and Managing Director of Mubadala; Charlie Ergen, chairman of EchoStar; Masood M. Sharif Mahmood, chief executive officer of Yahsat; and Ramesh Ramaswamy, senior vice president and general manager, International Division, Hughes.
Through the collaboration, Yahsat will combine its unique position and knowledge as the leading provider of satellite broadband solutions within its current markets with Hughes expertise as the global leader in broadband satellite networks and services.
Providing unserved and underserved communities with reliable, high-speed Internet services via Yahsat's Al Yah 2 and Al Yah 3 Ka-band satellites, the new entity will utilize the capabilities of the Hughes JUPITER™ System, designed and optimized for large-scale High-Throughput Satellites (HTS), and Hughes Operating and Business Support System (OSS/BSS) solutions for comprehensive network operations and management.

"In this joint venture with Hughes, we're building upon the digital landscape of our target regions to empower and enable communities, governments and businesses in unserved and underserved communities to realize economic and social benefit from Yahsat's high-performance satellite broadband services," commented Mr. Mahmood. "This is an important step in unlocking not only our potential, but the potential of those we serve by combining our respective leadership and global experience.".

New WTA report explores the critical role of automation in the industry

The World Teleport Association (WTA) today released Automating the Teleport, a new research report that shares insights from thought leaders in the industry on how automation will play a critical role in transforming the teleport from traditional antenna farms to data centers with dishes that layer on value-added capabilities and services.

Based on interviews with executives from teleport, satellite and technology firm, the report offers guidance on what to automate, how to analyze the cost and benefit, and how to avoid deployment nightmares.

The report is sponsored by Kratos.

The explosion in satellite capacity is dramatically changing the dynamics in the space industry.

The teleport which sits in between the terrestrial and space segment is being driven to become more innovative and operationally efficient to meet these new bandwidth demands.

The current environment is changing quickly and moving from traditional teleports working with wideband FSS satellites to HTS gateways supporting a huge increase in bandwidth and an exponential growth in services.

The critical question is: how will the teleport increase efficiencies to support more capacity, more customers, more services, more flexibility and more dynamic usage, all at a lower cost per service?

"Automation improves the technical operation of ground segment businesses," said executive director and report editor Robert Bell. "But the real payoff is on the commercial side. Automation allows companies to shift from being reactive to proactive, enabling faster delivery of services at lower cost, and adding revenues without expanding headcount."

WBU stands against broadcast disruption ahead of WRC-19

The UHF broadcasting spectrum, originally 470-862 MHz, has come under substantial pressure in recent years as the band from 862 MHz downwards were re-allocated to mobile to accommodate IMT, causing reduction of spectrum for television broadcasting and constrained further development of television broadcasting in other countries. The WBU-TC says that any further re-allocation would lead to a reduction in broadcasting services available, possibly fatally weakening the terrestrial TV offering in some countries. Read more in this report.

Globally, the UHF broadcasting spectrum, originally at 470-862 MHz, has come under substantial pressure in recent years due to its identification for use by International Mobile Telecommunication IMT systems. At successive WRCs, specifically in 2007 and 2012, parts of the UHF broadcasting band from 862 MHz downwards were re-allocated to mobile, and the subsequent clearance in many countries of broadcasting systems to accommodate International Mobile Telecommunication IMT systems. The consequent reduction of spectrum for television broadcasting has placed restrictions on television broadcasting in some countries and constrained further the development of television broadcasting in other countries. This was the position of the World Broadcasting Union during her recent symposium ahead of the WRC'19.

Established in 1992, the World Broadcasting Unions is the coordinating body for broadcasting unions who represent broadcaster networks across the globe. Since its foundation, WBU has provided global solutions on key issues for its member unions. The North American Broadcasters Association acts as secretariat for the WBU, and the other Unions represented are the Asia-Pacific Broadcasting Union (ABU), the Arab States Broadcasting Union, the African Union of Broadcasting, the Caribbean Broadcasting Union, the European Broadcasting Union (EBU), the International Association of Broadcasting, and the North American Broadcasters Association

As an organ of the ITU, the World Radiocommunication Conference WRC is empowered to change the Radio Regulations – the international treaty that defines how radio spectrum is used around the world. They are held every three to four years, and work to an agenda set by the ITU Council, which takes into account recommendations made by the previous WRC.
Television has gradually become a part of our daily lives, and sources of information, education and entertainment have been described as the primary functions of the media. Television as an electronic medium has transformed the mass media and its main traditional functions of information, education and entertainment. Since the 20th centuries, it has become one of the hottest media with its potentials of sight and sound. Television has become a part of everyday life which was not so between the 1920s when it was invented and the 1960s when it lost its novelty.

Until the 1990s, broadcasting was mainly a matter of transferring sound or video streams through the airwaves or cable as well) by means of analogue signals. This was a linear process, with each element in the content stream taking its turn to transmit behind the one that went before it. This worked well enough, except for one thing: it required a lot of bandwidth, usually. a lot of capacity was taken up on wireless electronic frequencies in order to carry signals in this manner. The knock-on effect of this was that in the realm of the airwaves, this meant that only a limited number of stations could be accommodated on the radio spectrum. A radio frequency like FM 105.7 would, for instance, be available for use by a single analogue radio station. Other frequencies were often unsuitable for audio transmission, or were better used for TV or cellular telephony, or were reserved for military communications. In TV, which uses UHF and VHF frequencies, it was the same story: one station, one frequency. With limited frequencies, the effect was a limit to the number of stations.

Much of this changed with the advent of digital electronics. These technologies meant that sound and video, as well as text and still images, could be stored and transmitted in the form of binary digits. These "one's" and "zero's" correspond to on-off electrical pulses. It is easy to see the advantages this has for electronic communication:

ITU Radio Regulation
However, successive WRCs have agreed to make substantial changes to the status of the UHF band, changing the band from an exclusive primary allocation to broadcast services to designating parts of the UHF band as co-primary between broadcast and mobile services. in effect, WRCs further identified that the mobile services would be based upon IMT standards, and this has been followed by decisions of national and regional administrations to clear broadcasting from those bands in favour of mobile broadband.

In some parts of the world, these successive encroachments have already led to a reduction of broadcasting services available, despite continued demand for access to TV services by viewers. As the coordinating body for broadcasting unions who represent broadcaster networks across the globe, the World Broadcasting Unions believes that any further such re-allocation would lead to a further reduction in services available, seriously compromising the terrestrial TV offering in some countries.

An important economic goal sought after by manufacturers of television broadcasting production, signal contribution / distribution systems, end-user receivers and other ancillary devices. Economies of scale can often guarantee low entry costs has been harmonisation of standards.

While the successive development of the television standards for analogue monochrome and colour television saw development of a number of regional standards, the development of digital television has seen a focus on fewer standards.

So far, analogue to digital Switchover is still to be completed in many countries in all 3 ITU Regions. Some countries are still developing their plans for the migration from analogue to digital television. Therefore, any future identification of a sub-700 MHz band for IMT would make it more difficult to coordinate cross-border use between IMT in one country and television broadcasting in another country and would place a significant constraint on the future development of terrestrial television broadcasting, according to WRC.

Furthermore, reduction in spectrum for Television Broadcasting leads to a reduction in spectrum available for services ancillary to broadcasting – specifically, the radio microphones and talkback systems without which many TV programmes, film and theatrical productions would be impossible.

Current regulatory status of broadcasters' spectrum

For several decades, the Internal Telecommunications Union, ITU has been allocating global radio spectrum and satellite orbits, and developing technical standards that ensure networks and technologies seamlessly interconnect to improve access to spectrum on a global basis.

So far, the digital terrestrial broadcasting plan for ITU region was established following the conclusion of the Regional Radio Communication Conference (RRC-06) in Geneva in 2006, RRC-06 established the digital terrestrial broadcasting plan in the 174 + 230 MHz (VHF Band 111) and 470 – 862 MHz IV and V bands. However, in Nigeria and most parts of Africa, the transition to Digital Terrestrial Television will be implemented in the 470 – 806 MHz band. When the existing analogue television services in band 111 transit to digital broadcasting in the upper UHF bands, the former frequency band will be available fort the introduction of T-DAB and DVB-T services.

So far, in the television broadcasting industry the ITU has focused on the Study Groups and Working Parties within the ITU to develop many initiatives especially the migration to digital broadcasting as well as standards, specifications and service planning for broadcasting systems for countries around the world.However, many of the lower frequency bands used by broadcasters including LF, MF, HF, and VHF are of little interest to other spectrum users and so allocation changes are discussed relatively rarely in WRCs. Rather, interest focusses on the higher bands, and in particular on the UHF band, used globally for television broadcasting which are primarily digital but also some remaining analogue TV.

At WRC-15, a broad agenda item considered the re-allocation of many bands from 470 MHz to 6 GHz to mobile with identification to IMT, on a global basis. For the UHF broadcasting band, no consensus was possible globally.

Specifically, in Europe, Africa., Middle East, no new mobile allocations were made at all below 694 MHz, but administrations agreed to review the entire band use at WRC-23. However, in the African Broadcasting terrain, the band 606-614 MHz is also allocated on a primary basis to the radio astronomy service.

However, if global mobile allocations and global identification for IMT in the UHF band cannot be achieved, then the various Member States supporting IMT will likely seek to create Regional or sub-Regional2 allocations and/or footnotes. Such a process would allow the member states to revisit the band allocation at future WRCs, either under a specific agenda item for IMT in the case of Regions not included in the allocation and/or footnote, or the standing agenda item.

The World Broadcasting Union therefore opposes any allocation of further spectrum from the UHF broadcasting allocation to the mobile service at WRC-19 and/or identification for IMT. This includes the addition of any further countries to the existing footnotes. The allocated spectrum for mobile with identification for IMT, including the globally harmonized 900 MHz, 800 MHz and 700 MHz bands, is still to be used in many countries. Even as large portions of higher frequency bands are foreseen for allocation to and use by future mobile systems such as 5G, which is called IMT 2020 in ITU terms.

Future Challenges

According to report, co-primary allocation to Mobile, with identification for IMT, creates difficulties to coordinate cross border use between IMT in one country and television broadcasting in another country. This is actually happening in the 700 MHz and the 800 MHz bands in several areas around the world.

In addition, previous ITU studies, have also shown how difficult it is to operate co-channel IMT and DTT in neighbouring countries. This is also confirmed by some Mobile/IMT stakeholders that confirmed the difficulty of spectrum sharing between IMT and DTT within a country and across countries' borders. Transition to future broadcasting technologies is ongoing in several regions, and new services including Ultra High Definition.

Agenda for WRC-23

According to the World Broadcasting Union, WBU, "The preliminary agenda for WRC-23 which proposes that WRC-23 should "review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235 (WRC-15);" must involve all services, including the mobile service and its use for IMT, with assessment of the actual level and efficiency of use of this spectrum.

In the meantime, analogue to Digital Switchover is still to be completed in many countries. Until late 2017, only five countries out of approximately 38 countries in APAC have achieved ASO including Japan, Korea, Australia, New Zealand and Mongolia. Some countries do not currently have plans or funding for the migration from analogue to digital television. Therefore, any future identification of a sub-700 MHz band for IMT would make it more difficult for many countries to coordinate cross-border use between IMT in one country and television broadcasting in another country.

NIGERIA
Osinbajo advices Africa to embrace digital economy

Nigeria's Vice President Yemi Osinbajo has called Africa and Europe to work together to advance and harvest the economic benefits of digital economy. Such collaboration, he said, would at the same time prevent a counter-productive widening of the digital gap.

Osinbajo stated this at the Africa-Europe High-Level Forum in Vienna, Austria, which had in attendance other African and European Heads of States organized by the European Union (EU) and African Union (AU) held in Vienna, Austria. According to Osinbajo, 'Taking cooperation to the digital age', noted that investments in digital technology could make important contribution to growth and development by fostering productivity gains from continuous innovation.

"Given our fast-growing population in Africa, we are, of course, keen to work together to boost the job creation potential of new technologies rather than concentrating on jobs destined to disappear in the digital age.

"Faster growth, sustainable development and job creation are also vital for reducing irregular migration from Africa to Europe. In our globalized world, people can see disparities in standards of living across regions quite easily.

"This means there must be increasing openings for entrepreneurship and jobs in home countries for those who would otherwise embark on risk journeys in search of opportunities. In Nigeria we are taking urgent and practical steps to provide such opportunities for our rapidly increasing youth population," he said.

Prof. Osinbajo also highlighted the strides made by the Buhari's administration in developing Nigeria's technology sector through supporting public-private sector initiatives and the advisory group on technology and creativity. He noted that the advisory group had been working to build an ecosystem for funding, training, infrastructure and intellectual property protection.

The Vice President added that the country's Social Investment Programme has been leveraging on technology tools to drive it in its bid to improve the economy and lives of Nigerians. "Under our social investment programme, 75,000 young people are being trained in coding, software development, hardware maintenance, animation and data management, and we're set to train another 200,000 young men and women. "Already, 200,000 out of our 500,000 young graduates in our N-Power scheme have tablet devices, which we use for on-the-job training and further skills acquisition. This experience will guide our efforts as we seek to expand digital literacy at earlier stages of education.

BBC renews partnership with Mindtree for digital testing services

Global technology services and digital transformation company Mindtree is to continue as the BBC's lead application testing partner for a range of its digital products after being awarded the Corporation's latest digital testing services framework contract.

The BBC World Service, which is one of the UK's most important cultural exports. It inspires and illuminates the lives of millions around the world, helping them make sense of the world they live in.

The new contract follows a four-year relationship where Mindtree supplied services to deliver and support the testing of digital products, applications and services which were owned by or licensed to the UK broadcaster. Mindtree will continue to test and provide support on flagship products including BBC iPlayer across all platforms, and the Britbox streaming service for the USA and Canadian viewers. The new contract has already begun and has an initial two-year term and the option for two potential one-year extensions.

As part of the scope of services, the new Framework includes providing functional and non-functional testing and test management for various products, applications and websites, and is across all departments, including TV, platforms, North and Nations and studios.

"We are excited to build on our strong relationship with the BBC with this new contract," remarked Guita Blake, senior vice president and head of Europe at Mindtree (pictured). "Over the past six years of working with the broadcaster, we have seen a continued evolution of their offerings, providing their audience with richer and better customer experiences, no matter the location or device. Our technical skills combined with an excellent understanding of their processes will help us to deliver great quality, faster. We look forward to our continued relationship as we explore newer areas such as artificial intelligence and machine learning in the years to come."

The internet is shrinking the globe and the impact of the rest of the world on the UK is growing. Things happening elsewhere in the world are now happening everywhere in the world. From the healthcare industry to the energy market, religious extremism to cybercrime, global developments are making a bigger and bigger impact on the UK.

iflix sells African assets to Econet

Econet Global has acquired iflix's stake in African streaming platform Kwesé iflix, following its recent decision to scrap its premium Kwesé TV direct-to-home service to instead focus on digital video. Kuala Lumpur-based \

iflix, which first entered sub-Saharan Africa in June 2017, said it will now concentrated on its Asian business, particularly the markets of Indonesia, Malaysia and the Philippines. iflix entered a joint venture with Econet Global to launch Kwesé iflix earlier in 2018, offering viewers a combination of live sport, entertainment and local African and international series and movies on-demand. Since its launch, the platform has grown to become the largest digital aggregator of free-to-air TV channels in Africa, the companies claim.

"The conclusion of our acquisition of iflix Africa is a natural progression for our revised business strategy as a Group, particularly the Kwesé

business which offers premium broadcasting services . With the immense growth and positive uptake of VOD and OTT services across the continent, we believe connected services – particularly mobile – is the future of broadcasting in Africa," said Hardy Pemhiwa, CEO, Econet Global Limited.

Early this year, iflix, the world's leading entertainment service for emerging markets, announced a partnered Safaricom to give the firms' customers up to 60 days of unlimited access to iflix's service with thousands of the world's best TV shows, movies and more on every device they own.

"As Kwesé iflix continues to expand across the continent, we look forward to growing the original programming portfolio by commissioning home-grown content for the benefit of regional media industries. The recently launched Kwesé

iflix original, of Kenyan origin, Nganya has already enjoyed immense success, we look forward to continuing this trajectory with the introduction for an impressive slate of original programming with an exciting Tanzanian telenovela set to launch in February 2019."

iflix co-founder and CEO, Mark Britt, said: "It has been an incredible journey and learning experience, launching our service in Africa. The acquisition by the Econet Group, our regional partner and Africa's leading broadcast network, is a significant milestone for the African business, and further reinforces iflix's commitment to our core markets in Asia, particularly Indonesia, Malaysia and the Philippines which continue to grow from strength to strength." Following the sale, iflix said it would continue to provide technical support to Econet Global 'to ensure a seamless and enjoyable viewing experience for Kwesé iflix users'

Exclusive interview

Meet Africa's leading woman in Aerospace

She is young, beautiful, intelligent, and sociable. **Maryanne Muriuki** leads Space Generation Advisory Council, a global not-for-profit organisation, often ranked as Africa's biggest youth space network on Earth, facilitating the participation of young people from all over the world, especially women and citizens of developing countries, in cooperative space-related activities". In this interview, she shares the objectives, goals and achievements of the council in Africa.

Q. Please kindly introduce yourself

A:My name is Maryanne Muriuki from Kenya. Currently, I work as the Deputy Lead for the Early Warning Early Response Disaster Management (EWERDIMA) project by ILICIT Africa in Eastern Uganda. I also volunteer for the Space Generation Advisory Council (SGAC).

At the moment, I am the National Point of Contact (NPoC) for Kenya alongside Ms. Nuria Ali. I am also serving as the Project Co-Lead for the Space Technology for Disaster Management (STDM) Project Group, alongside Ms. Emma Velterop. My background is in Disaster Management and International Diplomacy. I also hold vast experience in biodiversity conservation and internet governance.

Q. Could you please tell us about Space Generation Advisory Council (SGAC), its overall objectives, mission as well as the activities designed to achieve its goals?

A: Space Generation Advisory Council (SGAC) is a global not-for-profit organisation. It's headquartered in Vienna, Austria. Our mission is to implement the recommendation of 'The Space Millennium: Vienna Declaration on Space and Human Development' which aims "to create, within the framework of the Committee on the Peaceful Uses of Outer Space, a consultative mechanism to facilitate the continued participation of young people from all over the world, especially women and citizens of developing countries, in cooperative space-related activities".

SGAC has been a Permanent Observer of COPUOS UN Committee for Peaceful Uses of Outer Space (COPUOS),the Legal Subcommittee (LSC) and the Scientific and Technical Subcommittee (STSC) since 2001 and has been a member of the the United Nations Economic and Social Committee (ECOSOC) since 2003. SGAC engages with the UN at UN fora, symposia and other events.

For instance, the UNISPACE+50 event was held earlier in 2018. SGAC is currently working with the UN toward the Space 2030 Agenda, and also the Youth 2030 Agenda. Our vision is to employ the creativity and vigour of youth in advancing humanity through the peaceful uses of outer space.

Q. How many African countries are signatories and partners to the Space Generation Advisory Council (SGAC)

A: Over 25 African countries are now signatory to SGAC, with recent representation from Sierra Leone and Sao Tome & Principe. When it comes to partnerships, SGAC is supported by various organisations in individual countries and worldwide. In Kenya for example, SGAC has partnered with various institutions in Kenya, including the National Commission for Science, Technology and Innovation (NACOSTI), the University of Nairobi, the Regional Centre for Mapping of Resources for Development (RCMRD), the Russian Embassy in Nairobi, and the Kenya Space Agency (KSA).

Q. Please could you speak briefly on your membership strength, openings as well as opportunities for new members?

A: SGAC is has membership from 150 countries, and boasts of more than 13,000 members and alumni from all corners of the world. It is the biggest youth space network

on Earth. The growth is massive. Members stand a chance to contribute to project groups by presenting their project ideas, writing research papers and also getting hands on skills through experiments and projects.

For instance, last December, the STDM Project Group has already worked on an article and a research paper! Also, active members have the chance to develop their skills by joining organising teams for various events around the continent, and across the world. Active members stand a chance to win prestigious scholarships offered by SGAC and its amazing partners. For instance, in 2017, I won the Space Generation Leadership Award (SGLA) and it enabled me an opportunity to attend the biggest space event in the world, the International Astronautical Congress (IAC) and got to attend an Elon Musk space talk, live!

Q. How does the organisation engage with her international partners?

A: SGAC engages with her partners through activities, research and forums. Like I mentioned earlier, SGAC presents its recommendations to the United Nations Office for Outer Space Affairs (UNOOSA). The Strategic Partnerships Team (SPT) of SGAC is dedicated towards engagements with partners in making this happen. Project groups also seek sponsors from the industry that suits their mission.

"Our vision is to employ the creativity and vigour of youth in advancing humanity through the peaceful uses of outer space".

For instance, at the STDM Project Group, we seek sponsorship from organisations and institutions and governments that work in the application of space technology in all stages of the disaster management cycle.

Q. What are the organs of the Space Generation Advisory Council (SGAC)

A: All regions have their coordinators who coordinate the activities in the specific geographical areas-North America and the Caribbean, South America, Asia Pacific, Europe and of course, Africa. For instance, the African region has two regional coordinators (RCs) who oversee the

activities of all National Points of Contacts (NPoCs) in Africa.

There are also 8 active SGAC projects groups that work through the year. They include: Commercial Space (CS), Small Satellites Group, Space Technology for Disaster Management (STDM), Near Earth Objects (NEO), Youth in Global Navigation Satellite Systems (YGNSS), Space Law and Policy, Space Exploration (SEPG) and finally, Space Safety and Sustainability.
Project Group coordinators manage the activities of the PGs. The PGs are allow for advisors and sponsors towards enhancing their specific activities. SGAC also has dedicated teams such as the Strategic Partnerships Team, the Executive Secretary, Finance, the Web Team, the Membership Team and the Regional Events Unit

Q. Briefly comment on the management structure of Space Generation Advisory Council (SGAC).

A: Our Executive Director manages our headquarters in Austria. There are two chairs, and the Executive Committee. We also have advisory and honorary boards consisting of amazing space men and women, who are always an email away on advice and way forward!

Q. What roles does radio, telephone, computer, Internet, closed circuit television or other electronic means of audio or audio-visual communication play in your decision making at the various organs of the Space Generation Advisory Council (SGAC) by virtue of its outlook?

A: The internet has been a digital revolution in Africa, and we are able to hold almost all our meetings virtually. Emails are the way of life. Collaboration on research papers and dissemination of information has been greatly enabled by internet. Speaking from experience, the internet has been vital in organising meetings, and also introducing ourselves to various digital tools such as Mozilla Etherpad, GoToMeeting and also video conferencing through Skype and Meets.

Also, project collaboration has been enhanced by the internet (emails) and digital tools such as Mozilla Etherpad. Telephones are useful for in-country calling; given how much expensive it is to have Africa-to-africa telephone calls.

Still, traditional media has played a big role in spreading the voice of youth in space science and technology. Many of our members across the world have appeared on radio and television. For instance, one of us was interviewed on national TV about the inaugural African Space Generation Workshop (AFSGW 2017) that took place in Nigeria.

Q. How is Space Generation Advisory Council funded?

A: SGAC as a whole relies on the goodwill of its partners. We have been privileged to have the support of governments and national space agencies, the United Nations agencies such as UNOOSA, academia, the private industry and also not-for-profit organisations which believe in our course. A crowd-funding initiative enabled many African space-gen to attend the 2nd African Space Generation Workshop in Mauritius this December.

SGAC has also established its Alumni fund in September. Anyone can contribute and all donations go towards supporting the activities of SGAC. I also want to add that integrity and accountability are core values of SGAC and this has been critical in ensuring that transparency is there in funding and selection for scholarship winners! Our clean record is the reason for new and continued partnerships with global industry players and institutions.

Q. What are your expectations from the governments and Private companies in the space industry in related to your set goals?

A: Governments: They really determine the direction of policies in our Continent. We are a unique continent because majorly, the government controls the industry. Space Agencies are determined by law makers, thus it is up to them to create a conducive environment for space entrepreneurship to thrive and also enable innovation.

The private sector is the biggest bet in knowledge and skills transfer in Africa. As a continent we have the largest population under the age of 15 years. This is the answer to Africa's underlying challenges are the leaders of today.
Allow me to add about civil society! We have seen how the civil society has influenced space technology development in Ethiopia. Citizenry need to be aware that space is for all, and that Africa stands to benefit from the space technology in addressing disasters, connectivity, land subdivision and management. After all, space is for the benefit of human kind.

Bangabandhu-1 satellite now transmits local TV signals

The stations are BTV World, Sangsad Bangladesh Television and BTV Chattogram and private channels Somoy TV, DBC News, Independent TV, NTV, Ekattor TV, Bijoy TV and Boishaki TV. State-run Bangladesh Betar is also using the satellite.
The channels are currently using the Bangabandhu satellite for free and will start paying for the service from March next year. They currently have contracts with satellite Apstar and their cancellation require notifications three months in advance.
"We will start earning from next month," said Shahjahan Mahmood, chairman of Bangladesh Communication Satellite Company Ltd (BCSCL).
In September, BTV ran live coverage of South Asian Football Federation Championship via the satellite. Some television channels also carried out test transmissions. Each television station in Bangladesh uses four to six megahertz of bandwidth and spends $20,000 a month on an average for satellite connectivity. If all of them take the service from Bangabandhu-1, the BCSCL will be able to earn $10 million annually, enough to make its business viable.
Currently, there are 34 television channels in Bangladesh which are shelling out $14 million per year to use satellites from other countries.
"Television channels take per MHz bandwidth at $4,000 and we will offer them a better price with attractive discounts for additional bandwidth consumption," said Mahmood. According to the initial plan, Bangabandhu-1 could reach break-even within seven years. But Mahmood said it could be done ever earlier than that.
Mahmood said TV channels incurred some costs to run their uplink and downlink stations. The BCSCL will allow new television stations to run the service from a single point, helping to save Tk 5 crore.
Fifteen more television channels are set to begin commercial operations in the country.
The satellite was launched in May this year under a project costing Tk 2,765.66 crore, allowing Bangladesh to enter the elite space club of 57 nations who have sent satellites into orbit.
The BCSCL has also signed a deal with the country's first direct-to-home company RealVU, which is testing programmes aired by 48 local and international channels through Bangabandhu-1.
"We are very close to finalising deals with a few companies from the Philippines as well as place where our satellite has a strong footprint," said Mahmood.
He said the BCSCL's international consultant Thaicom, a renowned satellite company of Thailand currently active in about 20 countries, was working intensively and some new business deals would be on the table within a short time.
"We have lots of challenges in formulating the process of running the satellite company as it is a very new kind of technology and business to us. It also took time to get the key of the satellite."
On November 9, the BCSCL took over control of the satellite from its manufacturer Thales Alenia Space.
To help the company run smoothly and take decisions faster, the government has formed a high-powered committee headed by the principal secretary to the Prime Minister's Office.
The committee includes five senior secretaries, the chairman of the Bangladesh Telecommunication Regulatory Commission (BTRC) and the BCSCL chairman.

DNK to build new Indonesia MSS satellite

PT. Dini Nusa Kusama (DNK), an Indonesia satellite communications company, has been awarded the Mobile Satellite Service (MSS) Orbital Slot located at 123 degrees East Longitude by the Indonesian Ministry of Communications.

The Ministry awarded the strategic orbital slot above Indonesia after six months of competitive evaluation and bid qualification. DNK's license gives the company exclusive rights to the space slot forever so long as we abide by the established regulations of the country years and includes the necessary L-band radio frequency spectrum to deliver services across the country and region.

DNK plans to develop and launch its own satellite to deliver a portfolio of next generation satellite communications services over Indonesia and the neighbouring region. The company in discussions with multiple satellite suppliers, including Airbus, Navayo and Hughes Network Systems, on the construction of its turn-key, secure connectivity satellite, which will feature up to 700 beams supported by digital on-board beam forming. The satellite will be optimised for data while supporting voice services as well as narrowband Internet of Things applications. It will also feature military grade encryption with guaranteed connectivity within its footprint. DNK's satellite is scheduled to launch in mid 2022 with commercial services planned to follow.

"The award of the orbital slot to DNK now opens a new world of possibilities through our plans to build and deploy a new, cutting edge satellite to serve the country and the region," said co-founder and Program Director Thomas van der Heyden, who has been the driving force behind DNK's work on this program, first for the government and now as a commercial program, over the last 7 years.

"DNK's satellite will dramatically increase satellite capacity and capabilities over Indonesia and the region. We are adopting a design that is tailor-made for the requirements of our customers. From its next generation spot beam architecture to its advanced security protection, DNK's satellite will enable a new generation of satellite services to the region."

The satellite will initially serve Indonesia's 260 million population across its 17,500+ islands. The connectivity will leverage a range of devices, including smartphone-sized satellite handhelds, data terminals for IoT and machine-to-machine services, as well as vehicle and vessel systems.
"We aim to do our part in bringing digital services across Indonesia, where much of the population are still unconnected," said DNK co-founder and CEO Surya Witoelar. "We are proud of our Indonesian heritage."

In addition to Indonesia, the orbital slot also allows DNK's service footprint to span the ASEAN region and the South China Sea. As part of its license, DNK also secured L-band spectrum serving China and India.

Low-cost mini satellites bringing mobile to the world

Large chunks of the planet are still of out of reach of mobile phone signals - billions are still without access to digital communications. But this could change thanks to shrinking satellite sizes and costs. Lower-cost, space-based mobile phone services will soon be a reality thanks to one firm's fleet of nano-satellites that will bounce your voice or text signal from one spacecraft to the next and finally down to the person you're calling.
"People were thinking of using nano-satellites for Earth imagery but nobody had thought of using them for voice or text communications," says Israeli former fighter pilot Meir Moalem, the chief executive of Sky and Space Global (SAS). "We were the first."
His firm is aiming to offer customers mobile phone connections via a constellation of 200 shoebox-sized satellites weighing just 10kg (22lb) each.
The fleet is set to be operational by 2020 and will provide text, voice and data transfer services to the Earth's equatorial regions - including much of Latin America and Africa - to a market of up to three billion people.
"Affordable mobile services are critical for the economic and social development of many developing countries," says Mr Moalem, who believes SAS's nano-satellites will shake up the space-based communications market.
"Our total constellation costs just $150m (£108m). That's less than the cost of a single standard communications satellite. This is what we mean when we talk of a disruptive technology."
But SAS is just one of a number of companies with big plans for space right now. Perhaps the most ambitious is Elon Musk's SpaceX, which is aiming to build a huge 4,400-satellite constellation offering global internet coverage. It will be using its own Falcon-9 rockets to launch its fleet and plans to have the network operating by 2024.
And OneWeb has an 800-satellite constellation set for 2020, again focused on global broadband, while Google and Samsung are also mulling similar initiatives.
By Tim Bowler Business reporter, BBC News

South Africa announces successful launch of ZACube-2

Weighing just 4kg, the ZACube-2 is South Africa's second nanosatellite has been launched into space and 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 that was developed to provide cutting-edge very high frequency data exchange communication systems to the maritime industry.

The project was funded by the Department of Science and Technology (DST), supports Operation Phakisa. The DST's entity, the South African National Space Agency (SANSA), in cooperation with the University of Montpellier, the French Embassy, while the Paris Chamber of Commerce, manages the project.

Last year, the Minister of Science and Technology Mmamoloko Kubayi-Ngubane, attended the send-off ceremony and met the team young people who worked on the Zacube-2. At the time, the nanosatellite was scheduled for launch from India, in June 2018. Excess capacity induced by primary and secondary payloads on India's Polar Satellite Launch Vehicle, resulted in a delay and an alternative arrangement was made.

"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). It 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. The satellite also carries a camera that will detect veld fires from space.

"This is the most technological advanced nanosat that will provide critical information for our oceans economy (Operation Phakisa). I am particularly excited that the satellite was developed by some of our youngest and brightest minds under a programme representing our diversity, in particular black students and young women."

The ZACube-2 will be given a new name soon, following a national satellite naming competition launched in April by the South African Agency for Science and Technology Advancement (SAASTA), an entity of the DST. SAASTA received over 300 entries from Grade 4-12 learners. The results have been finalised and the new name of the nanosatellite will be announced in due course.

2018 Nobel laureate winner delivers Nobel Lecture at Nokia Bell Labs

Nokia Bell Labs, the world renowned industrial research arm of Nokia, last month held a ceremony in honor of Arthur Ashkin, who was awarded the 2018 Nobel Prize in Physics for work undertaken while at Bell Labs.

Ashkin was awarded the prize for the invention of optical tweezers and their application to biological systems, which enables scientists to further unravel the mysteries of human life.

The highlight of the ceremony was Ashkin delivering his Nobel Lecture for the first time.

He was unable to travel to Stockholm to receive his award so his son, Daniel, received it on his behalf. His Laureate lecture was presented by Bell Labs researcher and close friend, Rene-Jean Essiambre as part of the Nobel Prize Award Ceremony festivities, to great acclaim. But today in Murray Hill, NJ, Arthur was able to deliver the lecture himself to a captive audience of Nobel Laureates, and former colleagues and collaborators, who came to honor his outstanding accomplishment.

The ceremony held at Nokia Bell Labs headquarters in Murray Hill, N.J., also included the unveiling of a 'Nobel Circle' and plaque dedicated to Ashkin inside the Bell Labs Laureate Garden. The garden now includes nine such Nobel Circles, one for each of the Nobel Prizes that have been awarded to Bell Labs researchers, for pioneering work performed at this remarkable innovation and idea factory.

Marcus Weldon, President of Nokia Bell Labs and CTO of Nokia, said, "The long-standing mission of Bell Labs is to understand future human needs and to create solutions that transform how we live and work, by addressing the 'seemingly impossible' and making it not only possible, but probable and applicable to all. This has led to numerous innovative inventions and technologies that have redefined human existence.

Arthur was on a quest to improve human communications by understanding the limits of optical communications and, as part of his research into novel laser-induced phenomena, he invented the optical tweezers that would subsequently be used to dramatically improve the ability of scientists to conduct microscopic medical research. The entire Bell Labs family is incredibly proud of Arthur and we are delighted to recognize him and his work for posterity, with a permanent circle in his honor in our Bell Labs Laureate Garden."

Eutelsat partners Switch to deliver global satellite and fibre occasional use network

The Switch and Eutelsat (Euronext Paris: ETL) are joining forces to provide a new, independent offer delivering an satellite and fibre video contribution network.

The partnership will provide The Switch's user community of over 800 of the world's leading content producers and distributors with the ability to transmit feeds on a minute-by-minute basis to and from large parts of the globe. Simultaneously, broadcasters and content producers within Eutelsat's satellite footprint will gain access to The Switch's extensive global fibre network, including 53 physical points-of-presence, as well as connections to U.S. tech leaders, major global broadcasters and more than 180 sports organizations, venues and rights holders.

This partnership leverages the resources of three Eutelsatsatellites[1] covering Europe, Africa and the Americas, (further satellites may be added in the future to extend the reach of the solution) with The Switch's global video transport network. Customers will be able to schedule transport to and from each region via SwitchIT™, The Switch's patented award-winning customer-control software platform. The integrating of The Switch and Eutelsat systems will enable customers to deliver their content faster, more smoothly and to more regions around the globe.

"We have seen a huge increase in the demand for worldwide uplinking from our connected customers and venues," said Keith Buckley, President and CEO at The Switch. "Partnering with Eutelsat allows us to combine our shared resources to bring a seamless, flexible offering to market."

"We are delighted to partner with The Switch to offer customers seeking connectivity a more efficient and cost-effective way to move content," said Michael Antonovich, CEO of Eutelsat Americas. "Having greater first-mile access to literally hundreds of additional broadcasters, venues and content producers in the U.S. and beyond greatly strengthens our position in the media landscape."

Over the past year, The Switch has invested heavily in expanding its network, products, and services internationally. This includes the launch of The Switch Access™, a broadband IP connection enabling low-cost connectivity from anywhere in the world, the addition of strategic partnerships on several continents, and increasing its team to include dedicated personnel in key international locations.

Telecom Egypt and Liquid Telecom sign new MoU

Telecom Egypt, Egypt's first integrated telecom operator and international connectivity provider, and Liquid Telecom, the leading pan-African telecoms group, announce the signing of a Memorandum of Understanding (MoU) whereby both parties will explore collaboration opportunities in three fields: data centre deployment, financial investment in infrastructure and the development of financial inclusion applications.

Under the first track of the MoU, Telecom Egypt and Africa Data Centres, a subsidiary of Liquid Telecom, intend to start with a joint venture to build and operate new data centre facilities across Egypt. Telecom Egypt is to contribute with its local expertise, telecom services and land to establish the data centres. The cooperation in the data centre build-up will add significant data centre capabilities to accommodate Egypt's rapidly growing ICT sector. In addition, Telecom Egypt and Liquid Telecom will cooperate to develop a business model for the remaining two tracks.

Liquid Telecom intends to invest a total of USD 400mn in Egypt on all these initiatives. The investment by Liquid Telecom is a result of the Government of Egypt's new Investment Law, which encourages Foreign Direct Investment (FDI) into the country's telecom sector.

Nik Rudnick, Group CEO Liquid Telecom, said: "Expanding the Africa Data Centres' brand into North Africa for the first time signifies our intention to be a truly pan-African data centre provider. We're delighted to partner with Telecom Egypt to bring our world-class data centres services to Egypt, where we can accommodate the growing requirements of global cloud providers, carriers and enterprises.""

Egypt's distinctive geography, in the heart of the world, offers operators across the globe a preferential location with the lowest latency access to abundant international capacity and the shortest and most efficient telecom path from Africa to Europe. In addition, Telecom Egypt, with its advanced infrastructure and capabilities, has proven to be the partner-of-choice for many international telecom players over the years. Africa Data Centres brings a proven track record of delivering leading data centre services across the region and serves some of the world's largest cloud service providers, carriers and enterprises. It operates state-of-the-art data centres in major regional trade hubs such as Johannesburg, Cape Town, Nairobi and Harare, which offer a combined potential 19,000 square metres of rack space and 80 Megawatts of power.

The arrival of more data centre facilities and colocation services in Egypt will accommodate the country's digital transformation strategy, helping to attract global cloud service providers to host their public cloud platforms in the country.

A new world-class data centre facility will be established in Cairo, with other locations to be announced in due course. The data centres in Egypt will eventually connect with Africa Data Centres' other facilities, providing customers with access to the region's evolving first pan-African network of data centres.

2019: Demand for satellites rises as more defense industries embraced drones

The Government and Military market for satellite communications remains optimistic, with nations across the globe doubling down on defense spending to drive their own civilian and military government capabilities. Satcom will continue its rise as a central element here, as more governments move towards network centric asset deployments with data-intensive processes.

At close to 30% of the Gov/Mil satcom retail revenue pie in 2017, Unmanned Aircraft Systems (UAS) have quickly grown in prominence as a major component in Gov/Mil operations, with applications in Intelligence, Surveillance and Reconnaissance (ISR) and weaponized combat missions.

A deep dive in the market in NSR's UAS SATCOM and Imaging Markets, 5th Edition report pegs the global UAS SATCOM market at nearly $1.5 billion in retail revenues in 2017, with over $23 billion in cumulative revenues forecasted over the next ten years. While the adoption of drones for border/homeland security and humanitarian/disaster relief operations has risen, long endurance UAS missions for Defense & Intelligence (D&I) applications are the major driver for satellite communications.

An investigation based on data from the U.S. Central Command and The Bureau of Investigative Journalism revealed that the present U.S. regime launched more strike sorties since 2017 in Yemen, Somalia and Pakistan than the previous Obama administration did in its initial years. The increasing presence of UAS in these regions in response to escalating conflicts will drive SATCOM capacity revenues for D&I applications throughout the forecast decade, growing at

a CAGR of 7.8% through to 2027.

Multiple governments continue to seek regionally-developed aerial assets: Spain most recently announced interests in the Franco-German effort to develop the Future Combat Air System (FCAS): a "system of systems" combining myriad manned/unmanned elements together. Meanwhile, loosened export restrictions on the marketing/sale of Unmanned Combat Aerial Vehicles (UCAVs) by U.S. companies under the Trump Administration have fueled competition amongst the traditional UAS players:

Israel's IAI, for instance, lost two huge deals with Australia and Belgium to General Atomics.

On the other hand, China has managed to position itself as a go-to exporter of UAS capabilities, selling to governments in Africa and the Middle East. Its flagship Wing Loong and Caihong airframes, often compared to the American MQ-1B Predator and MQ-9 Reaper drones have allowed China to fill in a gap left open by U.S. export policies in the past. In terms of capacity, FSS Ku-band is expected to remain the major play for SATCOM during most of the coming decade, due to compatibility with existing airframes and budgetary limitations for retrofits.

Accounting for around 50% of the capacity revenue market share by 2027, FSS Ku-band will endure as the largest segment of the capacity demand despite an impending transition towards

High Throughput Satellite (HTS) capacity. This transition is expected later in the forecast decade as newer systems come online and meet the demands of increasingly complex and bandwidth-heavy mission profiles.

On the technology front, platform modifications continue to push for miniaturization: reducing the size, weight and power (SWaP) of UAS subsystem components while remaining uncompromising on performance.

Compact beyond line-of-sight (BLOS) terminals and phased array antennas represent a next-generation shift in UAS SATCOM capabilities that will drive the market for less expensive Low-Altitude-Long-Endurance (LALE) platforms, which present a tactical advantage over Medium-Altitude Long-Endurance (MALE) airframes, and are also easier to deploy.

The bottomline

The UAS market opportunity will continue to move upwards for SATCOM, driven by bandwidth hungry drone applications. However, like most markets, this too is far from impervious to black swan events; ethical/legal considerations around civilian casualties from increased UCAV usage could just as well prove to be a significant restraint in the future.

That said, as tactical operations become increasingly network-centric and more countries join the ISR/combat UAS capability club, the capacity demand for "pattern-of-life" aerial intelligence and command/control operations is rising. With UAS positioned as a key differentiator in military doctrine around the world, globally shifting geopolitical concerns and an improving technology landscape will continue to drive this demand for satellite capacity in the high skies.

Shivaprakash Muruganandham, NSR

New advances in tactical military communications capabilities

As the bandwidth used for satellite communication increases considerably, the size of troops deployed for combat operation have witnessed inverse reduction permitting coordinated use of Un manned aerial Vehicle for the situational awareness. Equally, voice communications and secure data communication have increased as well allowing video teleconferencing and desktop tools for Communication and Control, according to this report.

While Military Satellite Communications has been used for strategic communications as reach back between field command posts and headquarters for decades, recent technology advances in the satcom field is enabling faster deployment of highly mobile forces capable of adapting quickly to changing conditions in the field.

Worldwide, military organizations are transforming into network-centric, information based forces. New requirements are re-defining the need and use of communications. Innovations are shaped by new operational concepts and weapon and sensor trends. In the new paradigm, communication is not only an enabler but is directly affecting the outcomes of wars.

Today's forces are not only deployed for war fighting. They are involved in counter-insurgency operations and global peace keeping mission. The military also often play an important role in disaster response and recovery operations. Apart from territorial defense many of these missions take place on foreign grounds.

The traditional hierarchical organization is not suitable for the new environment. The key to the flexibility required by the military to meet the new challenges is to have an organization that can adapt to the different operational needs a task force organization. The task force is tailored to be best equipped to fulfill a certain mission, and that accounts for its competencies and resources both human and equipment.

The complexity of counter-insurgency operations have also added to the challenges of unconventional warfare. In this terrain, intelligence collection is very difficult, casualties are likely to be very

high, the rules of engagement are likely to be restrictive, technological superiority in joint fires are likely to be negated by the operating environment, and these operations are ground combat intensive. This makes counter terrorism warfare a more challenging undertaking than maneuver warfare.

Additionally, the complexity of the urban operating environment makes it ever more important to have actionable intelligence. A military force can only succeed in urban combat operations if its soldiers have heightened situational awareness. This allows infantry to keep civilian casualties at a minimum and maintain legitimacy throughout the fighting.

> **"The use of shoulder-launched rocket systems by ISIL fighters made the use of tanks and armored personnel vehicles (APVs) very dangerous"**.

Close Quarters Battle tactics play a crucial role in achieving policy goals in counter insurgency warfare. In an increasingly urbanized world, policymakers need to understand that fighting in urban areas differs from fighting in wide and open terrain where there was the possibility of mechanized maneuver through coordinated land and air attacks.

The technical aspects of combat in this terrain deal with the use of weapons. The key issues are barrel length, the type of

caliber to be used 7.62 x 51mm size, and the preferred auxiliary handgun size, a 9mm. This makes it easier to shoot because recoil management is more easily achievable with this caliber and soldiers can carry more ammunition.

In the fight for Eastern Mosul, for instance, the Iraqi and U.S. forces faced a battle-hardened and relentless enemy in the streets, houses, and tunnels of Mosul. It took ground troops one hundred days to recapture eastern Mosul. In addition, streets were very difficult to retake because they expose soldiers to enemy fire.

The use of shoulder-launched rocket systems by ISIL fighters made the use of tanks and armored personnel vehicles (APVs) very dangerous. It was difficult for the U.S. and Iraqi forces to use vehicles while fighting in the streets. U.S. and Iraqi infantry fought in small and larger units. This enabled them to take on ISIL fighters in direct engagement while taking care not to kill innocent civilians.

Thus, the fighting in the streets of Mosul clearly shows the importance of ground combat troops. However, hundreds of houses proved difficult to retake because ISIL was using fighters and unmanned aerial vehicles, commonly known as drones to secure them. The combination of fighters and drones is difficult to counteract. ISIL used these UAVs to drop bombs on houses. These bombs made it difficult for Iraqi ground troops and U.S. advisers to engage this terrorist organization's fighters.

In this phase, mutual communication between the vehicles is also to be expected, mainly by voice and data. The vehicles will be initially scattered over a certain coastal line and will advance in a semi-random pattern of small units. While

communications line-of-sight may be consistently blocked, there remains a requirement for the exchange of situational awareness data consisting of friendly unit locations and potential threats. In more advanced systems, the sharing of stills or even of moving images may be envisaged.

The complexity of this fight highlights the importance of ground combat troops. While air power could provide support at critical points in this battle, the majority of the fighting was being done by infantry units.

While communications dependency is rising, its performance in urban settings suffers from radio frequency (RF) transmission range reductions caused by line-of-sight issues and attenuation due to buildings, structures and terrain; as well as interference from other local electromagnetic systems,

Dismounted soldiers communicate mainly by voice for coordination and command. They occasionally exchange still images and automatically position updates for the purpose of situational awareness and a common operational picture on command levels.

Also, the increasing dependence on information exchange at all levels is driving the demand for greater communication availability and throughput for military operations. Dependency on communications, especially at battalion level and below, is maximized in urban environments to compensate for loss of visual contact between small teams and to their parent organizations as they disappear into alleys, multistory buildings, and subterranean systems especially sewer systems and tunnels.
Often network-centric military operations are enabled by networking military forces and sensors to provide an integrated picture of the battlefield, available in detail at all levels, down to the individual soldier. This extensive information sharing is achieved by equipping command posts, vehicles, and individual soldiers with GPS, computers, and displays, all linked by wireless, radio-frequency networks.

Tactical military communications

Strategic MILSATCOM is traditionally used on a corps or division level and operated by specialized satellite engineers from the Signals Corps. The introduction of MILSATCOM into tactical use puts new requirements on the terminals as well as the users. Its use at lower echelons puts strong demands on size and operability of the terminals as the users are mobile units with limited

Combat troops during an operation

space to spare and operates under constant time constraints.
Three typical operational modes of tactical MILSATCOM cen be described as SATCOM-ONTHE-HALT (SOTH), SATCOM-ON-THE-PAUSE (SOTP) and SATCOM-ON-THE-MOVE (SOTM).

SOTH: SATCOM-ON-THE-HALT

SATCOM-ON-THE-HALT (SOTH) is defined as when the terminals are in one fixed position for days up to months. The terminals are typically larger transportable systems (from 2.4m and upwards) operated by communication experts and used as temporary anchor stations for reachback communications from field command posts to headquarters for various applications, such as: Command and Control (C2); Intelligence, Surveillance and Reconnaissance (ISR); remote specialist functions; and soldier welfare (communication with home).

SOTP: SATCOM-ON-THE-PAUSE

SATCOM-ON-THE-PAUSE (SOTP) is mainly used by battalion level and below and the terminals are deployed during short stops usuaally minutes/hours/days. The terminals are compact and easy to use as mobility and quick deployment is critical. They are commonly used for in-theatre communication to support VTC and battlefield planning collaboration, operated by soldiers with limited training in comms.

SOTM: SATCOM-ON-THE-MOVE

SATCOM-ON-THE-MOVE (SOTM) systems provide real-time communication while on the move. They provide continuous connectivity and be able to automatically and rapidly recover from signal blockages, due to man made objects, terrain/foliage, weather and other

atmospheric effects. SOTM are deployed on various types of vehicles serving as mobile command posts, reconnaissance teams, missile and artillery units etc covering a wide range of applications including: Command and Control, which tends to be asymmetrical with most bandwidth to the remote terminal; and Intelligence, Surveillance and Reconnaissance (ISR), where data is generated on the remote platform, so while also asymmetrical, most bandwidth is from the remote terminal. New applications also include soldier system.

interoperability where individual war fighters have wireless connectivity to the SOTM vehicles and back into field or headquarters command centres. The biggest issues for implementation and growth of SOTM services include: interference and regulatory compliance; compatibility with legacy networks and systems; limited power from satellite beams that may have been designed for larger antennas; limited bandwidth; and the need for terminals to
operate across multiple platforms — on the ground, sea, or in the air. Over the past ten years, the pace of military operations, particularly in the Middle East, has been steadily increasing to the point where forces are now required to conduct operations in many separate "points of battle" across an entire theatre of operations. Often these battles are simultaneous, may encompass one or more countries, and are in locations where normal communications infrastructure is non-existent or has been destroyed. This is where modern broadband satellite network technology is proving to be the ideal communications medium to provide the high speed voice, video and data services required by military forces to enable Network-Centric Warfare (NCW) in the modern era.

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Dr. Abiodun Olusesi

Is IoT/M2M ready to take off in the health industry?

By Dr. Abiodun Olusesi

The Internet of Things (IoT) when applied to medical and health care industry is often termed the Internet of Medical Things, and in its simplicity, represents a digitized healthcare system, connecting available medical resources and healthcare services as a whole. IoT is an emerging reality and represents the direction where medical and health technology is moving.

With Internet of things, long sequences of binary bits '1's and '0's will be carried across the world, trillions of them per second, integrating devices and information together, facilitating seamless communications between sensors, devices and cameras and amongst medical practioners as well.

More so, real time monitoring of chronic emergency conditions like diabetes, heart failure, asthma, and many more can be achieved with interconnected devices. Data like blood pressure, oxygen concentrations, blood sugar levels, ECGs and weight can be seamlessly collected and transferred, stored in the cloud and shared with authorized persons. Advanced devices capable of monitoring specialized implants like advanced hearing aids,

pacemakers, and cochlear implants would also be integrated.

Likewise, medical devices will facilitates monitoring of patients recovering at home or moving around in locations away from the hospital by transmitting different types of data relating to the condition of the patient. Depending on the specific application, remote patient monitoring may involve the attachment of small wireless biosensors on a patient where data captured by an individual sensor is collected and sent out collectively for subsequent processing.

The healthcare industry often have to function despite the shortage of healthcare resources both human and material, rising medical costs, aging population and rise in chronic non-communicable diseases.

Of course, it can argue that technology can't stop the population from aging or eradicate chronic diseases at once, but at least it make healthcare easier on a pocket and in term of accessibility. Usability is greatly improved by the use of graphical user interface, for easy processing of information.

Nigerian health care system

Nigeria's healthcare system is based on a hierarchical system comprising of three strata namely, primary care, secondary care and tertiary care. The difference between the last 2 is often nebulous, and often each of these strata hardly talk to each other, particularly the tertiary care has no idea what cases and challenges the secondary and primary care levels are experiencing.

Primary healthcare is under the purview of Local Governments, while the secondary and tertiary healthcare are under the stage and federal governments respectively. In reality, most primary and secondary care are managed by the state government.
The primary health care is the entry level for patients who desire healthcare. Patients are then referred to other levels of care only if their case(s) cannot be managed at the primary care level. In the Nigerian situation, a high proportion of patients presenting to the tertiary care level have no referrals, resulting in significant waste of highly skilled personnels' time and resources on health problems requiring lesser resources to solve, and loss of systemic learning on the part of primary care

level.

Other peculiarity of healthcare system is the complexity of data generated and that need to be process for efficient healthcare delivery. The data analysis is needed for medical, drug monitoring and management, pharmaceutical anti-counterfeiting, complete real time monitoring (of medical products) from shipping to end users, medical waste information management, clinical patient, hospital and laboratory information management, medical emergency management, connected information sharing, among others.

However, effort to address these issues has led to emergent of new trends in health care. These include remote health monitoring of patients with chronic condition, hospital information system, value-based health care system, focus on prevention (rather than treatment), and holistic approach to treating patients. Across these trends, in addition to health care system research, can be enhanced using the IoT.

Benefits of IoT in Health Care Industry

Remote Health Monitoring
In Nigeria, establishing and maintaining healthcare facilities in remote areas can be daunting. Often the distance to the next available facility can be long, resulting in preventable deaths. In this instance, Internet of Things, IoT offers sufficient help to patients living in areas miles away from the location of medical facilities.

Relying on IoT applications, medical devices fit with sensors can alert the responsible doctors in real time of any change in the conditions of a patient, especially the elderly, the bedridden or the antenatal status. Also, remote monitoring can brings about a noteworthy reduction in the length of hospital stays and re-admission rates. As well, simultaneous reporting and monitoring could be achieved.

When delivered by IoT network, sensor, cameras and actuators are fast enough to deliver all types of data in different directions, and reliable enough to ensure that it is free of transmission errors throughout the entire operation. These devices are so small that some can even be implanted inside the body for monitoring various signs of the body and to automatically issue an alert should an abnormal behaviour is detected.

Data assortment and analysis
The current system of health care information system collects vast amount of data, principally from devices such as Electrocardiogram ECG, Electroencephalography EEG, Electromyography EMG, X-rays, USS, surgical video images, ventilators, audiograms, amongst others, and these data often are hard to store and manage, if access to the cloud is unavailable. It is even daunting for health care professional to acquire and analyze data from multiple devices. However, IoT devices can collect, report and analyze data in real-time, and obviate the need to store raw data.

A growing challenge in our clime is that many Nigerian patients have multiple identities spread across different healthcare levels, and these different levels do not communicate with each other, making data integration very difficult.

However, IoT offers uniform protocol and standard that can achieve data integration across different layers, using system similar to the BVN employed by banks nationwide. Again, with the reliance on cloud computing power, professionals could develop robust Nigerian Nationwide Health Information System (NNHIS). The entire data from the patient can reside in the cloud, while access to it could be provided via smart cards controlled by the patient, except under emergency situations when basic information could be access by anyone equipped with point-of-health (POH) system.

Tackling Pharmaceutical Errors
Meanwhile, current pharmaceutical information management systems already incorporate some indices such as prescriptions, adjusting dosages, nursing administration, patient use of medication, efficacy tracing, inventory management, purchase of supplies, preservation of environmental conditions, and determination of shelf life.

IoT has the potential to confirm which type of drug gets prescribed to the patient, and to not only capture which drug the patient is taking and whether or not they've taken it including the batch the drug came from. This helps avoid the possibility of patients missing scheduled medications, and, in the event of a quality control issue, affected patients get identified quickly.

Medical Emergency Management
In unusual cases of mass casualties with difficulty in reaching out to family members, IoT can assist with rapid identification of relevant patient details such as name, age, blood type, emergency contact and previous medical history. Another application is the use of 3G video equipment in ambulances, which connects the ER with the patient-en-route status, for effective emergency response on arrival. This could also give the ambulance crew access to ER doctors opinion on what to do before arrival.

Challenges facing IoT in Health Care industry

While IoT devices capture and transmit captured data in real time, most of them lack data protocol and standards. In addition, the issue of data ownership regulation is opaque. The net effect is that the system is prone to hacking with a threat to patient and doctor's identities. Furthermore, there are too many devices and protocols that hinder consensus protocol and standard, delaying the process of data aggregation. This slows down the whole process with reduction in scope of scalability of IoT in health care.

Also, data overload and accuracy issues may arises from lack of uniform protocols and standards. Despite the tremendous amount of data generated, clinicians are finding it difficult for quality decision making. More so, with the current level of integration, IoT is yet to make healthcare delivery cheaper, especially in developing countries. This may be why healthcare tourism from these regions to developed countries is booming.

Future of IoT in Healthcare
It appears as though developing nations are just at the twilight of the end of the divide between three worlds - physical, virtual and digital connectivity. The Internet of Things, IoT will unite the three and has a potential to bring seamless 'anytime, anywhere' personalized healthcare and monitoring over fast and reliable networks.

Africa needs to perfect the network and start getting prepared for the inevitable benefits the IoT promises. We need to get into the argument and participate in the protocols and standardization issues and join the rest of the world to deploy and implement Internet of Things, IoT. The overall goal should be fast, reliable and cost-efficient healthcare for our populace.

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- National Atlas of Nigeria
- FCT Atlas (2012).
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Capricorn Space opens up its first site in Western Australia

Capricorn Space announce that the first site in its Australian Ground Network (AGN) is now under development. Civil works at the Western Australian site near Geraldton commenced on 3rd December 2018 with a formal Ground Breaking Ceremony being conducted on 7th December 2018.

The Ground Breaking Ceremony was attended by a number of local and regional dignitaries and commenced with a Welcome to Country acknowledgement of the Wattandee people and the paying of respects to Elders past, present and emerging.

CEO Mark Thompson commented: "Celebrating the turning the first soil at our site represents a major milestone in what has been an extraordinary first year for Capricorn Space. Our company started operation with a blank slate early in 2018 and since then have received our ACMA licenses, secured land in the west of Australia, obtained local Council Development Approval and commenced initial site works at our site at Mingenew in Western Australia (Australian Ground Network – West). With the site works completed we now enter the construction phase with an in-service date for the first two antennas of mid-2019."

Once operational this site will support the satellite industry by providing Ground Segment as a Service at a strategically important location in the southern hemisphere with the attraction of improving time to market for many time sensitive applications.

The development of the AGN-West by Capricorn Space will assist to further Western Australia as a centre for space excellence and increase Australia's standing within the international space community.

CEO Mark Thompson further added: "Capricorn Space is actively engaging local contractors and will seek additional personnel as we transition to our operational phase. In parallel with the development of the site we have also selected and contracted an infrastructure partner for the supply of the first S/X-Band antenna systems and are negotiating with a number of third parties to host additional antennas at our AGN-W site. Further announcements on these activities will be made early in the new year."

China and Pakistan to establish technology transfer center

Chinese International Technology Transfer Center is joining hands with National University of Science and Technology (NUST) to establish its a technology transfer center for Pakistan.

The China Pakistan Technology Transfer Center (CPTTC) will be established in NUST according to the MOU signed by NUST and CITTC officials in Beijing. CITTC was established by the Chinese Ministry of Science to facilitate and assist in the transfer of technology between China and the rest of the world. It offers matchmaking events, training, seminars, conferences, incubation for start-ups, concrete project collaboration and much more to different tech companies looking to enter the Chinese market. It also provides a B2B online system which can connect potential partners with thousands of Chinese companies who have logged requests in the system, facilitating people from all around the world to find Chinese licensee, buyer, investor, distributor or joint research partner.

CPTTC will work as a local branch of CITTC to increase cooperation between China and Pakistan in the information technology sector. This will allow tech companies of both countries to improve their trade relations with each other while also gaining access to the market of their neighboring country.

Axelspace selects top Japanese firms for its first commercial optical EO satellite

A consortium of Japanese companies made up of SKY Perfect JSAT Corporation, and Kongsberg Satellite Services AS announcing that Axelspace Corporation has selected the SKY Perfect JSAT & KSAT joint Ground Station Service for GRUS satellite for its AxelGlobe project. Axelspace has announced that the launch of the GRUS-1 satellite has been scheduled for 27 December, 2018, the first satellite of a future constellation.

SKY Perfect JSAT and KSAT will in partnership provide ground station services for GRUS satellite by using SKY Perfect JSAT's owned and operated ground station at the Ibaraki Network Control Center and support of every orbit (14 of 14) from the unique KSAT ground station at Svalbard. This is the first joint ground service contract award for the partners, cooperating under a Strategic Alliance Agreement for LEO ground station service concluded in 2016. ※2 SKY Perfect JSAT and KSAT will support this satellite program

Axelspace selects SKY Perfect JSAT & KSAT Ground Station Service for GRUS, the first commercial Japanese optical EO satellite with KSATLite, a global ground network as a service, optimized for small satellites and big constellations. A high degree of standardization, supporting all the major standards in satellite and launch vehicle space to ground communications, makes the service easily scalable and cost effective. The KSATLite global network is fully operational and live today, and by leveraging this award, SKY Perfect JSAT and KSAT will expand their business for the emerging LEO market.

GRUS is a next-generation remote sensing microsatellite, the building block of Axelspace's Earth observation LEO constellation. Even with its mass of less than 100kg, it will enable us to obtain images with 2.5m ground resolution. The first GRUS-1 satellite will be launched this December followed by many more in the coming years, making high-frequency monitoring a reality for the entire Earth. When the full constellation is in place, Axelspace will be able to update the imagery of the Earth every day, making the satellite data easily accessible through the AxelGlobe platform. Axelspace will start commercial service for the imageries and its analysis data in 2019.

More than 7000 small satellites are expected to be launched into orbit by 2027※3 globally, fueled by technological development, new innovative solutions and launch services emerging, and the ground business market will be expanded accordingly. SKY Perfect JSAT and KSAT have strong interest in growing and supporting the NewSpace community and expanding its presence in the LEO domain.

Gilat wins multi-million dollar Japan's next generation disaster response platform project

Gilat Satellite Networks Ltd., a worldwide leader in satellite networking technology, solutions and services, announced the selection of Gilat for a multi-million-dollar project by the Japanese government agency, Local Authorities Satellite Communication (LASCOM), for delivery of the next generation disaster response platform to Japan's forty-seven prefectures. Gilat in partnership with JSAT will ensure essential communication services for the people of Japan in case of disaster.

LASCOM requires a highly secure,

bandwidth efficient, multi-service single system that is capable of integration into LASCOM's wider network. The network needs to provide very high throughput, quality and resilience so that an array of services can be reliably delivered to prefectural and local governments, individuals, and first responders. This includes voice services, video feeds from disaster sites, video multicasts to local sites, emergency alerts, mobility services, and data services.

Gilat's stable multi-service platform, SkyEdge II-c, and its highly efficient versatile modems were selected after a thorough evaluation to provide LASCOM the needed reliability and breadth of services to be deployed in case of disaster. Redundant hubs will be deployed in two different locations and thousands of VSATs will be deployed throughout all of Japan's regions.

"We are grateful for the trust that LASCOM has placed in Gilat for their next generation disaster-recovery platform, and in partnership with JSAT we will ensure that the Japanese people will have the essential communication services up in case of any disaster," said Abhay Kumar, Regional Vice President Asia and North America for Gilat. "As Japan is prone to earthquakes, tsunamis and other natural disasters, the selection of Gilat for such a critical network is a great tribute and proof of the resilience of Gilat's network to deliver reliable high throughput services in cases of emergency."

Viasat hits 1,000 commercial aircraft flying with its in-flight connectivity system

Viasat Inc., a global communications company, announced it reached a major commercial aviation milestone: it reached 1,000 commercial aircraft flying globally with its in-flight connectivity (IFC) system.

Viasat installed more than 400 of its latest IFC equipment on commercial aircraft in 2018, with more than half of those installs occurring in the second half of the year. These installations have helped Viasat achieve new levels of service quality, cutting installation time to around 3 days, which is significantly better than the industry standard.

"Viasat has made tremendous progress and important investments to meet the increased demand for our IFC

equipment and service on global commercial aircraft," said John Daly, vice president, Business Operations, Commercial Aviation, Viasat. "We continue to be hyper-focused on increasing the speed of installation, enabling our airline customers to get aircraft in service faster. In the fourth quarter of calendar year 2018 alone, we performed approximately 50 installs per month, and we expect that number to increase monthly as we drive further operational efficiencies into the installation process."

China Cross-border Data Telecom Industry Alliance successfully convenes 2018 Members Meeting in Beijing

CITIC Telecom International CPC Limited, a wholly-owned subsidiary of CITIC Telecom International Holdings Limited, announced its subsidiary China Enterprise ICT Solutions Limited, a member of the China Cross-border Data Telecommunications Industry Alliance, participated in the annual Members Meeting. A representative of China Entercom was also invited to speak at this key event
.
The China Cross-border Data Telecommunications Industry Alliance annually holds its Members Meeting to summarize the Alliance's activities over the past 12 months and discuss plans for the upcoming year. This year, the event was held in Beijing on November 16, 2018

During the 2018 Members Meeting, Mr. Zhang Jianhua, Director of the Marketing Department at the Information and Communication Bureau of the Ministry of Industry and Information Technology of the PRC, spoke on various key areas of China's information and communications market, including explaining regulations of concern to enterprises (such as the reform and regulation of the Internet access service market), and elaborated on efforts made to manage credit. Mr. Zhang also reported on the rectification status of the Alliance's official members, in the members' efforts toward compliance with the latest government standards, and proposed a key step for regulating China's information and communications market in 2019: "Highlighting regulation focus, strengthening enforcement and accountability". Mr. Zhang also urged China's domestic telecom operators to

devote more effort toward upgrading network performance while reducing tariffs. He also stressed all Alliance members should maintain high levels of integrity, and that the Alliance should continue to serve as a bridge to facilitate industry collaboration. Mr. Zhang also recognized Alliance and its members for their efforts

As official Alliance members, China Entercom and the other eight telecom companies were acknowledged by the local Communications Administration for successful rectification. A representative of China Entercom was invited to deliver a speech, during which he conveyed the company's gratitude for recognition received from senior officials of the Ministry of Industry and Information Technology of the PRC, as well as for the Alliance's support and invaluable services. He reiterated that China Entercom will continue to maintain a high level of integrity to ensure its business operates in compliance with established law and to the satisfaction of relevant authorities dedicated to the advancement of the industry
.
CITIC Telecom CPC is greatly honored that China Entercom was acknowledged by the local Communications Administration for its rectification efforts, as well as for meeting communications service requirements and providing reliable and stable network access services. This latest recognition milestone also means enterprise customers can benefit from the company's full range of ICT solutions, capture opportunities arising from the One Belt, One Road Initiative, attain greater success and further extend their global business footprints.

NHK partners with Eutelsat for the launch of the world's first 8K channel

NHK, Japan's national broadcaster, has partnered with Eutelsat Communications (NYSE Euronext: ETL) to launch the world's first 8K network; BS8K. The live broadcast took place on December 2nd from the Vatican where images were transmitted to Tokyo via EUTELSAT 12 West B satellite with a mobile uplink provided by M-three Satcom. This momentous event by NHK has broken new ground for 8K contribution via satellite.

To achieve the technologically challenging feat, NHK relied on DVB-S2X modulation, in 16APSK, and HEVC encoding. The images (7680 pixels over 4320 lines, an astounding 33.3 million pixels per image)

were shot at 60 frames per second in BT2020 colour space, with 10 bits of colour depth (1 billion colours) and high dynamic range HLG (Hybrid Log Gamma), combined with 22.2 channel audio.

Airing in Japan, BS8K features 8K Ultra HD footage of major cultural and sporting events, museums and natural landscapes, providing viewers with a fully immersive experience broadcasted 12 hours a day. The channel will allow for further experimentation with 8K prior to the large-scale deployment of the format for the Tokyo Olympics and Paralympics games in 2020.

Gerry O'Sullivan, Executive Vice President, Global TV and Video of Eutelsat: "Eutelsat has been a pioneer in delivering HD and Ultra HD formats since their inception, and this broadcast confirms satellite's unique position as one of the vital technologies capable of broadcasting 8K signals. We look forward to working hand in hand with customers such as NHK as they continue to raise the bar higher for the broadcasting industry, to deliver the best possible video experience to viewers."

Ariane 5 delivers payloads for India and South Korea

Arianespace's 10th mission of 2018 orbited satellite payloads for the Indian Space Research Organisation (ISRO) and the Korea Aerospace Research Institute (KARI), using the workhorse Ariane 5 on a launch performed from the Spaceport in French Guiana.

Designated Flight VA246 in Arianespace's launcher family numbering system, it delivered the ISRO GSAT-11 relay platform for Ku- and Ka-band communications, along with KARI's GEO-KOMPSAT-2A which is to provide meteorological and space weather monitoring data.

"I want to express my deepest gratitude to two very special partners since the beginning of their space ambitions: ISRO and KARI," said Arianespace CEO Stéphane Israël in post-launch comments from the Spaceport.
Continuing the long relationship with India's ISRO Israël noted that GSAT-11 was the 22nd ISRO satellite orbited by Arianespace and Ariane-series launchers, tracing the relationship back to India's APPLE small experimental communications spacecraft, which had a liftoff mass of 670-kg. and was lofted in 1981 by an Ariane 1 version. On today's

Ariane 5 mission, GSAT-11 weighed in at 5,854.6 kg. – the largest and heaviest satellite ever built by the Indian space agency. Deployed first during Ariane 5's 33-minute mission to geostationary transfer orbit, GSAT-11 will be positioned at 74 deg. East, providing communications services in Ku- and Ka-bands in both forward and return links. The satellite was designed and manufactured by ISRO, with its multi-spot beam coverage over the Indian mainland and nearby islands to bring significant advantages to users when compared with existing India's INSAT/GSAT satellite systems. GSAT-11's design lifetime is more than 15 years.

South Korea's seventh satellite orbited by Arianespace GEO-KOMPSAT-2A was carried in Ariane 5's lower payload position and released second in the sequence for Flight VA246. Developed by KARI at its South Korean facility in Daejeon, this 3,507.2-kg.satellite will deliver meteorological and space weather monitoring from an orbital position of 128.2 deg. East as part of a Korean government national program.

This close-up photo shows the Ariane 5 payload fairing logos for Flight VA246's GSAT-11 and GEO-KOMPSAT-2A passengers, along with a decal for the Community of Ariane Cities and Les Mureaux.

"Arianespace is proud to maintain such a close bond with South Korea," Israël stated, adding that Flight VA246 marked the seventh time South Korea's flag has appeared on the fairing of an Arianespace launch vehicle.
In addition to the Ariane 5's payload fairing logos representing Flight VA246's two satellite passengers, also included was a decal recognizing the French city of Les Mureaux – home to the ArianeGroup site responsible for integration of Ariane 5 cryogenic main stages today, and for Ariane 6 launchers in the future. Les Mureaux is completing its year-long presidency for the Community of Ariane Cities, a non-profit association that brings together cities and their industrial companies involved in the Ariane program.

The rapid tempo of Arianespace launches CEO Stéphane Israël noted that Arianespace has once again confirmed its flexibility and reliability by performing five launches in two and a half months – from September 25 to December 4 – with liftoffs coming every two weeks since early November. "What an impressive tempo," he concluded, noting that today's Flight VA246's orbiting of the GSAT-11 and GEO-KOMPSAT-2A satellites for connectivity and weather data gathering fulfills Arianespace's motto: "Space for a better life on Earth."

APSCC shops for new Senior Executive

The Asia-Pacific Satellite Communications Council (APSCC) has announced that SeongJoong Kim, who has led the Organization for 8 years, will retire in early 2019 and the Organization has formed a committee to commence a wide ranging search for a candidate to take on the leadership of the Organization. This Succession Planning Committee, will review applications, interview candidates and make recommendations to the APSCC Board of Directors.

"On behalf of the Board of Directors, we would like to express our appreciation for Dr. Kim's dedication to the APSCC," said Gregg Daffner, President of APSCC. "APSCC has established a Succession Planning Committee to ensure that the Organization continues to harness and expand the promotion of satellites for communications and other commercial services throughout Asia through the new leadership role."

The APSCC Board has directed the President and the Succession Planning Committee to use this opportunity to seek a leader for APSCC whose main goal will be to actively engage the APSCC on behalf of its members to take a more prominent role in the rapidly changing Asian space industry with a special focus on key regulatory and market assess issues as well as an expansion of APSCC membership into new space and other emerging commercial space endeavours.

Dr. Kim will continue to serve APSCC as the Executive Director until end of March 2019. Details of the applications for the new leadership position will be announced on the APSCC webpage.

China launches satellites for Saudi Arabia

Two Saudi Arabian Earth observation satellites and 10 small secondary payloads rode a Long March 2D rocket into orbit from the Jiuquan space base in China's northwestern Inner Mongolia region, hours before the launch of a Chinese lunar probe targeting the first soft landing on the far side of the moon.

The Long March 2D rocket lifted off at from Jiuquan, carrying the 12 satellites into a low Earth orbit a few hundred miles above the planet. Liftoff marked China's 35th space launch attempt of the year, extending a record for annual launch

activity. All but one of China's launches in 2018 have been successful. The main payloads aboard the Long March 2D rocket were SaudiSat 5A and 5B, two Earth-imaging satellites each weighing nearly a half-ton. Ten other Chinese microsatellites and nanosatellites were also launched on the same rocket.

Officials declared the launch successful, according to China Great Wall Industry Corp., China's state-owned company responsible for international sales of launch services. The launch of SaudiSat 5A and 5B came less than a day before China is set to lift the country's most ambitious interplanetary mission yet — the Chang'e 4 robotic lander and rover destined for the far side of the moon. Chang'e 4's launch from the Xichang space base, located in a mountainous part of southwestern China's Sichuan province, is scheduled aboard a Long March 3B launcher around 1820 GMT (1:20 p.m. EST) Friday, according to an airspace warning notice issued to pilots.

China has not publicized the Chang'e 4 launch date, and it's not known whether Chinese state television will broadcast the lunar mission's launch. The lander is targeting an arrival on the far side of the moon in early January, and if successful, Chang'e 4 would be the first spacecraft to land on the part of the moon never seen from Earth. China launched a dedicated communications relay craft in May to a position beyond the moon, enabling the routing of signals between Earth and Chang'e 4 on the lunar surface.

The SaudiSat 5A and 5B satellites were built by the King Abdulaziz City for Science and Technology in Riyadh, following the launch of previous, smaller Saudi-built Earth observation craft on Russian rockets. The new spacecraft are the largest satellites manufactured in Saudi Arabia, and they will provide the country's government with high-resolution imagery of sites across the globe, according to Al Arabiya, a Saudi-owned television network.
"Among the 10 piggyback payloads, seven are Internet of Things technology verification satellites designed and manufactured by Beijing Commsat Technology Development Co. Ltd., and three are new technology of remote sensing experiment satellites designed and manufactured by Spacety Co. Ltd. (Changsha)," China Great Wall Industry Corp. said in a statement. With latest launch, China Great Wall Industry Corp. said it has launched 35 commercial and international satellites on 10 Long March launch missions this

year.

Low-earth orbit satellite project launched in Chongqing

China's first global mobile satellite communication and internet space project via low earth orbit (LEO) satellites has been launched in southwest China's Chongqing Municipality. The project has drawn an investment of about 20 billion yuan (about 2.9 billion U.S. dollars) for its first phase, making it the largest investment for a single commercial aerospace program in China, according to the China Aerospace Science and Technology Corporation, which co-founded a company in charge of the project.
The project features hundreds of LEO satellites and a global data processing center, which can help realize global two-way communication in real time under complicated geological conditions 24 hours a day upon completion.
The project is expected to boost development of other sectors, including chips, terminals, system integration, operations and training of talent, said a source of China Aerospace Science and Technology Corporation.

SSTL confirms successful launch of KazSTSAT

Surrey Satellite Technology Ltd (SSTL) has confirmed the successful launch of KazSTSAT, a small Earth observation satellite jointly developed by SSTL and JV Ghalam LLP, a joint venture between JSC "National Company Kazakhstan GaryshSapary" (KGS) and Airbus Defence and Space. The satellite was launched into a 575 km sun-synchronous orbit on board Falcon 9 from Vandenberg Air Base.

Sarah Parker, Managing Director of SSTL said "I am pleased to confirm that following separation from the launch vehicle a joint commissioning team here in Guildford have successfully made contact with KazSTSAT and established that all initial systems checks are nominal. I would like to congratulate our customer Ghalam on their new Earth Observation satellite and look forward to seeing the first mission results from the spacecraft soon."

"It is a great event for us, this is the first mission in which the Ghalam team participated rather than being involved in its design, assembly and testing, and which also has a number of Kazakh technologies on board. We are very pleased with our partnership with SSTL and are grateful to our British partners for

invaluable experience our team got in a truly collaborative environment"- said Ghalam CEO, AibergenRuslanuly.

KazSTSAT has a mass of 105kg and will acquire image data at 18.7 m GSD with a swath width of 275 km. The spacecraft carries several experimental and demonstration units, including a beyond diffraction limit imager, a sun sensor, and a novel OBCARM. KazSTSAT will be operated by Ghalam, using a fully virtualized ground segment with S/X-band software defined back-ends deployed at KSAT ground stations in Svalbard and a technology demonstration ground station in Astana.

KazSTSAT is the second satellite SSTL has worked on with Kazakhstan; KazEOSat-2, a medium resolution satellite designed and manufactured by SSTL for KGS, was launched in 2014.

Inmarsat becomes first commercial customer for the new H3 launch vehicle

Inmarsat announced that it has entered into an agreement with Mitsubishi Heavy Industries, Ltd. (MHI) to be the first commercial customer to place an order for the new H3 launch vehicle. The maiden flight of H3 is scheduled for 2020 with Inmarsat planning to deploy the new launch vehicle after 2022.
This is the second agreement entered by Inmarsat and MHI, following the launch services contract awarded to MHI's H-IIA Launch Vehicle in 2017. These agreements underline the growing partnership between the two companies in the area of launch services.

Rupert Pearce, CEO of Inmarsat, said: "Inmarsat is the world leader in global mobile satellite communications; a position we have achieved by building an exceptional ecosystem of partners. As our company grows – expanding into new markets and opening up new opportunities for our customers to develop their businesses – we continually seek new technology partners that display an outstanding commitment to innovation and excellence.
"It was for these reasons that in 2017 we selected MHI as a launch partner and why today we are delighted to be announcing that Inmarsat is the first commercial customer to select MHI's new H3 launch vehicle. We believe that H3 represents a world-class innovation and one that will deliver an effective and efficient service to place future Inmarsat satellites into orbit."
"Today, development of the H3 Launch Vehicle is proceeding steadily forward under the leadership of the Japan Aerospace Exploration Agency (JAXA), with MHI serving as primary contractor

working closely with key component manufacturers," said Masahiro Atsumi, Vice President & Senior General Manager for Space Systems at MHI. "We greatly appreciate the high evaluation made by Inmarsat during this development phase and, working closely with JAXA and government agencies, we will do everything possible to ensure that development results in a new flagship launch vehicle fully meeting the customer's high expectations."

Rt Hon Greg Clark MP, Secretary of State for Business said: "Science and innovation have no borders, as long-term strategic partnerships like this one built on excellence between Inmarsat in the UK and MHI in Japan demonstrate.
"The space sector is a UK success story and an industry that is growing globally, a year since the launch of our modern industrial strategy, we continue to build on our commitment to space, including through the announcement of the UK's first spaceports and record investment in our world-leading science base."

MHI Launch Services enjoys an extremely high success rate of 97.9% and has provided 41 successful consecutive launches since 2005, delivered on-time and to the customer's satisfaction by current launch vehicle both H-IIA and H-IIB.
The agreement with Inmarsat reflects MHI's long-term commitment to supporting a wide range of customers in the space industry. MHI will continue to support the development of the space industry, and will seek further new opportunities in this field both in Japan and globally.

Killer seven becomes the world's first cartoon character launched into outer space

The cartoon character Killer Seven, a popular IP created by AHA Entertainment, has been successfully launched into outer space from the Jiuquan Satellite Launch Center, along with several microsatellites with the Long March - 2D Carrier Rocket, in Spacety's fifth launch. It is a benchmark in the animation industry that Killer Seven becomes the world's first cartoon character launched into outer space.

Killer Seven, follows the amusing and warm-blooded adventures of SEVEN, a "low-priced" assassin who accepts weird missions. The first season of the animation, released in April 2018, has been viewed online more than 1.06 billion times, rated 8.9/10* on Douban.com and 9.9/10* on Bilibili.com, and nominated in "TV Films" category of the Annecy International Film Festival 2018. It has

accumulated a large group of loyal fans and favored by many brands in a short period.

Last November, AHA Entertainment and Spacety announced a strategic partnership to launch the cartoon character of Killer Seven with commercial satellites into outer space. The partnership is the first collaboration worldwide between the animation and the aerospace industries, arousing widespread attentions in both industries. "The cartoon character of Killer Seven is popular and influential among young audiences.

It is honored to launch SEVEN with Spacety, which is the first attempt among cartoon characters. Since the news release of launching SEVEN in November, fans of SEVEN have recorded their best wishes. This has triggered fans' discussions about the commercial aerospace industry, and satisfied the expectations that through the crossover partnership more young people have focused on the aerospace industry. In the future, we expect to set brands on fire through crossovers like this," said Ms. Aiken ZouShasha, CEO of AHA Entertainment and Producer of Killer Seven.

China's TV programming market now second only to the US

Chinese broadcasters spent RMB43 billion (US$6.4 billion) on programming in 2017, compared to RMB30 billion spent by online platform companies. China has overtaken the UK in the TV programming industry, becoming the second-largest market in the world after the US, according to analysis firm IHS Markit.

TV programming expenditures in China, including online platforms, hit RMB73 billion (US$10.9 billion) in 2017, followed by the UK at US$10 billion, while the US led the global market, spending US$58.3 billion. TeohKia Ling, senior research analyst, explained: "The growth in China's TV programming spending is largely due to aggressive content investment by online companies Baidu, Alibaba and Tencent."These three giants have upped their spending on content origination and acquisition for their respective video platforms, iQiyi, YoukuTudou and Tencent Video." Broadcaster advertising revenue growth in China has plateaued since 2014, reaching RMB83 billion in 2017, but online revenue is on the rise, driven by greater video advertising and subscription income.

TV broadcasters spent RMB43 billion on programming in 2017, compared to RMB30 billion spent by online platform companies. "As digital entertainment viewership gains traction, advertisers are gradually moving more of their budgets to digital platforms," Teoh said. "We expect online companies to overtake TV broadcaster spending in 2018, if the content creation spree persists."

Original programming made up 49% of all Chinese programming in 2017, followed by acquired programming at 46%, and sports programming at 5%. IHS Markit expects this split to remain relatively consistent over the next five years. "Broadcasters and online platform companies are increasingly creating their own content, not only to lure paying subscribers, but also for merchandising, mobile game development and other new revenue streams," Teoh said. "In addition, distribution of linear TV and online platform content can generate lucrative returns, in both domestic and foreign markets."

Despite the increased focus on original programming in China, acquired content will remain an integral part of broadcasters' content strategy, as many companies still rely heavily on acquired content. The large and growing consumer appetite for global sporting events, particularly online, is also expected to boost spending on sports programming, predicted IHS Markit.Teoh concluded: "While online platform companies are increasing China's TV programming expenditure, they should be concerned by user retention and sustainability of content costs.

"In order to retain existing subscribers and attract new ones, online platform companies are investing heavily to create and acquire exclusive content. Unlike Netflix, these companies still rely substantially on advertising and sponsorship. If the cost of content continues to surge, such aggressive investment will become unsustainable."

Singtel bags APAC telecom group award

For the second consecutive year, the Singapore telco is awarded for its performance and market leadership in Asia-Pacific. Singtel has been awarded the Asia-Pacific Telecom Group of the Year award at the annual Frost & Sullivan ICT Awards for the second consecutive year. The award ceremony was held on August 15 in Singapore. According to Frost &

Sullivan, Singtel is recognised for its performance and market leadership in the region. The panel also took into account factors such as revenues, market share, capabilities, service innovation and adoption of the best practices in the industry.

Singtel also picked up the Asia-Pacific Managed Cloud Services award for providing enterprises comprehensive cloud services and solutions that help companies accelerate their digital transformation.

Francis Fong, managing director of enterprise data and managed services, group enterprise, Singtel, said: "The awards are a testament to the strength of the Singtel Group as we continue to innovate and deliver leading-edge services and solutions for enterprises. The accolades also recognise our efforts to help enterprises digitally transform their businesses by providing companies comprehensive cloud services that will help them operate in the new economy."

Having embarked on its own digital transformation six years ago, Singtel is now in a position to help other companies to start their own transformations. In August this year, Singtel launched the FutureNow Innovation Centre, a platform that combines the group's experience and expertise with emerging technologies to help companies test innovative concepts and unlock new growth opportunities that will help them compete in the new economy. Ajay Sunder, vice-president for telecom, Frost & Sullivan, concluded: "We conferred Singtel these awards due to its strong commitment to innovation and digital transformation. Its ability to meet topline and bottomline targets despite heightened competition across its regional footprint sets Singtel apart as Asia's leading communications technology company."

AsiaSat reorganises commercial unit

Leading AsiaSat's new division is Ina Lui, who is tasked to combine the strengths of satellite operator's commercial, marketing and business development teams. AsiaSat has appointed Ina Lui senior vice-president, commercial, business development and strategy, following the company's decision to integrate its commercial, marketing and business development teams under one division.

In her new role, Lui will assume additional responsibilities in commercial and marketing. Dr Roger Tong, CEO of AsiaSat, commented: "I am pleased to announce this new transformation for the company. By elevating and uniting our commercial, marketing and business

development teams under one leadership, we are better positioned to harness the strengths and synergies of a combined team to synchronise our transformation with our customers and accelerate growth at AsiaSat."Lui has more than 25 years' experience in the satellite, telecommunications and technology sectors, covering areas in commercial, marketing, product and business development. Prior to joining AsiaSat, Lui was managing director, sales, Asia-Pacific at ABS, where she was responsible for sales and business initiatives for the region.

Lui concluded: "I'm grateful for this opportunity to lead a strong and combined team, continuing to work closely with other departments at AsiaSat to bring together better synergies with our customers and partners in order to deliver even better service quality and more innovative solutions to meet the ever-changing market and consumer needs."

India's DishTV Selects MediaKind AVP4000 Encoder

DishTV, provider of direct-to-home satellite (DTH) service to viewers in India, will deploy the MediaKind AVP 4000 video processing platform to deliver content to more than 23.5 million subscribers. "Through the deployment of MediaKind's AVP technology, we can enable the highest video quality for our consumers alongside far greater bandwidth efficiencies, thus enabling us to cost-effectively deliver the next generation services to our subscribers," said DishTV Group CEO Anil Dua.

The DTH service provider is replacing legacy D2H technology with the MediaKindheadend compression technology to make evolution to traditional broadcast and multiscreen service possible. The deployment of MediaKind's AVP 4000 encoder will be used to support delivery of both DishTV brands to customers. Deploying the MediaKind solution will allow DishTV to unify control and management of its two headends in an orchestrated way and drive greater operational efficiency, the company said. The AVP 4000 also will enable DishTV to achieve greater bandwidth efficiency and deliver higher picture quality.

The encoder has a modular architecture that enables on-site upgrades, which reduces maintenance time and service interruptions. The AVP 4000 encodes MPEG-2, MPEG-4 AVC and HEVC and makes a smooth upgrade to 4K UHDTV easy, the company said.

India's GSLV-F11 successfully launches GSAT-7A

Indian Space Research Organisation's (ISRO) Geosynchronous Satellite Launch Vehicle (GSLV-F11) successfully launched the communication satellite GSAT-7A from the Satish Dhawan Space Centre in Sriharikota. The GSLV-F11 lifted off from the Second Launch Pad carrying 2250 kg GSAT-7A and about 19 minutes later, injected GSAT-7A into a Geosynchronous Transfer Orbit of 170.8 km x 39127 km which is very close to the intended orbit.

An ISRO team lead by Chairman Dr K Sivan, Vikram Sarabhai Space Centre, S Somanath, U R Rao Satellite Centre, Director P Kunhikrishnan, Space Applications Centre, Director D K Das, SDSC Director S Pandian, Liquid Propulsion Systems Centre, Dr V Narayanan and ISRO Propulsion Complex, Director T Mookiah witnessed the launch.

Mission Director Mohan M and Satellite Director Killedar Pankaj Damodar oversaw the launch proceedings.

Soon after the separation of the satellite, ISRO's Master Control Facility at Hassan in Karnataka took over the command and control of GSAT-7A.The satellite's health parameters are normal. Following the successful launch, scientists at MCF will perform various orbit-raising manoeuvres, using GSAT-7A's onboard propulsion system, to place the satellite in its final geostationary orbit.

China's BeiDou officially goes global

China announced that the primary system of BeiDou-3 has been established and has started to provide global services, meaning its home-grown BeiDou Navigation Satellite System (BDS) officially went global.

The BDS has been performing well in the Asia-Pacific region and it goes global with cutting-edge technology and high-quality service.

"The BDS is very popular in Indonesia," said Marianto Yang, an agent selling satellite navigation equipment in Indonesia, adding that the system offers services superior to similar equipment.

In November 2017, BeiDou-3, the latest generation of the BDS, started its satellite constellation, which was completed this November.

Xie Jun, deputy chief designer of the system, said the goal of the design of BeiDou-3 is to provide services with comparable accuracy to those of the third

generation of the Global Positioning System owned by the United States and European Galileo system. The new progress of BeiDou-3 offers an alternative to the world.

"We have seen great potential in the BeiDou system," said Sabira Khatun, a professor who specializes in electronics engineering at Universiti Malaysia Pahang, emphasizing that the system has brought opportunities for academic cooperation on navigation between the two countries.

The BDS was created in a spirit of openness and cooperation. Before BeiDou-3 started its global service, services provided by BeiDou-2 had been applied in over 70 countries and regions, from land planning and supervision of river transport in Myanmar to urban modernization and smart tourism in Brunei.

In recent years, the BDS's pace of globalization has been quickening. At the sixth ministerial meeting of the China-Arab States Cooperation Forum in 2014, the application of the BDS in Arab countries has been discussed.
In May 2015, China and Russia signed the BeiDou-Glonass system compatibility and interoperability cooperation agreement. In April 2018, the China-Arab States BDS/GNSS Center, the first overseas center for China's indigenous BDS, was officially inaugurated in Tunisia.

"Cooperation on the BDS is of special significance for the Belt and Road construction," said Mohamed Ben Amor, secretary general of the Tunisia-based Arab Information and Communication Technology Organization, an Arab governmental organization under the Arab League.
"The next step of the China-Arab cooperation is to achieve further connectivity and both sides can apply the BDS to promote regional technological and economic development," Amor added.

Shen Jun, deputy director of the International Cooperation Center of the China Satellite Navigation Office, said the China-Russia Commission on Important Strategic Satellite Navigation Cooperation has been established to continuously coordinate and promote bilateral cooperation in satellite navigation.

Cooperative projects between China and Russia include the development of chips for satellite navigation applications and autonomous vehicles in agriculture, Shen added. This year has seen an intensive launch of BeiDou satellites. By around 2020, when the BeiDou system

completes its global network, it will have more than 30 satellites.
All countries around the world, especially developing ones, will enjoy free positioning and navigation services provided by the BDS, which "not only is the progress of the global satellite navigation system, but also benefits the development of production and transportation in these countries," said Amor

Speedcast and Carnival Corporation renew contract

Speedcast International Limited has signed a new contract, with multi-year extension options, with Carnival Corporation, the world's largest leisure travel company. Speedcast will provide remote communications and value-added services across the company's global fleet of cruise ships. The three-year material contract is expected to generate 8-9% of expected full year 2019 revenue.

Speedcast has been delivering communications services to over 100 cruise ships across the various Carnival brands since 2013. With this new contract, Carnival increases its investment in communications, with bandwidth delivered to the fleet increased significantly in order to provide its guests with a high-quality internet experience.

Speedcast is leveraging 40 satellites, including High Throughput Satellites (HTS), across C-band, Ku-band and Ka-band spectrums and 20 teleports to deliver the largest dedicated maritime satellite network in the world.

The connectivity experience is managed and enhanced by a unique and innovative centrally-orchestrated intelligent automation system called Speedcast TrueBeam. Speedcast TrueBeam is the result of a four-year development program at Speedcast, and is being launched operationally for the first time. TrueBeam gives ships anywhere in the world the ability to seamlessly maintain communications, even while moving in and out of a satellite beam's coverage area. The system incorporates intelligence that understands, predicts and mitigates known satellite communication challenges, such as rain fade, line of sight blockage and network congestion. TrueBeam is critical when using the small beams of HTS, which can require multiple beam switches per day. The TrueBeam system analyzes network availability, capacity, bands, and other key data points across networks and is

able to make intelligent decisions without manual interaction. It is the first system of its kind that is able to centralize the planning and switching of a remote network of this size and scale.
Speedcast's services also include an extensive global terrestrial backhaul network to carry data traffic to the internet and back to Carnival's key operations data centers. Speedcast will also implement the latest network optimization technologies from Xiplink to help enable an enhanced guest experience
.
Beyond connectivity, Speedcast will provide an enhanced suite of value-added services including voice services and support for the growing demand for data-rich applications and streaming from personal devices while onboard.

Speedcast's 24/7 Technical Support Centers on five continents, a dedicated service delivery team and over 250 field engineers globally will ensure the operation and maintenance of the network to deliver a high degree of service availability

"Speedcast is thrilled and proud to continue this partnership with Carnival as its trusted provider for communications," says PJ Beylier, Speedcast CEO. "I would like to thank the entire Carnival team for their trust and look forward to continuously raising the bar together with Carnival to deliver an industry-leading communications guest experience in the cruise industry, just as we did earlier in the year delivering world record-setting bandwidth to the Carnival Horizon. The continuation of our partnership with Carnival, following a very competitive process, is a testament to Speedcast's unique capabilities, demonstrates our ability to innovate and adapt to fast-evolving customer needs and is confirmation of our leadership position in the cruise sector.

"Carnival Corporation looks forward to continuing our relationship with Speedcast to enable industry-leading connectivity onboard our ships to enhance the guest experience beyond what we are offering today," says Reza Rasoulian, VP of Global Connectivity for Carnival.

FCC reaches $900,000 settlement with Swarm over unauthorized satellite launch

The Federal Communications Commission announced it has settled an investigation into Swarm Technologies' unauthorized launch and operation of small satellites. The company agreed to a settlement which included a $900,000 penalty, an extended period of FCC oversight, and a requirement of pre-launch notices to the Commission, among other stipulations.

"We will aggressively enforce the FCC's requirements that companies seek FCC authorization prior to deploying and operating communications satellites and earth stations," said Rosemary Harold, Chief of the FCC's Enforcement Bureau. "These important obligations protect other operators against radio interference and collisions, making space a safer place to operate."

In April 2017, Swarm applied for an experimental radio service license to deploy and operate two earth stations and four small satellites, called SpaceBEEs or BEEs (Basic Electronic Elements). The FCC denied Swarm's application in December 2017 over concerns about the ability to track the satellites. Swarm nevertheless launched the satellites on January 12, 2018.

The FCC began its investigation in March 2018 following reports of the unauthorized launch. The investigation found that Swarm had launched the four BEEs using an unaffiliated launch company in India and had unlawfully transmitted signals between earth stations in Georgia and the satellites for over a week. In addition, during the course of its investigation, the FCC discovered that Swarm had also performed unauthorized weather balloon-to-ground station tests and other unauthorized equipment tests prior to the small satellites launch. All these activities require FCC authorization and the company had not received such authorization before the activities occurred.

Today's settlement represents a final resolution of the FCC's investigation. It requires Swarm to pay a penalty $900,000 to the U.S. Treasury. In addition, the company must submit pre-launch reports to the FCC for the next three years. These reports are required within five days of signing an agreement to launch and at least 45 days before the planned launch. In addition, Swarm has committed to a strict compliance plan to prevent future violations of FCC rules.

Going forward, the FCC's Office of Engineering and Technology and the International Bureau will continue to consider Swarm applications on a case-by-case basis. Since the start of the FCC investigation, Swarm has not engaged in any unauthorized deployment or operation of satellites or other radio frequency devices and has sought the appropriate licenses for future satellite deployment and operation.

In addition to starting the investigation, the FCC issued an enforcement advisory in April 2018 in response to these actions. The advisory reminded satellite operators that they must obtain FCC authorization for space station and earth station operations. The advisory cautioned satellite operators and launch companies against proceeding with launch arrangements following a license denial or prior to receiving an FCC authorization.

Harris Corporation to provide wideband satcom mission support for US Army

The U.S. Army has awarded Harris Corporation a nearly $218 million follow-on contract to support wideband satellite operations centers and management sites that deliver critical communications to warfighters around the world.

The Wideband Satellite Communications Operations and Technical Support II (WSOTS-2) contract will support global networks and operations centers at 21 sites, providing operations and maintenance, life-cycle engineering, on-site technical assistance, equipment installation, depot-level repair, logistics, cybersecurity, and training and sustainment.

"Harris assists the Army with all facets of wideband SATCOM support, helping to keep these global communications systems performing so that warfighters are protected and get the information they need to stay connected and ensure mission success," said Chris Forseth, vice president and general manager, Harris Space Superiority.

The contract leverages Harris' 30-plus-year legacy of providing ground systems, on-orbit assets and global communications networking to the Army and other customers, including most recently, executing the first WSOTS $160 million contract.

U.S. Department recognizes SSL export achievements

The U.S. Commercial Service, which is the export promotion arm of the U.S. Department of Commerce's International Trade Administration (ITA), has presented SSL with an Export Achievement Award. The award was given to SSL in recognition of the company's significant and sustained export sales in partnership with the U.S. Commercial Service.

SSL has worked with the U.S. Commercial Service and the ITA's Advocacy Center on numerous global ventures throughout the years in countries such as Azerbaijan, Australia, and Indonesia. Among the most notable collaborations was the sale of BulgariaSat-1, a communications satellite and launch for a leading telecommunications company and the largest provider of pay-TV services in Bulgaria. It marked the largest export sale in history between the United States and Bulgaria and demonstrates SSL's outstanding ability to bring satellite solutions to global markets.]]

At the ceremony, which was held on Wednesday, Dec.12, in conjunction with the Discover Global Markets Conference in Salt Lake City, Utah, Thomas McGinty, deputy assistant secretary, U.S. Operations, U.S. Commercial Service, U.S. Department of Commerce said: "The U.S. Commercial Service has been privileged to support SSL on a number of multi-million dollar satellite projects to help bring the best of American innovation to markets around the globe and into space."

Over the past five years, 75 percent of the geostationary communications satellites built by SSL have been for international customers. This underscores the company's success in establishing efficient processes for working with non-U.S. companies and its skill in helping international satellite operators feel comfortable with U.S. government regulations on exports.

SSL is honored to receive the Export Achievement Award and we appreciate the ongoing support of the U.S. Commercial Service, which helps the company bring important communications infrastructure to underserved regions. As a Maxar Technologies company, SSL is committed to building a better world with technology and solutions that help connect, protect and inform people every day.

L3 Technologies, Intelsat charts future course for government aviation connectivity

Intelsat S.A., the world's leading provider of satellite services and integrated communications, announced that L3 Technologies will market FlexAir to United States government aviation users. FlexAir will deliver high-performing, resilient broadband service for intelligence, surveillance and reconnaissance (ISR) missions as well as in-flight communications for government officials, troops, and cargo aircraft.

By incorporating FlexAir into its service offerings, L3 will have immediate access to Intelsat's global, flexible and proven Ku-band satellite fleet, including the Intelsat EpicNG high-throughput satellites (HTS). FlexAir is unique; it is the first commercially available aeronautical service for 45cm-performance equivalent Ku-band antennas to be provided to the government as a managed service with a predictable and affordable cost structure. FlexAir will enable government users to select several service offerings and allow them to choose the right plan based on their data rate and geographic needs without having to make an upfront commitment.

"It is great to have an industry leader such as L3 partner with us to offer FlexAir services," said Skot Butler, Intelsat General's President. "The scalability of FlexAir's seamless, global Ku-band network will ensure that L3's U.S. aviation customers can immediately and easily access fast, high-quality broadband connectivity whenever and wherever they need it. The flexibility and high data rate transmissions delivered by the FlexAir service will ensure that users have the maximum mobility they need to meet their mission-critical requirements."

Charlie Daniels, President of L3 GCS, said, "Given evolving market demands, FlexAir will provide our government customers with the global access, guaranteed availability and agility needed for missions that can have routes and requirements that can change in an instant. Intelsat General's multi-layered, seamless service will ensure that we can deliver a high-performing, resilient and reliable broadband service that is cost-effective and, most importantly, tailored to our users' needs."

DISH and HISPASAT partner to connect Mexico with a new high-quality satellite Internet access service

HISPASAT, the Spanish satellite-based telecommunications operator, and DISH, the online telecommunications and content distribution services company, have joined forces to offer a new high-quality broadband satellite service to Mexico through ON Internet. The new service will be focused on the residential and corporate market, in order to extend Internet access to broader parts of the country.

Both companies made the announcement during an informative breakfast held today in Mexico City, with the participation of the CEO of DISH México, José Luis Woodhouse; the Internet Division Director, Lorenzo Orozco, and ON's Director of Wireless Internet and Marketing, Santiago Ennis. HISPASAT was represented by the Business Director, Ignacio Sanchis. The joint goal of both companies is to provide high-quality Internet access service to Mexican residents, thus helping to bridge the digital divide and promote the development of connectivity in Mexico.

Connectivity today is essential for the economic and social development in any community. Thanks to their extensive coverage, high capacity and fast roll-out, satellites are the best technological solution to bring Internet access beyond where land-based networks reach. DISH México and HISPASAT announced their partnership today to open up a solution that expands Internet coverage in Mexico through a simple and accessible roll-out.

Santiago Ennis, Director of Wireless Internet and Marketing in ON noted that "this agreement with Hispasat will allow Dish Mexico to expand its commercial Internet opportunities through the ON Satellite Network throughout Mexico, offering the possibility to digitally connect different sectors of the populations in remote and difficult to access areas using satellites. This service will benefit many people and companies."

For his part, Ignacio Sanchis, Business Director of HISPASAT, stated that "HISPASAT is proud to collaborate together with DISH to bring the Internet to the parts of Mexico without Internet connection, or with a very poor quality connection. For us, satellites have a very important function: they make the most cutting-edge technology available to people and open the doors to the digital world to Mexican citizens. This will allow them to benefit from the opportunities that the Information Society offers. We couldn't imagine a better partner for this task than DISH, a highly regarded company with a strong presence throughout the country."

HISPASAT's satellite for Mexico

HISPASAT will use the capacity from the Amazons 5 high throughout satellite (HTS), which has been operational since last year and which features seven coverage spots over Mexico in the Ka band. Using this frequency band, together with the possibility to concentrate the satellite's power on smaller areas and the ability of HTS to reuse frequencies, directly increases the amount of information that can be transmitted, reaching higher speeds at lower connection prices.

HISPASAT and DISH have selected the SkyEdge II-c broadband satellite platform by Gilat, the world's leader in satellite network technology, solutions and services. The highly efficient, multiservice platform allows a wide range of solutions to be offered for small terminals. As such it able to provide reasonably priced high-quality broadband access for multiple market segments.

Extensive price and service options for all different needs

Thanks to this agreement, DISH will market satellite services through its ON Internet network intended both for the residential market as well as for small-, medium- and large-sized businesses, offering different Internet access packets with speeds that go from 2.5 Mbps up to 20 Mbps for residential users, and which reach 30 Mbps for companies. This way the prices can be tailored to the needs of each user.

ON offers new advantages for residential users, such as unlimited online browsing. Users will also have 8 hours at night when they can do activities like downloading video files and use streaming services without affecting their share and with no limits on their data usage at night.

A higher speed that also includes 8 hours of free night time use with no data limit is available for business services.

Towards bridging the digital divide

In many parts of Mexico it is still not possible to enjoy the advantages that the digital world provides for economic and social development. Satellite-based broadband technology is the ideal solution to bring Internet access to the areas that do not feature other telecommunications infrastructures. This will help to bridge the existing digital divide to a great extent.

Speedcast delivers emergency Alert Tower and Equipment to New Plant in Texas

Speedcast International Limited announced that its systems integration

team has successfully delivered a new emergency alert tower and other network hardware equipment to an ethane cracker plant in Texas, set to begin operations in 2020.

The new onshore plant is majority-owned by a leading multinational energy producer who is also one of Speedcast's top global Energy clients, and construction of the cracker broke ground earlier in 2018. This initiative aligns with the customer's strategy to expand its global petrochemicals activity, which will help diversify the company portfolio and advance its leadership position as the market continues to come back. The plant is set to produce one million tons of ethane per year, and Speedcast's emergency alert tower system will be used throughout the plant as a security measure to ensure that in an emergency, all personnel are alerted and can take appropriate action.

"This opportunity is a great example of the breadth of capabilities our team can work on for our customers in a variety of sectors and subsectors," said Terry Babin, Speedcast's Global Director of Systems Integration. "Emergency alert systems are vital to operations both onshore and offshore, and we are pleased to provide reliable solutions to keep the workers safe and operating efficiently. In addition, breaking ground on this new ethane cracker demonstrates the strategic movement that many of our customers are making to enhance their position in the market, which shows promise that activity in the Energy sector is picking up in the Gulf of Mexico and surrounding onshore region. We look forward to leveraging our expertise to work with our customers on their communications and IT systems as the Energy sector is revitalized, allowing us to support their local and global needs with a fully-managed VSAT, wireless, terrestrial, IT outsourcing, or turnkey integrated communication solution."

RigNet expands infotainment services for remote crews

RigNet, Inc. introduced CrewFlix™ as a new addition to its CrewConnect™ portfolio, which provides crew morale services grounded in reliable, secure, and controlled connectivity.

CrewFlix is a video-on-demand streaming service offering an entertainment library that includes top grossing films licensed from Walt Disney, Paramount Pictures, Warner Bros., Universal, Sony, and many more. It also includes popular TV series over Internet Protocol networks with monthly updates. Optional daily news and sports broadcast programing are also available. CrewFlix can be delivered to both TVs and personal devices or both, depending on site requirements, and it

supports video streamed to iOS or Android devices as well as PCs or Macs. A 2018 survey, conducted by industry publisher Futurenautics, found the average offshore worker has 3 mobile devices, 72% of which are smart phones and 58% are laptops. This is further supported by the 714% growth in usage of RigNet'sCrewHotspot™ service between 3Q 2017 and 3Q 2018.

"Our CrewFlix offering is designed to meet the growing infotainment demands of crews working in remote onshore and offshore locations around the globe," said RigNet Vice President of Products and Services, Edward Traupman. "We're innovating a traditional video-on-demand service by tailoring the delivery to BYOD users while ensuring crews are not accessing such content from unsecure sources."

The service is delivered with multiple audio tracks and subtitles using adaptive-bit-rate streaming technology that adjusts to "last mile" issues of network conditions and bandwidth availability. The service delivers powerful performance and enterprise-class, high-availability features over existing WiFi networks. CrewFlix is available under RigNet managed service agreements with enterprise subscribers.

Harris Corporation plans $125 million R&D investment in florida

Harris Corporation plans to invest more than $125 million in internal research and development in Florida this fiscal year bolstering high-paying jobs and the company's innovation leadership in the state.

Florida-based R&D activities primarily will take place at the company's Central Florida locations and focus on areas such as electronic warfare, robotics, avionics and smallsats. The region will receive over a third of the company's overall $300 million-plus annual internal R&D budget – representing an industry-leading 5 percent of company revenue. The total excludes customer-funded R&D.

The internal R&D will support the company's nearly 7,000 employment base in Florida, including over 3,300 engineers and scientists, as well as generate new high-paying positions. The company pays an average salary of $95,000 in Florida and has about 375 openings in the state, primarily in engineering.

"As the largest Aerospace and Defense company headquartered in Florida, Harris Corp plays an integral role in our state," said U.S. Senator Marco Rubio (R-

FL). "With the announcement of this research and development, I'm pleased to see that they are continuing to invest in our state's aerospace industry and economy as well as the future of U.S. national security."

The investment also will help foster Harris' partnership with companies and universities throughout the state. Harris spends more than $200 million annually with Florida based suppliers. The company also partners with multiple Florida colleges and universities, including the University of Florida, University of Central Florida, University of South Florida and Florida Institute of Technology. These partnerships provide technological insight for Harris and increase company visibility to help fill key technology positions.

"Our industry-leading R&D investment is good for our stakeholders and the state – advancing the company's technical capabilities and bringing high-quality jobs to the area," said William M. Brown, chairman, president and CEO. "We strive to advance technology initiatives at all levels by supporting emerging technology today and the workforce of tomorrow."

Harris is one of the largest public companies headquartered in Florida, and its solutions are used by customers throughout the state in public safety, air traffic management, space and defense. It has 15 locations with 3.5 million square feet of office and manufacturing space, including the 464,000-square-foot Harris Technology Center and 23,000-square-foot Global Innovation Center.

The company's Florida presence will be bolstered by its recently announced plans to merge with L3 Technologies. The combined company, L3 Harris Technologies, will be headquartered in Melbourne, Florida, creating opportunities for additional employment and investment growth in the state.

Hughes demonstrates advanced Modem interface for military

Hughes Network Systems, LLC announced the successful demonstration of advanced hardware technology that facilitates interoperability between different SATCOM systems and services. Witnessed by leaders from the Department of Defense, the new capability reinforces the company's commitment to deliver highly secure and robust communications solutions that overcome intentional or environmental interference through improved

resiliency. The terminal solution features a software agent with a first-of-its-kind autonomous selection of modem, satellite and service provider.

"Today's presentation demonstrates the strong partnership between the military and the commercial satellite sector—in this case, represented by Hughes, as we collectively work to build a better SATCOM infrastructure," said Dr. Rajeev Gopal, senior technical director of advanced systems at Hughes. "The benefits of this new technology will allow the DoD to fully leverage commercial HTS and future LEO and MEO networks in addition to their own satellites to deliver uninterrupted communications, especially in contested environments."

The Flexible Modem Interface (FMI) presentation, hosted at Hughes headquarters in Germantown, Maryland, exhibited the hardware and enterprise management solution prototype developed by Hughes as part of a pilot study program exploring new interoperable SATCOM capabilities for future military systems.

"Advances in commercial satellite technology are positively transforming military communications," said Rick Lober, vice president and general manager of defense and intelligence systems at Hughes. "The solution we presented gives a glimpse into the future—a flexible and resilient SATCOM architecture that will result in higher mission assurance."

Spacequest announces launch of two new satellites with hosted payloads

SpaceQuest, Ltd. continues to advance its satellite and space system programs with the launch of two Cubesats aboard Spaceflight's SSO-A SmallSat Express. The satellites were delivered into orbit aboard a SpaceX Falcon 9 rocket from Vandenberg AFB on Monday, December 3rd. Both satellites are undergoing on-obit checkout with all subsystems operating nominally.

The two Cubesats, THEA and BRIO, are hosting experimental payloads for SpaceQuest's customers. Operating in a polar, sun-synchronous orbit, the new satellites provide a platform for qualifying advanced technologies to be incorporated into SpaceQuest's future imaging satellites.

Dr. Dino Lorenzini, SpaceQuest's

Founder and CEO is proud to be a part of the historic SSO-A mission. "We look forward to future launches with Spaceflight as we continue to expand our satellite bus, integration and hosted payload programs," Lorenzini said.

Comtech receives $1.7 million order from a Texas County Association

Comtech Telecommunications Corp. announced that during its second quarter of fiscal 2019, its Safety & Security Technologies group, which is part of Comtech's Commercial Solutions segment, received an order totaling $1.7 million to deliver Next Generation 911 services for an association of counties in the State of Texas.
Under this order, Comtech will continue to provide critical Next Generation 911 services to these counties, which Comtech has been supporting under contract since 2011, providing trunking, ESInet, and i3 Next Generation 911 applications and services.

"We are honored that these counties have extended our relationship and selected us to perform this critical work for their citizens," said Fred Kornberg, President and Chief Executive Officer of Comtech Telecommunications Corp. "This extension is a testament to the quality of our market-leading solutions, and we are proud of our industry leadership in providing innovative Next Generation Core Services to states and counties across the country."

Maxar's SSL to provide GEO SmallSat for mobile broadband company

SSL, a Maxar Technologies company, and a leading provider of innovative satellites and spacecraft systems, announced a contract award to manufacture a small geostationary (GEO) satellite for Ovzon, a company located in the U.S. and Sweden dedicated to meeting the demand for increased mobile broadband connectivity in underserved regions. Ovzon selected the mid-size SSL-500 platform for its first satellite, which brings the benefits of SSL's proven technology and performance combined with a lower-cost form factor. The contract is conditional on Ovzon raising financing.

"Our focus on growth opportunities for medium and small-size satellites is building momentum," said Dario

Zamarian, group president of SSL. "This collaboration with Ovzon demonstrates the demand for a new class of communication satellite, and SSL is very well positioned in this market."

"Ovzon selected SSL to manufacture our first satellite because of the company's market leading position and its commitment to innovation, reliability, and agility," said Per Wahlberg, chief executive officer of Ovzon. "This satellite will enable us to provide extremely versatile mobile broadband capabilities to customers on highly mobile platforms, such as small aircraft, vehicles, and UAVs."

SSL is leveraging its long history of technology innovation in both communications and Earth observation markets by providing cost-effective, high-capacity solutions. The satellite, called Ovzon-3, provides Ovzon's customers with better performance, expanded coverage and faster data rates than competitive solutions.

The next-generation satellite provided by SSL will advance communications in remote areas with extremely versatile mobile broadband capabilities. Ovzon previously announced that the satellite will launch aboard SpaceX's Falcon Heavy. To maximize its usable capacity, the satellite will include a flexible payload based on a customer furnished processor integrated into the SSL architecture.

SES successfully placed Euro 400 million multi-tranche Schuldschein Loan

SES S.A., the world's leading satellite operator, has completed the syndication of Schuldschein Loans for a total amount of EUR 400 million, comprising a EUR 150 million 5.5-year floating tranche at Euribor 6 months plus 0.80% and a EUR 250 million 7-year fixed rate tranche with a coupon of 1.71%. SES is rated Baa2/BBB- (both with stable outlook).

The Schuldschein loan was upsized from the initially marketed size and was placed with several European and Asian institutions. The proceeds will support SES' general corporate purposes and the refinancing of existing debt maturities which include a USD 500 million 144A bond with a coupon of 2.5% and a final maturity date of 25 March 2019. Andrew Browne, Chief Financial Officer of SES, commented: "We are pleased to have secured this financing at very attractive terms and expanding our investor base while extending our debt maturity profile, where we now have no further senior debt maturities to be financed until early 2020." BNP Paribas, ING Bank, Landesbank Baden-Württemberg and Landesbank Hessen-Thüringen acted as joint arrangers of this Schuldschein transaction.

Comtech EF Data Corp. enables Gbps Throughput for LTE and 5G Backhaul

Comtech EF Data Corp.announced that it set a new industry performance record for General Packet Radio Services (GPRS) Tunneling Protocol (GTP) acceleration, enabling faster downloads and enhanced Quality of Experience (QoE) in LTE and 5G networks.

As the mobile industry is preparing for the introduction of 5G, Comtech EF Data has enhanced its award-winning satellite modem and optimization portfolio to support the most demanding mobile applications and services. The November 2018 Ericsson Mobility Report highlights that there are now 25 LTE-Advanced networks in the world supporting Gigabit download speeds. The report also states that with the introduction of 5G, user demand for mobile data services are expected to increase at a 31% CAGR until 2024.

"Comtech is recognized as the performance leader in satellite backhaul infrastructure equipment," commented Richard Swardh, Senior Vice President, Mobile Network Operators for Comtech EF Data. "With the latest additions to our portfolio, we are again demonstrating our commitment to supporting the most demanding mobile applications and services. Customers can be assured that by investing in our technology today, they have a solution that will grow and scale in line with ever-increasing demands for higher speeds as 5G is being deployed worldwide."

Comtech EF Data is the industry's only satellite modem vendor that develops and manufactures an end-to-end portfolio of optimizers and modems in-house to meet the challenges of high throughput in LTE and 5G networks over satellite.

The latest test of the Comtech EF Data FX Series WAN Optimization solution demonstrated 700 Mbps of throughout for a single IPv6 TCP session in an LTE environment. When paired with Comtech EF Data's lineup of satellite modems or the Heights™ Networking Platform, the FX Series provides acceleration to maximize the throughput and usage of the link to the modem's current capacity. When coupled with Comtech EF Data's HX Series Load Balancing product, the total throughput can reach up to 5 Gbps, well within the performance goal established by the International Telecommunication Union (ITU) for 5G networks. In North America, a major satellite operator is already rolling out the solution in support of 3 Gbps to a single site while supporting hundreds of thousands of concurrent accelerated TCP sessions.

Speedcast extends relationship with Global Energy supermajor in Brazil

Speedcast International Limited announced that its Brazilian entity SC Caprock has extended its relationship with one of its leading global Energy customers, with a new multi-year contract extension to provide high-throughput satellite communications onboard an FPSO offshore near Rio de Janeiro.

Speedcast serves this customer on a global scale, and the two companies have been partners in Brazil onboard this FPSO for over 5 years. The contract extension increases the throughput onboard and provides the option for new enhanced equipment installation as needed for maximized network efficiency.

"This customer is one of our most valued customers around the world and we are proud to extend our relationship with this leading operator in Brazil," said Andre Gustavo Sant Anna, SC Caprock's Brazil Country Manager. "This FPSO and deepwater field will be a significant project in Brazil for years to come as investment in the region continues to grow. We look forward to working closely with this customer to implement the enhanced service to meet their immediate needs, while continuously improving connectivity infrastructure to deliver the best communication solution possible."

"Speedcast is the service provider best equipped to meet the expected recovery and growth in Brazil, along with meeting the changing technology demands our customers expect. These long-term and strategic customer relationships allow us to provide enhanced services and new technologies to meet their growing demands, including IT outsourcing, IoT, video surveillance/streaming and related analytics technology. They will become the standard for our customers as digitalization gains momentum," said Keith Johnson, COO and EVP of Energy for Speedcast

Viasat Upgrades Type 1 Cloud Communication Network Encryptor

Viasat Inc. is announcing upgrades to its KG-142 network encryptor device (KG-142) for military and government customers. The upgraded KG-142 supports the shift to cloud-centered communications, providing added flexibility for customers and significantly reducing the size, weight, power and overall cost for today's cloud networks. Viasat's KG-142 network encryptor is part of the Company's industry-leading portfolio of National Security Agency (NSA) certified network encryption solutions, which are designed to ensure military and government customers' most sensitive information can be trusted and transmitted securely across today's digital battlespace—from the cloud to the tactical edge.

The KG-142 is designed to protect top secret/sensitive compartmented information for government agencies for very high-bandwidth applications, such as cloud computing and big data processing – delivering reliable, network-efficient protection for Layer 2 Ethernet communications. Added flexibility available on the KG-142 will allow customers to operate up to 32 simultaneous peer-to-peer connections over one to four 10 Gigabits per second (Gbps) or one 100Gbps Ethernet channels, increasing bandwidth and reducing overall life cycle cost. In addition, the KG-142 is field-upgradable to meet evolving interoperability standards and mission demands.

"Upgrades to our KG-142 network encryptor will deliver the speed and flexibility needed to ease migration to cloud-centered solutions and dramatically enhance network security for government and defense agencies operating around the globe," said Ken Peterman, president, Government Systems, Viasat. "With the new innovations available on the KG-142, Viasat continues to have the broadest industry portfolio of Type 1 certified network encryptors today with speeds ranging from 20 Megabits per second (Mbps) to 200Gbps aggregate. The KG-142 meets government standards for national security communications with unprecedented speed and flexibility."

Viasat's Information Assurance product line, including the KG-142, is continually updated to support evolving mission needs. With the latest upgrades, Viasat's KG-142 is now capable of operating at selectable speeds ranging from 20Gbps to 200Gbps aggregate, and supports multiple point-to-point connections, enabling today's ever-increasing volume, velocity, and variety of data to be transmitted quicker and more securely than ever before.

Spaceflight awarded contract to launch Brazil's Amazonia-1 spacecraft

Spaceflight announced it was awarded the contract to provide launch services for INPE, Brazil's National Institute for Space Research, the research unit of the Brazilian Ministry of Science, Technology, Innovation and Communications. The contract award is the culmination of a multi-year, highly competitive government procurement process among global launch providers. Throughout the process, Spaceflight was supported in Brazil by a local representative of the Akaer Group.

Melissa Wuerl, vice president of business development at Spaceflight, received the award from INPE Director Ricardo Galvão in a ceremony, with the presence of the Brazilian Space Agency President, José Raimundo Braga Coelho, in São José dos Campos, São Paulo

INPE's Amazonia-1 satellite is the first Earth observation satellite to be completely designed, integrated, tested and operated by Brazil. Its goal is to autonomously observe the national territory of Brazil, in particular the Amazon region. Amazonia-1 is also the first satellite based on Brazilian Multi Mission Platform (MMP), a general purpose service bus for 500 kg class satellites.

Representing the largest spacecraft Spaceflight has launched to date, Amazonia-1 weighs approximately 700 kilograms and is 1.7 meters in diameter and 2.6 meters tall. It will be the primary spacecraft on the PSLV mission, with the excess capacity filled by Spaceflight's smallsat rideshare customers. Targeting mid-2020, Amazonia-1 will be deployed to a mean altitude 760 kilometers sun-synchronous orbit, while the additional secondary rideshare spacecraft will be deployed at a lower altitude.

Spaceflight will provide a combination of launch and end-to-end mission management services, as well as hardware for INPE. "We excel at complex launch missions like this, and it's an honor to be selected to take INPE's first Amazonia satellite to space," said Wuerl. "Our goal continues to be to provide the most rideshare options for customers to get their spacecraft into orbit—which ultimately benefits everyone on board."
The awarding of the Amazonia-1 launch comes on the heels of Spaceflight's historic dedicated rideshare launch of 64 smallsats on its SSO-A: SmallSat Express mission aboard a SpaceX Falcon 9 earlier this month. With the

success of SSO-A, Spaceflight has now launched more than 210 satellites since its founding in 2011. In addition, the company is contracted to launch nearly 100 satellites in 2019 from a variety of launch vehicles including Falcon 9, PSLV, Antares, Electron and Vega.
Ricardo Galvão from INPE added, "This contract represents a tremendous milestone for INPE and we're very pleased to be working with the team at Spaceflight on our very first fully Brazilian mission."

SpaceX launches new GPS satellite for US military

SpaceX launched a new breed of GPS satellite for the United States Military, marking the private space company's first contracted mission for the country's national security. A Falcon 9 rocket, carrying US Air Force's first Global Positioning System (GPS) III space vehicle 01, was launched from Cape Canaveral Air Force Station in Florida.
The GPS III satellite deployed to medium Earth orbit, is designed to deliver positioning, navigation, and timing information. It is three times more accurate than the previous system and up to eight times stronger in its anti-jamming capability. Because of mission requirements, SpaceX did not attempt to retrieve the reusable Falcon 9's first stage after launch, according to SpaceX.

The United States' Global Positioning System delivers positioning, navigation, and timing services supporting vital U.S. and allied operations worldwide, and underpins critical financial, transportation, and agricultural infrastructure that billions of users have come to depend on daily.

The United States Air Force's first GPS III satellite will augment the current constellation of 31 operational GPS satellites. This newest generation of GPS satellites is designed and built to deliver positioning, navigation, and timing information with three times better accuracy, and up to eight times improved anti-jamming capability. GPS is used by over four billion users and supports critical missions worldwide.

GPS is a National Security Space (NSS) mission, critical to national defense. In April 2016, SpaceX was awarded its first NSS mission, GPS III SV01. SpaceX currently has an additional four GPS III missions on contract, all of which will be launched on Falcon 9.
The launch is a landmark for SpaceX to make a presence in the lucrative military space launch market. In April 2016,

SpaceX was awarded the first National Security Space mission and it has four other GPS III missions on contract.
SpaceX's SLC-40 at Cape Canaveral Air Force Station is a world-class launch site that builds on a strong heritage. The site, located at the north end of Cape Canaveral Air Force Station, was used for many years to launch Titan rockets, among the most powerful in the U.S. fleet. SpaceX took over the facility in May 2008. The center of the complex is composed of the concrete launch pad and flame diverter system. Surrounding the pad are four lightning towers, propellant storage tanks, and the integration hangar. Before launch, Falcon 9's stages and payload are housed inside the hangar. The payload is mated to the Falcon 9 inside SLC-40's hangar on the transporter erector. The rocket and payload are then rolled out from the hangar to the launch pad and lifted to a vertical position.

Speedcast delivers emergency alert tower and equipment to new plant in Texas

Speedcast International Limited announced that its systems integration team has successfully delivered a new emergency alert tower and other network hardware equipment to an ethane cracker plant in Texas, set to begin operations in 2020.

The new onshore plant is majority-owned by a leading multinational energy producer who is also one of Speedcast's top global Energy clients, and construction of the cracker broke ground earlier in 2018. This initiative aligns with the customer's strategy to expand its global petrochemicals activity, which will help diversify the company portfolio and advance its leadership position as the market continues to come back. The plant is set to produce one million tons of ethane per year, and Speedcast's emergency alert tower system will be used throughout the plant as a security measure to ensure that in an emergency, all personnel are alerted and can take appropriate action.

"This opportunity is a great example of the breadth of capabilities our team can work on for our customers in a variety of sectors and subsectors," said Terry Babin, Speedcast's Global Director of Systems Integration. "Emergency alert systems are vital to operations both onshore and offshore, and we are pleased to provide reliable solutions to keep the workers safe and operating efficiently. In addition, breaking ground on this new ethane cracker demonstrates the strategic movement that many of our customers are making to enhance their position in the market, which shows promise that activity in the Energy sector is picking up in the Gulf of Mexico and surrounding onshore region. We look forward to leveraging our expertise to work with our customers on their communications and IT systems as the Energy sector is revitalized, allowing us to support their local and global needs with a fully-managed VSAT, wireless, terrestrial, IT outsourcing, or turnkey integrated communication solution."

Editorial Calendar 2018

2018 schedule of publications

Please find below the schedule of publication, and themes, for the rest of your 2018 media planning

The publication is sold monthly on a subscription basis, to readers in Africa, Europe, and North America as well as Middle East. But it is also distributed widely, free, to participants at selected conferences.

Below please find the schedule of releases.

Vol 6 No 9 January 2018
Benefits of aviation weather services.

Aviation operations are highly sensitive to weather conditions. Information on weather conditions helps meteorologists, pilots, navigators, airline companies and businesses to ensure safe flights and save money by reducing some of the stringent requirements related to carrying extra fuel loads. This edition will feature the benefits of weather information to the aviation sector as the industry is known to be both very weather-sensitive and weather-information-sensitive
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Vol 6 No 10 February 2018
Satellite Broadcasting Services

The satellite broadcast services sector is undergoing and facing substantial change. The article suggests some key areas driving change. It focuses on vertical integration of services The continuous addition of TV channels broadcast by satellite pay-TV platforms, boosted by the launch of new platforms in recent years, has resulted in a strong increase in capacity usage for satellite operators. Transponders used by satellite TV platforms worldwide are estimated to have almost doubled. This edition will feature special report on the performance of the satellite pay-TV market.

Vol 7 No 1 March 2018
Enterprise Connectivity

One of the most significant trends in enterprise connectivity is the need for faster bandwidth. It's a development that's evident across virtually every market – corporate, maritime, oil and gas, cellular backhaul, utilities and many others. It's driven by end users who want to run a broader range of business applications over a satellite network and who need to expand their network to new sites and new users. The overall market for enterprise connectivity is surging. This edition will report the role of Satellite in driving enterprise connectivity

Vol 7 No 2 April 2018
Maritime Connectivity

Maritime Satellite Communications play a vital role in the global economy. With up to 80,000 merchant, cruise, and government vessels at sea at any given time and more than 1400 offshore oil-rigs, there is a pressing need for the connectivity and benefits that satellite provides. With Maritime Communications, ship headquarters can communicate with their fleet enabling real-time ship monitoring, navigation, and surveillance. Oil-rigs can receive and transmit real-time operational data. Crew and passengers can stay connected to family and friends, and receive the latest entertainment. Once considered a luxury, broadband connectivity is now viewed as a must-have for maritime vessels. Correspondingly, Maritime Satellite Communications are available across the globe. This diti6n will focus on Maritime Satellite Communications

Vol 7 No 3 May 2018
Digital oilfield

Over the past five years, nearly 50 new deep offshore plays have been discovered off the coast of West Africa, cementing the region's reputation as a vast resource of untapped potential. In fact, about one-third of new discoveries worldwide since 2010 have occurred in West Africa, most of these offshore. This boom in activity has drawn dozens of E&P operators, including supermajors and large independents, and has created thousands of new jobs and a growing need for service providers and infrastructure. As offshore activity in West Africa continues to increase, so does the demand for reliable communications, and a critical element of operational performance is an unfailing real-time connection. This issue will focus on current trends and technologies in the Oil and Gas Industry.

Vol 7 No 4 June 2018
Satellite supply and demand in Africa

This issue of spacewatchafrica will focuses on satellite supply and demand in Africa. So far, the demand for high speed connectivity is rising. Consumers, businesses, and governments want more bandwidth for a variety of purposes. In Africa, much of the population remain unconnected or underserved. In business, internet access is critical not optional. And in military, fast, secure internet is vital to safeguard valuable lives and equipment. Specific sectors such as DTH, video distribution, telecommunications, maritime and O&G also require connectivity.

Vol 7 No 5 July 2018
Strategies for Choosing the right satellite solution

ICT professionals are often faced with the dilemma of choosing an efficient and reliable satellite service, consistent with their networking requirements and company objectives. The dilemma is reinforced by many providers offering limited, 'off the shelf' satellite connectivity packages. This edition will explore some benefits of these considerations as well as assist in choosing the optimal satellite service provider.

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