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STC is working to expand its business & diversify its portfolio

The results for 2018 were excellent, reflecting the strong and continuous performance of the company

Eng. Nasser bin Sulaiman Al-Nasser, CEO, STC Group

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Editor's Note

Dear Reader,

Welcome to the latest edition of Teletimes International. The industry is re-shaping itself – more is demanded of the operators and consequentially, and traditional operators are moving forward beyond their roles as an incumbent operator. Current networks will evolve and reshape their business models as IoT and future technologies will drive operators to upgrade their networks to provide the necessary bandwidth and latency that allows IoT services to be delivered in the right form.

A great example of this transformation is the Saudi Telecom Group. 5G is high on STC's agenda as evident from the ongoing activities and engagements. STC is well positioned to ensure that the region is among the first to reap benefits of 5G technology on commercial scale. This edition features a detailed editorial on STC's new "DARE" strategy and also sheds some lights on some of its latest initiatives.

Moving on, the second week of this month brings our attention to CABSAT, Dubai which is set to bring together all the major players in satellite broadband. Teletimes is a media partner to the event and I will be present there along with our editorial team. Meetings can be booked directly via email to khalidathar@teletimesinternational.com

As always, this edition also contains the latest news and insights on all the major players from ICT industry.

We look forward to receiving your feedback on info@teletimesinternational.com

Enjoy Reading!

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STC is working to expand its business and diversify its portfolio

The results for 2018 were excellent, reflecting the strong and continuous performance of the company

Eng. Nasser Bin Sulaiman Al-Nasser, CEO, STC Group

Eng. Nasser Bin Sulaiman Al-Nasser has said that STC is working to expand its business, diversify its portfolio and enhance the integration between the Group and its subsidiaries in order to achieve sustainable growth and create greater value for shareholders. The company is committed to investing in its infrastructure and stimulating the demand for digital services, which is in line with the objectives of the Kingdom's 2030 Vision. Innovation and investment are key factors in accelerating digital transformation to reach the highest level of customer satisfaction and enrich their experience that would brace the company's position not only locally,

but also regionally. This year, STC has been awarded the King Abdulaziz Quality Award for the second time since the launch of the award. This is a reflection of the importance of quality and organizational work and the commitment to one of STC's key values "customer first".

While commenting on the Q4 2018 results, Group CEO of STC, Eng. Al Nasser said, the results for the 4th quarter and 2018 were excellent, reflecting the strong and continuous performance of the company. STC is striving to achieve its strategy that is in line with the rapid changes and developments in the telecommunication sector and the digital transformation that the world is witnessing.

The strategy focuses on re-inventing the customer experience on a continuous journey of development, high quality of services and the re-invention of sale channels. It also focuses on accelerating the core assets performance by extracting greater value from its major and traditional assets. Further, the strategy aims to digitize STC through the digital transformation of the company's operational capabilities, as well as expanding the scale and scope of the company's business by looking for concrete opportunities for growth in services, applications, platforms and infrastructure, for example, cybersecurity, cloud computing, IOT, and improved data economics.

At the level of local operations, data revenue increased by 10% for the current quarter compared to the same quarter of 2017 and by 5.6% for the current year compared to the previous year. This growth was a result of the continued offering of distinctive services that stimulate the usage of postpaid and prepaid mobile services (SAWA) accompanied with latest devices offering.

STC continues to deploy the fiber optic network in the Kingdom, which comes as part of the National Broadband Deployment Initiative (NBB). The number of FTTH customers increased by 18% this year compared to the previous year to reach about 600,000 customers.

Further and in recognition of the strong financial position of the company and its objective to maximize its shareholders' value, the Board of Directors of Saudi Telecom Company has recently approved a dividend policy starting from the 4th quarter of 2018. Where STC commits to distribute SR 1 per quarter for the next three years, with a possibility of paying additional dividends subject to the Board of Directors assessment of the company's financial position, future and capital requirements, which is likely to vary from quarter to quarter based on the performance of the company. In addition to the above, the Board of Directors recommended the distribution of additional dividends of SR 2 per share for the year 2018, which will be presented at the next General Assembly meeting for approval. The dividends that will be distributed for the year 2018 in an amount of SR 12 billion represents 60% of the nominal value of the share.

Highlights of STC's preliminary financial results for the period ending at 31 Dec, 2018

- **Revenue from Services for the 4th quarter reached SR 13,166m an increase of 5.3% compared to the corresponding quarter last year. For the year 2018, the company revenue from services reached SR 52,068m an increase of 2.7%.**
- **Gross Profit for the for the 4th quarter reached to SR 8,651m an increase of 17.7% compared to the corresponding quarter last year. For the year 2018, the Gross Profit increased by 6.9% to reach SR 30,565m.**
- **Operating Profit for the 4th quarter reached to SR 3,487m an increase of 21.1% compared to the corresponding quarter last year. For the year 2018, the Operating Profit increased by 11.6% to reach SR 12,256m.**
- **Earnings before Interest, Taxes, Zakat, Depreciation and Amortization (EBITDA) for the 4th quarter reached to SR 5,411m an increase of 12.0% compared to the corresponding quarter last year. For the year 2018, the Earnings before Interest, Taxes, Zakat, Depreciation and Amortization (EBITDA) increased by 7.7% to reach SR 19,857m.**
- **Net Income for the 4th quarter reached to SR 3,116m an increase of 22.0% compared to the corresponding quarter last year. For the year 2018, the Net Income increased by 7.7% to reach SR 10,790m.**

STC focuses on 5G leadership with it's "DARE" strategy

STC always prides itself for being first in launching new services and pioneering technological innovation and advancement. STC has the required capabilities, the necessary skill-base and the critical international partnerships to enable it to pioneer our market. Indeed, STC was one of the first operators in the region to commercially launch 5G, on the 15th of May of last year as soft launch. This was the result of huge efforts in studies, trials, partnerships and worldwide collaborations. To achieve this:

STC has definitive and ambitious plans to extend coverage to more extended areas in KSA, within a 3-year time span. So far, STC has deployed an early pilot network, to provide an initial experience with this new technology - mainly looking at "Fixed Wireless Access" as the first 5G service to end customers whilst working with different industries to develop new use cases.

STC is proud to uphold its technology leadership position in the region by being the first to launch 5G technology. Industry players across the value chain from chipset, handset, software, and hardware manufacturers to service providers are all excited about the potential value that 5G and related ecosystem will bring to multiple industries and society in general. 5G technology will be a key enabler for industry 4.0 that promises to revolutionize value chains across the industries. Enhanced spectral efficiency, low latency, higher throughputs, and network slicing benefits of 5G technology will enable use cases across multiple industries such as manufacturing, transport and logistics, health, retail, education, security and others.

For STC, there are three main considerations in the planning towards commercial 5G availability, 1) 5G technology standardization has very good progress, 2) devices availability, 3) commercial demand side readiness for applicable use cases. We are closely monitoring industry developments and working with our partners on the technology as well as commercial side. devices availability is expected this year. It is also important for us to consider our 5G deployment strategy that balances re-use existing investments, new revenue streams, prioritization based on commercial benefits and financial returns, and competitiveness, while minimizing risk. As the devices start to become commercially available, initially we are starting to deploy fixed wireless broadband solutions including IoT use cases, followed by deploying targeted mobility coverage, scaling coverage, and then focusing on industry scale advanced IoT solutions that require low latency and high throughputs.

Technology and demand side ecosystem readiness will take some more time. However, 5G is high on STC's agenda as evident from the ongoing activities and engagements. STC is well positioned to ensure that the region is among the first to reap benefits of 5G technology on commercial scale.

STC has based its new strategy on the aspirational directions set by KSA Vision 2030, strong desire by shareholders for significant growth, revolutionary changes in the telco industry, and on the company's existing strengths and capabilities. This new three to five year STC strategy, launched under the name 'DARE', will see the company pursue growth by moving into new businesses, while simultaneously protecting and growing core telecoms assets. For STC, 'DARE' is both an aspirational roadmap towards the future and an internal call to embrace change.

Eng. Haithem Al Faraj, SVP Technology & Operations, STC

STC's aspiration over the next 5 years is to substantially grow and diversity its portfolio. This goal will be achieved through expansion in both the geographical footprint and the portfolio of businesses. The aim will be to selectively pursue value-creating opportunities to pioneer the digital transformation of KSA and the MENA region. STC has set forth its vision to become a 'world-class digital leader providing innovative services and platforms to customers and enabling the digital transformation of the MENA region'.

The ICT industry is changing rapidly and value is shifting upstream towards digital services. Across many digital segments, winner-takes-all becomes a reality. This implies that a successful player will have to do two key things - 1) evolve towards a digital player and 2) strengthen its capabilities across multiple if not all segments of the value chain i.e. infrastructure and connectivity, platforms, and digital services.

Explaining the four themes of DARE: 'D' in the strategy stands for digitization of internal processes, creating a data driven organization, and developing agile delivery platforms i.e. IT and Network. This will be a key enabler for rest of the strategic pillars. In addition, it will also improve productivity and deliver significant operational savings.
'A' in the strategy entails accelerating performance of the existing assets i.e. extracting more value – profitable growth - from what STC already has. This includes generating new revenue streams, as well as capital and operating efficiency focus. The 'R' theme is about reinventing customer experience and a customer-first culture across everything STC does.

> STC has based its new strategy on the aspirational directions set by KSA Vision 2030, strong desire by shareholders for significant growth, revolutionary changes in the telco industry, and on the company's existing strengths and capabilities.

This includes improving customers' quality of experience, digitizing customer sales and other customer touchpoints, and improving brand perception. 'E' is the growth engine of STC's ambitious strategy and focuses on expanding both scale and scope of the business. As part of the growth pillar, STC's leadership has decided to further strengthen its position in connectivity and infrastructure space through geographical expansion and creating new businesses such as tower company. On the platform side STC is investing in IoT, Cloud, Cybersecurity and other enabling platforms. On the digital services side, the focus is on media and advertising, digital financial services, and further strengthening STC's position in IT services.

Part of STC's strategy goals is to maintain growth in building world class data centers not only in KSA but in the MENA region. Data centers will help grow the retail (enterprise and consumer) as well as wholesale business in public and private sectors. Data center hubs are like a cornerstone enabling multiple aspects of the digital transformation journey that STC and the KSA economy are embarking on. Our platform strategy for Cloud services, IoT services, Cybersecurity, and e-Government services will be enabled by these data centers. Similarly, the digital services such as IT services, media and advertising, and digital financial services will make use of the storage, switching, and networking capabilities that STC is building in these data centers. Data centers will also support the implementation of virtualization and automation of the core networks required for deployment of IoT solutions and 5G network.

STC has built the largest area stack cloud in the region with many use cases and also launched the first-of-its-kind radiography platform (Enterprise Medical Imaging) in the Kingdom, in collaboration with the Ministry of Health at King Fahd General Hospital in Madinah.
STC is the largest and leading Telecom Operator in the Middle East. Therefore, it will be naturally impacted by many of the factors affecting the global telecom business. The main approach is to ensure the best possible customer experience with the network, while making sure that the infrastructure is ready for future services and applications, and will deliver according to customer expectations and new services requirements.

The biggest challenge is shared by all global operators, and that is: to make sure that you have the correct and optimal business model in order to monetize the new services and ensure a sustainable return on investment. This applies to 5G as well as other services.

Part of tackling such challenges on a global level is to come together with the best minds in the industry and understand how things are moving forward across the industry. GSMA is one of the leading organizations that motivate and inspire technologies and solutions. It brings together most of the expertise and specialized people for all over the world. This year's MWC is at a critical timing for telecoms as the shift towards 5G and Digitization gathers more momentum and become reality. This definitely creates distinctive excitement in the market place. I believe this year's event will be dominated by the evolution towards new services and the monetization of network infrastructure. This includes:
- 5G and its potential Use Cases
- AI
- Blockchain
- Collaborations and Partnerships
- Network Cyber Security and the way to tackle threats of all kinds.

From a technical viewpoint, telecom companies are also governed by international standardization of technology and the maturity of devices ecosystem. This prominently applies to 5G and Cloud technologies.

Despite all these challenges and constraints, STC is steering its future developments with confidence and a clear vision. STC has full appreciation of these challenges and has put forward safeguards to guarantee the best possible outcome for STC and its customers. T

STC announced the Largest 5G Network in the MENA

The company is working on completing the following phases of spreading the 5G services on a wider scale

Following the launch of its first live 5G network in May 2018, STC has announced that it provided 450 locations with 5G network across the Kingdom as an initial phase, achieving the highest reach level in the MENA Region and one of the highest reach levels worldwide.

STC has also announced that it is working on completing the following phases of spreading the 5G services on a wider scale to ensure keeping up with the newest global technologies, improving digital services, and enriching the customer experience across the Kingdom.

Commenting on its early preparedness to introduce the network's new generation although 5G devices are currently not available in the markets for customers, STC said in a statement that this reflects its continuous initiatives as a digital leader, meeting customers' expectations of advanced services in ICT accelerating market.

In addition, it stated that a larger number of advanced technical services and solutions operated in high Internet speed would be available to customers by the second half of 2019. It also praised the Ministry of Communications and Information and the Communications and Information Technology Commission for the support has been providing in this regards.

It is worth noting that STC launched its first 5G live network in last May for the first time in the MENA Region after the success of its 5G experiments and trials.

On this occasion, STC stated that its pioneering position in launching modern information technology services reflects the advancement of the communications and information technology sector in the Kingdom, stressing that this advancement is part of the Kingdom's digitization plans and NTP 2020 objectives. T

STC's latest leadership initiatives

As one of the leading global telecom companies, STC has been striving to provide the best ICT offerings by employing the latest technologies and improving its customer's experience, whilst also contributing to the socio-economic landscape of the markets it operates in. STC has participated in many initiatives and received due recognition for the same reason and following are briefs on some of the highlights from the recent months.

Agreements within "Rawafed" program to maximize the local content

The Saudi Telecom Company (STC) signed three new agreements under Rawafed Program with Cisco, Ejada and Amwaj Factory. STC previously signed 7 agreements, bringing the total to 10. These agreements aim at building partnerships to improve the innovative environment of the inspireU business incubator which will help in the transfer of international knowledge and expertise to emerging projects.

The agreements focus on increasing the Saudization of leadership positions, supporting small and medium-sized enterprises and nationalizing the industry. They also aim to support innovation and enable digitization as part of STC's commitment to achieve the goals of the Kingdom's Vision 2030 which seek to maximize the local content and enable digital transformation.

The agreements were signed by STC's Vice President for Procurement and Support Services Sector Eng. Emad Bin Aoudah Al Aoudah and by Region GM in Cisco, Salman Faqeeh, and by GM of Ejada Hani Al Husseini in addition to chairman of Amwaj Ahmed Al Samadi.

STC awarded as "Saudi Arabia's Fastest Mobile Network"

The Global Broadband Speed Test leader (OOKLA) has presented STC with the prestigious "Saudi Arabia Fastest Mobile Network" Award. OOKLA is the Global leader in broadband network testing applications. Speed test data is comprised of millions of consumer-initiated tests performed on the web and mobile Speed test platforms.

STC achieved a speed score of 29.99 Mbps, with average download speeds of 32.95 Mbps. This is the outcome from Millions of tests which are actively initiated by consumers daily across the network to test the Internet speeds using various applications and platforms. The Speed test Awards for top providers are determined using a Speed Score that incorporates a measure of each providers network speeds (Download & Upload) to rank network speed performance. Eng. Haithem Al Faraj, Senior VP, Tech & Ops, STC, said: "Our mission has always been to enrich society by providing second-to-none experience with the network. We are continuously improving our network speeds and rolling out new network technologies and services. STC 4G network is transforming all the time to provide remarkably faster speeds. We are also commercially rolling out the 5G network to introduce innovative services to our deserving customers in the Kingdom of Saudi Arabia, and across the region. This OOKLA esteemed Award is a true manifestation of STC efforts to continually improve the network and get the network ready for the total digitization transformation Era, and to meet the KSA National 2030 Vision. We are very proud of this award and look forward to many similar awards and successes in the near future."

The Global Broadband Speed Test leader (OOKLA) has presented STC with the prestigious "Saudi Arabia Fastest Mobile Network" Award. OOKLA is the Global leader in broadband network testing applications. Speed test data is comprised of millions of consumer-initiated tests performed on the web and mobile Speed test platforms.

Appointment of First Female Saudi Executive

STC appointed Dr. Moudhi Aljamea as ICT School GM at STC Academy, becomes the first Saudi women who occupies an executive position in the company. STC confirmed that appointing Aljamea reflects its commitment to recruit and support Saudi Arabian qualified talents in the leading positions.

Dr. Moudhi Aljamea has a PhD in Computer Security, and a vast experience in cyber and information security. Prior to joining STC, she was the president of entrepreneurship unit and business incubator in Imam Abdulrahman Bin Faisal University, and considered as one of the Saudis experts in the computer security field.

Announcing "Digital Day"

The Saudi Telecom Company (STC) announced that December 19th, will be the official Digital Day in the country and will close all of its branches across the Kingdom for one day.

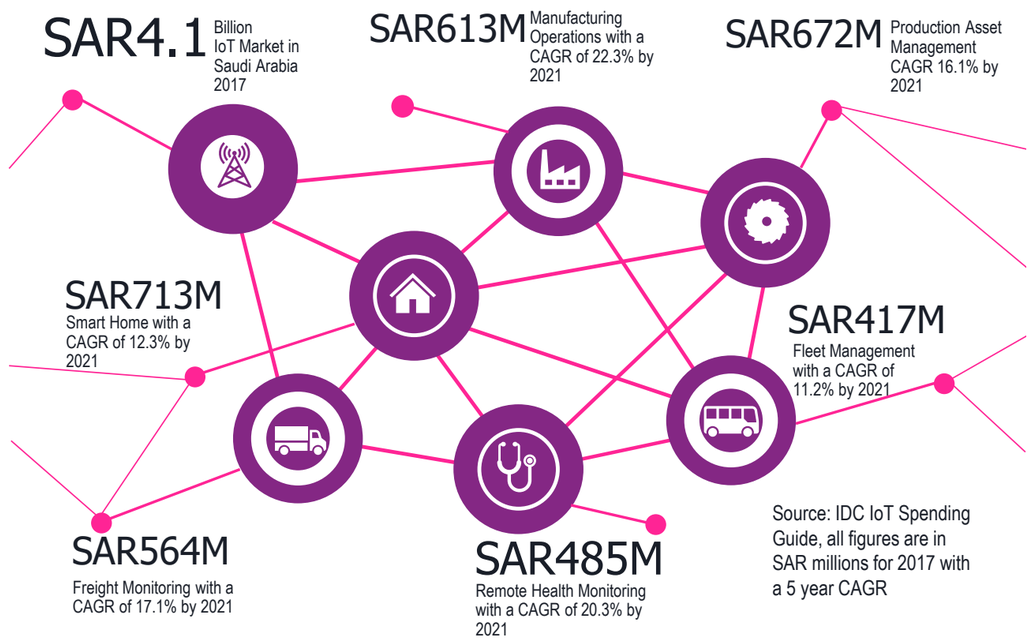
The Director-General of Corporate Communications, Mohammed bin Rashid Abaalkhail, stated that the adoption of the Digital Day aims to encourage the use of digital channels, enhance performance efficiency and improve customer experience, especially after observing the high levels of customer satisfaction due to the provision of services via the digital platforms.
Furthermore, Abaalkhail pointed out that the "Digital Day" highlights STC's commitment to play a pivotal role in enabling digital transformation in line with the Kingdom of Saudi Arabia Vision 2030. He then mentioned that STC has launched an innovative digital store last month which is the first-of-its-kind in the Kingdom. The store relies on international best practices to enrich the customer experience 24 hours a day using self-service machines. T

The adoption of the Digital Day aims to encourage the use of digital channels, enhance performance efficiency and improve customer experience, especially after observing the high levels of customer satisfaction due to the provision of services via the digital platforms.

Internet OF Things: Transformation In The Digital Era

IDC VIEW OF IOT OFFERINGS IN SAUDI ARABIA MARKET, AND STC's ROLE IN LEVERAGING THE IOT ECOSYSTEM ACROSS THE KINGDOM

Internet of Things



Source: IDC IoT Spending Guide, all figures are in SAR millions for 2017 with a 5 year CAGR

IOT, A KEY ENABLER OF DIGITIZATION IN SAUDI ARABIA

The Internet of Things is growing rapidly alongside the already well-established smartphone, tablet, PC, and consumer electronic markets in the Kingdom. IoT solutions in Saudi Arabia are forecast to grow at a compound annual growth rate (CAGR) of 21.6% between 2016-2021, to reach $2.28 billion by 2021.

Examples of deployment can be seen in all segments and industries. The manufacturing sector is being reshaped by Vision 2030 initiatives. Manufacturing Operations are being optimized, Autonomous Operations and Telematics are being used to improve Quality and Compliance.

Increased expansion in the healthcare sector is also driving the adoption of IoT workloads and use cases in primary healthcare facilities as well as hospitals and ancillary services. The technology is enabling organizations in the sector to constantly keep track of their assets and capabilities, so staff can quickly find critical emergency equipment needed for emergencies or urgent patient care.

Growing population in economic areas means that cities are expanding, this expansion is forcing the decision makers to consider ways to improve citizen engagement, customer service, quality of life and safety through a range of IoT workloads and use cases.

IoT is enabling digitization in the energy and construction industries too, companies are deploying IoT sensors and devices instead of dispatching workers to perform inspections, take readings and conduct other high cost, high risk jobs.

Industries across all sectors and segments are investing billions of Saudi Riyals in IoT deployments. Businesses in the Kingdom are realizing the importance of live data streams to stay on top of their assets and operations.

With the Kingdoms focus on economic diversification, production asset management has become key for large industrial units to remotely track, monitor and maintain industrial manufacturing devices that are part of the production value chain.

Predicative and Preventive Maintenance are the key asset management workloads that are helping in reducing the maintenance costs and probability of failure or breakdowns. The market is expected to grow at a steady pace and reach 672 million SAR in 2021.

Fleet Management & Automatic Vehicle Tracking

MANAGEMENT AND AVL ARE A CATALYST FOR PROFITABILITY IMPROVEMENT

The cost related to maintaining and managing a fleet of vehicles or machinery is usually one of the biggest expenses for organizations.

Businesses in sectors such as rental companies, logistics, food and chemical delivery services, construction etc. require a core understanding of their fleet operations to reduce cost and improve efficiency.

This means that aspects which include energy consumption (fuel optimization and saving), employee productivity and finance have to be managed effectively.

IoT is enabling organization to use vehicle data such as driver behavior, location etc. in a more analytical fashion. It is integrating data sources together with Big Data to create an ecosystems that directly feeds into decision support for fleet management, machinery management and vehicle tracking solutions.

This is enabling businesses to realize operational efficiencies, including the use of predictive capabilities for maintenance and operations.

STC's ambition is to offer state of the art technology to it's customers whilst collaborating with renowned global industry leaders. STC's Fleet Control service provides customers with all the critical information they require to improve the day-to-day operations of their fleet at a minimum cost.

The solution promises safety, timely maintenance and high productivity of fleets of all sizes.

STC's Fleet Control and AVL service paired with STC's IoT dashboard, provides organizations, access to IoT applications that provide a combination of real-time global asset tracking with a wide variety of innovative, value-add services to save thousands, even millions, of dollars in unnecessary maintenance, fines, and insurance expenses.

The service is offered in 3 affordable packages, Basic, Extra and Premium, with a range of features and value added services to meet the growing requirements of businesses in the Kingdom.

Service features like Vehicle Record History offer its users with the ability to view the historical data of their vehicles i.e. distance, duration of stops, location based information and driver behavior.

Other key features include:

- Alerts and Notifications.
- Immobilizer.
- Advanced Real Time Alerts.
- Safety Management.
- Maintenance Management.
- Rural Area Coverage.
- Geofencing.

STC's solution can be customized to easily fit into a wide variety of commercial vehicles, including taxis, school buses, and logistic freight vehicles etc. and supports data management, telematics, smart surveillance, live reporting, interactive dashboards, and mobile applications.

CCTV Security & Surveillance

STC'S RAQIB IS HELPING ORGANIZATIONS TO OVERCOME SECURITY CONCERNS AND GOVERNMENT REGULATIONS

Almost every organization uses CCTV to protect its people, property, buildings and assets. More so after Ministry of Interior made it mandatory for all business premises to be equipped with the security systems.

Legacy CCTV systems without internet, machine to machine connectivity and secure cloud storage are at a high risk of being hacked. Additionally, they are prone to faults and failures without warning and can miss out on recording critical events.

Legacy systems also have limited storage capacity, forcing businesses to limit the length of time recordings or invest heavily in storage systems. Adding new cameras to an existing legacy network could also lead to integration cost or a refit of the system.

Then there's the question of public concern about the security of information. It's important that footage stored by businesses complies with regulations laid out by the regulatory authorities as well as other stakeholders i.e. insurance companies, banks etc.

To meet the requirements of Ministry of Interior, Civil Defense and other regulatory authorities, STC launched Raqib, a smart security solution that connects cameras to resilient cloud-based service via a secure IoT network.

Raqib is a modular solution that is easy to deploy and operates as standalone or can be plugged into the existing systems. The solution also allows live or historic footage to be checked via smart devices with in-built access management, so businesses can limit which users are able to review footage stored on STC cloud.

Raqib's integration with STC Cloud means that storage of footage is not limited by physical disk capacity. Businesses can keep the footage for as long as the regulation requires or longer for internal business needs.

Raqib also offers advanced features like live alerts, face & number plate recognition, motion detection and crowd management.

STC's secure IoT network means that the visual data is encrypted from the camera to the cloud. Data is hosted at STC's state of the art data centers, so businesses can access the footage whenever required.

With advanced analytics at it's core, Raqib has the ability to track and analyze assets to determine dwell time, traffic and crowd patterns, fires and intrusions.

Other key features include:

- Supply and installation.
- Unlimited scalability.
- Advanced video analytics.
- Integration, hardware and software installation.
- Video Management System.
- Cloud storage.
- Free maintenance.

STC sets itself apart from it's competition by engaging with a strong network of partners to offer a range of solutions that are designed to fulfill the needs of all segments and industries

Retail Solutions & M2M Connectivity

STC'S RETAIL SOLUTION IS LEVERAGING PAYMENT TRANSACTIONS FOR BUSINESSES AT ANY PLACE THROUGHOUT THE KINGDOM

Retail and hospitality sector is under constant pressure to maximize and showcase transparency, increase operational efficiency and customer service to increase their sales opportunity and in turn, boost revenues.

Businesses have realized that the focus on operational costs and investments must be balanced against customer acquisition and retention. Improving brand loyalty and brand equity via products that stand apart has become one of the key priorities of the businesses followed by customer experience.

Hence retailers around the world are shifting from legacy systems to IoT to transform the overall shopping experience of the customer. Multiple IoT workloads have emerged to develop customer engagement such as, enhancing marketing through digital signage, tracking footfall through sensors and cameras, plotting customer behavior and improving supply chain.

IoT is empowering businesses by augmenting retailers' insights and business strategies.

STC's Retail Solution enables businesses to offer a payment instrument via banks at any place in the Kingdom. The service can process transactions over GPRS, 3G, 4G, LTE and offers a backup solution in case of faults, outages or purchase queues.

Key features include:

- Self-management of data usage & costs
- Reliable network coverage.
- Eliminates reliance on unsecure WiFi.
- Highly secure solution through a closed, private network.
- A convenient payment experience for consumers.
- Compliant with regulations.

With an average transaction speed of 4-6 seconds, STC's Retail Solution connects retailers sites with SPAN network of SAMA (MADA).

The service is designed to be used in any environment that needs a fast, reliable and secure mobile payment option across industries and regions of Saudi Arabia.

STC's Machine to Machine connectivity and platform offers businesses with visibility and control of their IoT devices. The solution is designed to track the location of assets, provide activity alerts, produce performance and data usage reports, enables businesses to activate new connections and manage them through STC's state of the art M2M platform.

STC's M2M connectivity is fully secure and connects devices to the platform using secure Access Point Names and Dynamic IP to prevent unauthorized access.

All of this, makes STC M2M perfect for such Fleets Control, Asset Tracking, linking ATM Machines, Smart Meters etc.

M2M SIM supports various communication technologies (2G/3G/4G/LTE) in addition to M2M data plans which gives businesses with world class coverage around Saudi Arabia and flexibility to choose a rate plan that meets their business expectations respectively.

ARTICLE

Defining the African digital reinvention

Raghav Sahgal

Digital transformation is an often-misunderstood concept – meaning different things to different people -- as countries and companies redefine 'digital' for the Fourth Industrial Revolution. For starters, all countries and companies occupy different starting points in their technological capabilities and, therefore, take a wide array of paths in the 'next' step in their technology evolution.

With the first wave of 5G deployment in 2019 in 'lead' countries like the US, digital transformation takes on even greater interpretation. The steps that took the industry from 2G to 3G to 4G were incremental, evolving alongside demand within legacy technology and capability. Now, 5G introduces a fundamental shift that will do more than just change the digital landscape but will introduce an incredible opportunity for the industry to embrace forward-looking growth and innovation.

5G networks will connect sensors, machines, robots, platforms, systems, and people to form an automated 'whole' that operates in mission-critical and life-critical environments; and demanding ultra-high reliability, capacity, security and ultra-low latency. This requires that all the components of the end-to-end 5G networks be 'coupled' in a smart and intelligent way.

"The phrase 'Digital transformation' doesn't really encapsulate what digital is bringing or the impact it will have," says Raghav Sahgal, Senior Vice President, Global Sales and Market Services at Nokia Software. "Transformation has become a term that implies progressive change over a certain timeframe. The term we need is 'digital reinvention' – this demands that you change your mindset completely and develop a deep enough understanding to establish a digital blueprint."

In building the digital business, 95% of elements need to be considered from a design perspective. Intelligent infrastructure needs to be balanced by digital capability and technical proficiency. This then forms the foundation upon which the potential of 5G can grow. The ecosystem, the partners, the technology – these are falling into place with a speed that few believed possible, and now 5G is the key to unlocking automation, industrial transformation and economic growth.

"In Africa, as we invest into 4G infrastructure we are already putting mechanisms in place to allow for rapid movement to the next step, towards 5G," he says. "The market players here are incredibly excited about the potential of 5G and the industry applications across mining, telecommunications, agriculture and more, are tremendous. Already we are building 5G solutions using network slicing that fine-tunes digital to specific industry and business requirements."

The term 'digital reinvention' encapsulates the seismic shifts that are rippling across industries, and technologies as 5G digs in and starts to deliver. It asks that the business relook what it means by digital transformation and the journey that must be undertaken to ensure success.

"We had to completely reinvent ourselves as a company – we had to relook our structures and services to ensure that we were aligned with what the future brings," says Raghav Sahgal. "We recognised that software was a key part of our digital journey and made the bold move to create a standalone software division. We recognised that we needed solutions that could serve the new digital customer."

Customers consume digital services differently and demand different ways of engaging with these services and solutions. The digital marketplace is powered by new dynamics. Nokia's focus on software was part of the company's own digital reinvention, a process that has taken several years to fine-tune and complete.

"We started the process of digital reinvention in 2015, building a software foundation using the principles of open source and innovation to ensure our software was more agile and nimble, allowing us to deploy quickly and create capabilities," he adds. "We invested into the DevOps model to ensure we could introduce solutions rapidly and keep up with the speed at which the world is moving."

A key mission to Nokia's software business group, a critical pillar to the Finnish company's strategy, is to provide solutions to clients in the industrial and enterprise markets. The goal is to work with companies in developing new revenue streams that capitalise on the Internet of Things (IoT) and digital, while also helping these companies reduce costs and enhance their service capabilities.

Nokia has been working in the South African agriculture space, using sensors and digital solutions to manage performance, information, optimisation of field maintenance and fertiliser application, and other critical factors that can contribute to higher agriculture yields and lower operating costs.

"We are taking our solutions into different industry segments such as transport, energy and the public sector, helping organisations establish services using the digital value chain," says Raghav Sahgal. "Our digital strategy portfolio is underpinned by machine learning, automation, and artificial intelligence (AI)."

There are social and economic challenges in Africa, but the level of innovation is significant. Stagnant, the continent is not. The limited resources and infrastructure have pushed invention to the next level and 5G is proving to be the springboard that will allow the continent to redefine its digital reinvention journey. It is also the technology that will see organisations partner with one another to create solutions that fully harness the capabilities of the digital revolution. T

EDITORIAL

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Cryptocurrency and Blockchain Networks: Facing New Security Paradigms

On Jan. 22, FireEye participated in a panel focused on cryptocurrencies and blockchain technology during the World Economic Forum. The panel addressed issues raised in a report developed by FireEye, together with our partner Marsh & McLennan (a global professional services firm) and Circle (a global crypto finance company). The report touched on some of the security considerations around crypto-assets – today and in the future, and in this blog post, we delve deeper into the security paradigms surrounding cryptocurrencies and blockchain networks.

First, some background that will provide context for this discussion.

Cryptocurrencies – A Primer

By its simplest definition, cryptocurrency is digital money that operates on its own decentralized transaction network. When defined holistically, many argue that cryptocurrencies and their distributed ledger (blockchain) technology is powerful enough to radically change the basic economic pillars of society and fundamentally alter the way our systems of trust, governance, trade, ownership, and business function.

However, the technology is new, subject to change, and certain headwinds related to scalability and security still need to be navigated. It is safe to assume that the ecosystem we have today will evolve. Since the final ecosystem is yet to be determined, as new technology develops and grows in user adoption, the associated risk areas will continually shift – creating new cyber security paradigms for all network users to consider, whether you are an individual user of cryptocurrency, a miner, a service-provider (e.g., exchange, trading platform, or key custodian), a regulator, or a nation-state with vested political interest.

Malicious actors employ a wide variety of tactics to steal cryptocurrencies. These efforts can target users and their wallets, exchanges and/or key custodial services, and underlying networks or protocols supporting cryptocurrencies. FireEye has observed successful attacks that steal from users and cryptocurrency exchanges over the past several years. And while less frequent, attacks targeting cryptocurrency networks and protocols have also been observed. We believe cryptocurrency exchanges and/or key custodial services are, and will continue to be, attractive targets for malicious operations due to the potentially large profits, their often-lax physical and network security, and the lack of regulation and oversight.

This blog post will highlight some of the various risk areas to consider when developing and adopting cryptocurrency and blockchain technology.

Wallet & Key Management

Public and Private Keys

There are two types of keys associated with each wallet: a public key and a private key. Each of these keys provides a different function, and it is the security of the private key that is paramount to securing cryptocurrency funds.

The private key is a randomly generated number used to sign transactions and spend funds within a specific wallet, and the public key (which is derived from the private key) is used to generate a wallet address to which they can receive funds.

The private key must be kept secret at all times and, unfortunately, revealing it to third-parties (or allowing third-parties to manage and store private keys) increases convenience at the expense of security. In fact, some of the most high-profile exchange breaches have occurred in large part due to a lack of operational controls relating to the storage of private keys. Maintaining the confidentiality, integrity, and availability of private keys requires fairly robust controls.

However, from an individual user perspective, a large number of user-controlled software wallet solutions store the private and public keys in a wallet file on the user's hard drive that is located in a well-known directory, making it an ideal

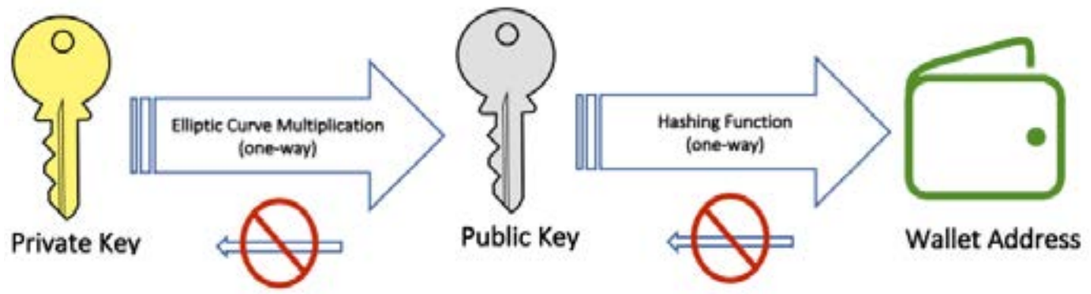


Figure 1: Private key, public key, and address generation flow

target for actors that aim to steal private keys. Easily available tools such as commercial keyloggers and remote access tools (RATs) can be used to steal funds by stealing (or making copies of) a user's wallet file. FireEye has observed myriad malware families, traditionally aimed at stealing banking credentials, incorporate the ability to target cryptocurrency wallets and online services. FireEye Intelligence subscribers may be familiar with this already, as we've published about these malware families use in targeting cryptocurrency assets on our FireEye Intelligence Portal. The following are some of the more prominent crimeware families we have observed include such functionality:

- Atmos
- Dridex
- Gozi/Ursnif
- Ramnit
- Terdot
- Trickbot
- ZeusPanda/PandaBot
- IcedID
- SmokeLoader
- Neptune EK
- BlackRuby Ransomware
- Andromeda/Gamarue
- ImminentMonitor RAT
- jRAT
- Neutrino
- Corebot

Wallet Solutions

By definition, cryptocurrency wallets are used to store a user's keys, which can be used to unlock access to the funds residing in the associated blockchain entry (address). Several types of wallets exist, each with their own level of security (pros) and associated risks (cons). Generally, wallets fall into two categories: hot (online) and cold (offline).

Hot Wallets

A wallet stored on a general computing device connected to the internet is often referred to as a "hot" wallet. This type of storage presents the largest attack surface and is, consequently, the riskiest way to store private keys. Types of hot wallets typically include user-controlled and locally stored wallets (also referred to as desktop wallets), mobile wallets, and web wallets. If remote access on any hot wallet device occurs, the risk of theft greatly increases. As stated, many of these solutions store private keys in a well-known and/or unencrypted location, which can make for an attractive target for bad actors. While many of these wallet types offer the user high levels of convenience, security is often the trade-off.

If considering the use of hot wallet solutions, FireEye recommends some of the following ways to help mitigate risk:

- Use two-factor authentication when available (as well as fingerprint authentication where applicable).
- Use strong passwords.
- Ensure that your private keys are stored encrypted (if possible).
- Consider using an alternative or secondary device to access funds (like a secondary mobile device or computer not generally used every day) and kept offline when not in use.

Wallet Type	Examples
Desktop	Bitcoin Core
	Atomic
	Exodus
	Electrum
	Jaxx
Mobile	BRD
	Infinito
	Jaxx
	Airbitz
	Copay
	Freewallet
Web	MyEtherWallet
	MetaMask
	Coinbase
	BTC Wallet
	Blockchain. info

Table 1: Types of hot wallets

Cold Wallets

Offline, also called cold wallets, are those that generate and store private keys offline on an air-gapped computer without network interfaces or connections to the outside internet. Cold wallets work by taking the unsigned transactions that occur online, transferring those transactions offline to be verified and signed, and then pushing the transactions back online to be broadcasted onto the Bitcoin network. Managing private keys in this way is considered to be more secure against threats such as hackers and malware. These types of offline vaults used for storing private keys is becoming the industry security standard for key custodians such as Coinbase, Bittrex, and other centralized cryptocurrency companies. Even recently, Fidelity Investments released a statement regarding their intentions to play an integral part of the Bitcoin's custodial infrastructure landscape.

"Fidelity Digital Assets will provide a secure, compliant, and institutional-grade omnibus storage solution for bitcoin, ether and other digital assets. This consists of vaulted cold storage, multi-level physical and cyber controls – security protocols that have been created leveraging Fidelity's time-tested security principles and best practices combined with internal and external digital asset experts." -Fidelity Investments

While more security-conscious exchanges employ this type of key storage for their users, cold wallets are still susceptible to exploitation:

- In November 2017, ZDnet published an article describing four methods hackers use to steal data from air-gapped computers through what they call "covert channels." These channels can be broken down into four groups:
- Electromagnetic
- Acoustic
- Thermal
- Optical
- In addition to those four types of attacks, WikiLeaks revealed, as part of its ongoing Vault 7 leak, a tool suite (dubbed Brutal Kangaroo, formerly EZCheese) allegedly used by the CIA for targeting air-gapped networks.
- In February 2018, security researchers with the Cybersecurity Research Center at Israel's Ben-Gurion University made use of a proof-of-concept (PoC) malware that allowed for the exfiltration of data from computers placed inside a Faraday cage (an enclosure used to block electromagnetic fields). According to their research, attackers can exfiltrate data from any infected computer, regardless if air-gapped or inside a Faraday cage. The same group of researchers also revealed additional ways to exploit air-gapped computers:
    - aIR-Jumper attack that steals sensitive information from air-gapped computers with the help of infrared-equipped CCTV cameras that are used for night vision
    - USBee attack that can be used steal data from air-gapped computers using radio frequency transmissions from USB connectors
    - DiskFiltration attack that can steal data using sound signals emitted from the hard disk drive (HDD) of the targeted air-gapped computer
    - BitWhisper that relies on heat exchange between two computer systems to stealthily siphon passwords or security keys
    - AirHopper that turns a computer's video card into an FM transmitter to capture keystrokes
    - Fansmitter technique that uses noise emitted by a computer fan to transmit data
    - GSMem attack that relies on cellular frequencies
    - PowerHammer, a malware that leverages power lines to exfiltrate data from air-gapped computers.

Hardware Wallets

Hardware wallets are typically a small peripheral device (such as USB drives) used to generate and store keys, as well as verify and sign transactions. The device signs the transactions internally and only transmits the signed transactions to the network when connected to a networked computer. It is this separation of the private keys from the vulnerable online environment that allows a user to transact on the blockchain with reduced risk.

However, hardware wallets are susceptible to exploitation as well, such as man-in-the-middle (MitM) supply chain attacks, wherein a compromised device is purchased. Such an event obstenibly occurred in early 2018, when an individual purchased a compromised Nano Ledger off of eBay, and consequently lost $34,000 USD worth of cryptocurrency stored on the device as the attacker created their own recovery seed to later retrieve the funds stored on the device. In order to trick the victim, the attacker included a fake recovery seed form inside the compromised device packaging (**as seen in Figure 2**).

To help mitigate the risk of such an attack, FireEye recommends only purchasing a hardware wallet from the manufacturer directly or through authorized

Figure 2:
Fraudulent recovery seed document for Ledger Nano (image source: Reddit)

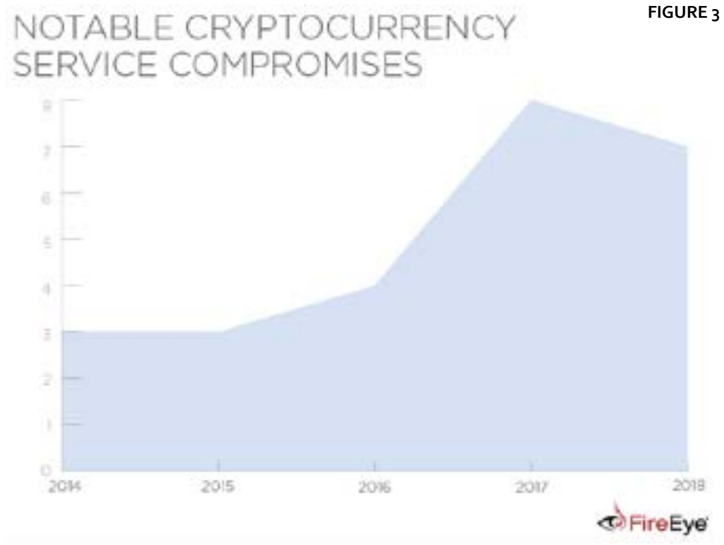
resellers. In addition to supply-chain attacks, security researchers with Wallet.fail have recently disclosed two vulnerabilities in the Ledger Nano S device. One of these vulnerabilities allows an attacker to execute arbitrary code from the boot menu, and the other allows physical manipulation without the user knowing due to a lack of tamper evidence. In both cases, physical access to the device is required, and thus deemed less likely to occur if proper physical security of the device is maintained and unauthorized third-party purchasing is avoided.

Paper Wallets

Typically, wallet software solutions hide the process of generating, using, and storing private keys from the user. However, a paper wallet involves using an open-source wallet generator like BitAddress[.]org and WalletGenerator[.]net to generate the user's public and private keys. Those keys are then printed to a piece of paper. While many view this form of key management as more secure because the keys do not reside on a digital device, there are still risks.

Because the private key is printed on paper, theft, loss, and physical damage present the highest risk to the user. Paper wallets are one of the only forms of key management that outwardly display the private key in such a way and should be used with extreme caution. It is also known that many printers keep a cache of printed content, so the possibility of extracting printed keys from exploited printers should also be considered.

FIGURE 3



Notable cryptocurrency exchange attacks observed

Time Frame	Entity	Description
July 2018	Bancor	Bancor admitted that unidentified actors compromised a wallet that was used to upgrade smart contracts. The actors purportedly withdrew 24,984 ETH tokens ($12.5 million USD) and 229,356,645 NPXS (Pundi X) tokens (approximately $1 million USD). The hackers also stole 3,200,000 of Bancor's own BNT tokens (approximately $10 million USD). Bancor did not comment on the details of the compromise or security measures it planned to introduce.
June 2018	Bithumb	Attackers stole cryptocurrencies worth $30 million USD from South Korea's largest cryptocurrency exchange, Bithumb. According to Cointelegraph Japan, the attackers hijacked Bithumb's hot (online) wallet.
June 2018	Coinrail	Coinrail admitted there was a "cyber intrusion" in its system and an estimated 40 billion won ($37.2 million USD) worth of coins were stolen. Police are investigating the breach, but no further details were released.
February 2018	BitGrail	BitGrail claimed $195 million USD worth of customers' cryptocurrency in Nano (XRB) was stolen.
January 2018		

Exchanges & Key Custodians

According to recent Cambridge University research, in 2013 there were approximately 300,000 to 1.3 million users of cryptocurrency. By 2017 there were between 2.9 million and 5.8 million users. To facilitate this expedited user growth, a multitude of companies have materialized that offer services enabling user interaction with the various cryptocurrency networks. A majority of these businesses function as an exchange and/or key custodians. Consequently, this can make the organization an ideal candidate for intrusion activity, whether it be spear phishing, distributed denial of service (DDoS) attacks, ransomware, or extortion threats (from both internal and external sources).

Many cryptocurrency exchanges and services around the world have reportedly suffered breaches and thefts in recent years that resulted in substantial financial losses and, in many cases, closures **(Figure 3)**. One 2013 study found that out of 40 bitcoin exchanges analyzed, over 22 percent had experienced security breaches, forcing 56 percent of affected exchanges to go out of business. T

Global IT spending to reach USD3.8 trillion in 2019

Gartner

Worldwide IT spending is projected to total $3.76 trillion in 2019, an increase of 3.2 percent from 2018, according to the latest forecast by Gartner, Inc.

"Despite uncertainty fueled by recession rumors, Brexit , and trade wars and tariffs, the likely scenario for IT spending in 2019 is growth ," said John-David Lovelock , research vice president at Gartner. "However, there are a lot of dynamic changes happening in regards to which segments will be driving growth in the future. Spending is moving from saturated segments such as mobile phones, PCs and on-premises data center infrastructure to cloud services and Internet of Things (IoT) devices. IoT devices, in particular, are starting to pick up the slack from devices. Where the devices segment is saturated, IoT is not.

"IT is no longer just a platform that enables organizations to run their business on. It is becoming the engine that moves the business," added Mr. Lovelock. "As digital business and digital business ecosystems move forward, IT will be the thing that binds the business together."

Table 1. Worldwide IT Spending Forecast (Billions of U.S. Dollars)

	2018 Spending	2018 Growth (%)	2019 Spending	2019 Growth (%)	2020 Spending	2020 Growth (%)
Data Center Systems	202	11.3	210	4.2	202	-3.9
Enterprise Software	397	9.3	431	8.5	466	8.2
Devices	669	0.5	669	1.6	689	1.4
IT Services	983	5.6	1,030	4.7	1,079	4.8
Communications Services	1,399	1.9	1,417	1.3	1,439	1.5
Overall IT	**3,650**	**3.9**	**3,767**	**3.2**	**3,875**	**2.8**

With the shift to cloud , a key driver of IT spending, enterprise software will continue to exhibit strong growth, with worldwide software spending projected to grow 8.5 percent in 2019. It will grow another 8.2 percent in 2020 to total $466 billion (see Table 1). Organizations are expected to increase spending on enterprise application software in 2019, with more of the budget shifting to software as a service (SaaS). Despite a slowdown in the mobile phone market, the devices segment is expected to grow 1.6 percent in 2019. The largest and most highly saturated smartphone markets, such as China, Unites States and Western Europe, are driven by replacement cycles. With Samsung facing challenges bringing well-differentiated premium smartphones to market and Apple's high price-to-value benefits for its flagship smartphones, consumers kept their current phones and drove the mobile phone market down 1.2 percent in 2018.

"In addition to buying behavior changes, we are also seeing skills of internal staff beginning to lag as organizations adopt new technologies, such as IoT devices, to drive digital business," said Mr. Lovelock. "Nearly half of the IT workforce is in urgent need of developing skills or competencies to support their digital business initiatives. Skill requirements to keep up, such as artificial intelligence (AI), machine learning, API and services platform design and data science, are changing faster than we've ever seen before."

More detailed analysis on the outlook for the IT industry is available in the complimentary webinar " IT Spending Forecast, 4Q18 Update: What Will Make Headlines in 2019?"

Gartner's IT spending forecast methodology relies heavily on rigorous analysis of sales by thousands of vendors across the entire range of IT products and services. Gartner uses primary research techniques, complemented by secondary research sources, to build a comprehensive database of market size data on which to base its forecast.

The Gartner quarterly IT spending forecast delivers a unique perspective on IT spending across the hardware, software, IT services and telecommunications segments. These reports help Gartner clients understand market opportunities and challenges. T

Intelligence Brief: Is AI on a slippery slope?

Tim Hatt, Head of research, GSMA Intelligence

There is a strong case to be made that artificial intelligence (AI) is now the most central topic in technology. While the computer science that underpins AI has been in development since the 1950s, the rate of innovation has gone through multiple step changes in the last ten years.

The technological reasons for this are well understood: the advent of neural networks; an increase in semiconductor processing power; and a strategic shift away from AI systems that rely on parameter-driven algorithms towards self-reinforced and multiplicative learning, machines that get smarter the more data they are fed and scenarios they negotiate.

Development has been open and collaborative. The benefits of AI in process efficiency and, potentially, accuracy are clear. For this reason, R&D activity, pilots and commercial deployments stretch to virtually every sector of the economy from healthcare to automotive manufacturing to telecom networks. A recent Vodafone survey indicated a third of enterprises already use AI for business automation, with a further third planning to do so. Take-up on this scale, at this rate, could put AI on a level with prior epochal shifts of electricity, the combustion engine and personal computing.

Two sides to each coin

Whether that actually happens depends on how the technology is managed. I spend a lot of time talking with major telecom and technology companies. While it's clear AI is a major point of interest to nearly everyone, the discussion is still pitched in generalities. Paraphrasing:

- AI is the Fourth Industrial Revolution
- We know AI is big and we want to do something with it, but we don't know what
- We're moving to be an AI-first company
- How can we win with AI?
- We're a far more efficient company because of AI
- The ebullient tone is to be welcomed.

Far less talked about, however, are the

ethical and legal implications that arise from trading off control for efficiency. It's fairly clear that cognitive dissonance is at work – the benefits blind us to the risks.

How do you answer these?

A crucial faultline is the balance between programmed and interpretive bias. That is to say, how much are machines programmed to act based on the way humans want them to act (reflecting our value sets) versus their own learned 'judgement'? This has a direct bearing on accountability. To make this point, let's pose a series of questions that draw on how AI is being used in different industries.

Autonomous vehicles

If a self-driving car faces the inevitability of a crash, how does it decide what or who to hit? If that same self-driving car is deemed to be at fault, who bears responsibility? The owner? The car manufacturer? A third-party AI developer (if the technology was outsourced)?

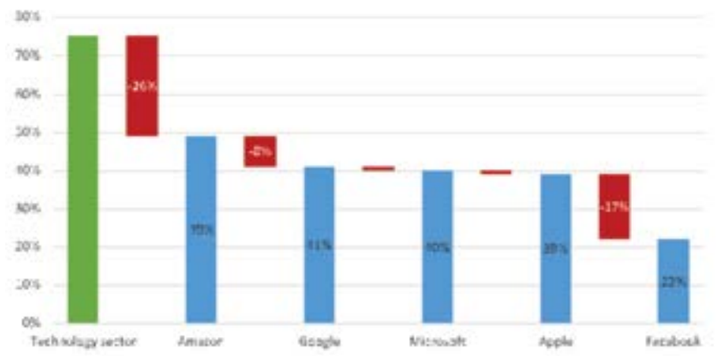
Criminal justice

If an algorithm is tasked with predicting the likelihood of reoffending among incarcerated individuals, what parameters should it use? If that same algorithm is found to have a predictive accuracy no better than a coin flip, who should bear responsibility for its use?

Social media

If Facebook develops an algorithm to screen fake news from its platform, what parameters should it use? If content subsequently served to people's news feeds is deemed intentionally misleading or fabricated, does responsibility lie with the publisher or Facebook?

People trust the benevolence of technology...but not technology companies



Source: Edelman Trust Barometer 2019, Harris Insights and Analytics

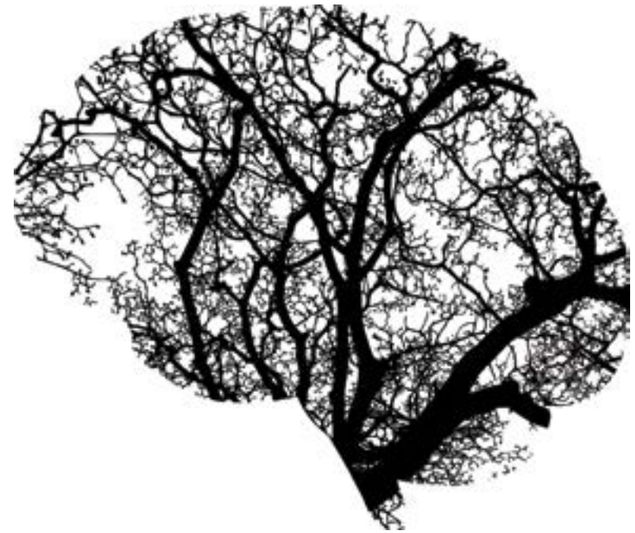
I chose these for a number of reasons. One, these are real examples rather than hypothetical musings. While they emanate from specific companies, the implications extend to any firm seeking to deploy AI. Second, they illustrate the difficulty in extracting sociological bias from algorithms designed to mimic human judgement. Third, they underline the fact that AI is advancing faster than regulations and laws can adapt, putting debate into the esoteric realms of moral philosophy. Modern legal systems are typically based on the accountability of specific individuals or entities (such as a company or government). But what happens when that individual is substituted for an inanimate machine?

No one really knows.

A question of trust

Putting aside the significant legal ramifications, there is an emerging story of the potential impact on trust. The rise of AI comes at a time when consumer trust in companies, democratic institutions and government is falling across the board. Combined with the ubiquity of social media and rising share of millennials in the overall population, the power of consumers has reached unprecedented levels.

There is an oft-made point that Google, Facebook and Amazon have an in-built advantage as AI takes hold because of the vast troves of consumer data they control. I would debunk this on two levels. First, AI is a horizontal science that can, and will, be used by everyone. The algorithm that benefits Facebook has no bearing on an algorithm that helps British Airways.



Second, the liability side of the data equation has crystallised in recent years with the Cambridge Analytica scandal and GDPR. This is reflected in what you might call the technology paradox: while people still trust the benevolence of the tech industry, far less faith is placed in its most famous children (see chart, below, click to enlarge).

In an AI world, trust and the broader concept of social capital will move from CSR to boardroom priority, and potentially even a metric reported to investors.

This point is of heightened importance for telecom and tech companies given their central role in providing the infrastructure for a data-driven economy. Perhaps it is not surprising, then, that Google, Telefonica and Vodafone are among a vanguard seeking to proactively lay down a set of guiding principles for AI rooted in the values of transparency, fairness and human advancement. The open question, given the ethical questions posed above, is how actions will be tracked and, if necessary, corrected. Big questions, no easy answers. T

Wireless broadband alliance addresses challenges for In-Home Wi-Fi

The Wireless Broadband Alliance, a leading organization in support of the adoption of next generation Wi-Fi services across the Wi-Fi ecosystem, announced today the availability of a new white paper, In-Home Wi-Fi Industry Guidelines 2019, which identifies the gaps in current in-home Wi-Fi standards and highlights the need for intelligent network optimization. Led by CableLabs, Intel, Liberty Global and Fon, together with other members, the WBA aims to tackle the challenges that have contributed to inconsistent performance in the home, including a lack of uniform coverage and visibility into the in-home Wi-Fi experience. The paper provides an industry go-to reference when preparing for Smart Home deployments.

The home is expected to have 1.3 billion connected devices by 2022, according to IDC. Many operators have already moved towards a multiple Wi-Fi Access Point (Multi-AP) strategy to tackle the home coverage problem, address congestion, and provide optimal service uniformly around the house. While existing standards have made progress on these issues, this white paper provides a uniform approach to fully prepare for the next evolution of in-home Wi-Fi networks and adjacent services. T

Charting a new course for Africa's economic prosperity

The telecommunications industry is at a cross-road of innovation. It has a major role to play, but needs to renew its business model, develop ecosystem of new partners and customers, and unleash the full potential of next generation technologies.

Imagine a world where the laws of business survival are being redefined and new competitive market models re-assembled with the advent of 4th industrial revolution. Emerging technologies are changing the way organisations shape their offerings and service new markets. They are the muses of innovation and inspiration and the keys to unlocking the potential of business in Africa. It is time to build economic models that change industries and reshape the way we live, work and play.

Fuad Siddiqui, Senior Partner and Head of Consulting at Nokia Bell Labs for MEA & APJ

The continent is evaluating what industry 4.0 means to its citizens and businesses - Organisations are beginning to rethink industrial architectures and how to optimally harness technology choices. "We need to look at how we can demystify questions around industry 4.0 and make it easier for companies to understand the scope, their roles, promise of new business models, and what it means for Africa's future," says Fuad Siddiqui, Senior Partner for Strategy and New Markets Consulting, Bell Labs, Nokia. "There is enormous potential, especially with regards to automation and how it can re-define productivity, but we need governments to be swift and create incentive structures that encourage investment and innovation."

One of the challenges, particularly in the telecommunications industry, is that most companies has pre-dominantly focused on consumer play and is comfortable with a tried and tested business model. They look at their consumers in a certain way and adopt models that are simple in structure and deliver the same results. The problem is that consumers are wading in a saturated market, accessing offers from a smorgasbord of suppliers and taking the ones with lowest cost, that deliver the best value for their needs. There is little or no loyalty and minimal financial returns. The industry is fighting in the mud for a small piece of the profit pie, while technology is opening up new channels and platforms that offer far greater reach and opportunity across new segments.

"There is so much more, that the telecommunications industry can do, especially with 5G and emerging technologies," says Fuad. "For the first time, the power of 5G offers the potential for service providers to branch out and invest into new markets -- industrials, verticals and enterprises in a big way. We know industries are at varying stages of their digital journey, and all industry sectors will be massively transformed by the ability to become automated and to exist independent of physical space and infrastructure — essentially to become virtualized. New drivers around performance, reliability, trust will dictate new stringent service requirements and new market models will be needed to achieve economic growth. Within this new realm of possibilities, a future of intricate alliances and collaboration of global-local market players will emerge, with global players excelling at the art of service creation and local players owning the sphere of contextual service delivery. This techno-economic collaboration will be made possible by a digital network fabric enabled by 5G, driving the creation of a new industrial world order characterized by enterprises with global reach and the ability to scale with worldwide demand, but which leverage and required local context for service delivery - something telco service providers can own, control and monetize."

"Imagine a telco investing in 5G network without a bold vision to diversify beyond consumer or isn't proactively engaged with industrial sector (shipping, mining, transport, manufacturing, supply chain…) and offer them symbiotic partnerships, showcasing what 5G can do?" asks Fuad. "It will most certainly be depriving Africa of economic productivity and prosperity. From a global standpoint, we see many industrial sectors moving forward with proprietary networks that partially deliver on new innovations to drive productivity and profits and telecommunication companies are beginning to realize this shift and drawing up their own plans to advise and shape the next chapter for growth. Or else they will risk losing out on a significant opportunity."

As industry and organisations earmark big budgets for automation and intelligent systems, telecommunication service providers should be part of the discussions and the solutions and see how a general-purpose technology like 5G can catalyse growth? The industry needs to evangelise the promise of future technology and showcase what benefits it brings. "Now is the time to prepare a cohesive plan and sign up industrials and verticals," concludes Fuad. The ask is to – understand how emerging technologies will change commercial models, assess new investment potential and what it can do across sectors to uplift Africa's macro-economic status." T

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5G and the growing need for national CTOs

The profound impact that 5G will have on the world is hard to overestimate. It is a platform for innovation that will bring about a wave of new opportunities and economic growth to nations in every corner of the globe.

Erik Ekudden, CTO of Ericsson

New jobs will be created — and old ones reskilled — as new services and applications enabled by 5G are realized.

5G will also help us establish, and foster, a cleaner, safer and more sustainable society for current and future generations to enjoy.

It's clear from the many engaging discussions here at the World Economic Forum that we simply can't afford to exclude any country or citizen from the benefits of digital connectivity. With that in mind, I firmly believe that 5G is an investment in a future that we all can benefit from and enjoy. We just need to ensure that this happens.

Next steps

So, what is stopping us? The short answer is nothing! However, in order for this change to happen efficiently and effectively, governments and public sector policymakers will need to create policies that will enable innovation in a way that is both ubiquitous and affordable.

Thankfully, 5G is the first generation of technology developed specifically to scale for both consumers and enterprises in the Fourth Industrial Revolution, address global societal challenges, and transform how industries work.

But back to my original point: what would it take to make the above dream scenario a reality? In other words, could a national chief technology officer (CTO) help governments and public sector decision-makers?

As CTO of Ericsson, I have worked with customers and industry leaders to define this new platform – 5G - for new business needs. With 5G we have the opportunity to provide a leading platform for digitalization that can drastically increase efficiency and enable enterprises to reshape their

business processes as data-driven and fully connected with the latest mobile technology.

And with the dawn of 5G just around the corner, I believe these choices - embraced by a nation's CTO - would have a positive influence on a nation's competitiveness, boost its society and public sector, and support digital inclusion.

Creating a blueprint for digital inclusion

In my opinion, a national CTO is much more likely to be effective if they truly understand how the communications and Internet industry works as well as the underlying technology trends.

Initially, I imagine a national CTO would be tasked with creating a blueprint for digital inclusion. In so doing, they would have to ensure that the government and all its agencies have the right infrastructure, policies, strategies and services to keep the country and its people competitive now and in the future.

Of course, these tasks are as ambitious as they are complex. It's likely a national CTO would have to convene advisory groups to support this work by meeting with leaders in various governmental areas, industries, NGOs and community groups, too.

This is just a general summary of what such a role might entail. What might a nation's CTO offer their government? Let's explore that topic through the lens of two key characteristics:

1: Global scale and cost efficiency

Governments could stimulate the efficient rollout of 5G by providing service-level obligations combined with long-term licensing conditions. While earlier generations of wireless were primarily associated with consumers, almost every sector, from manufacturing to energy and transport, stands to benefit from 5G. Therefore we must welcome and facilitate investment in 5G.

Governments and policymakers should be thinking about 5G with its long-term economic and social benefits in mind, rather than any immediate financial gains - for example through spectrum fees and auction designs. Governments need to

collaborate with 5G network providers to encourage infrastructure investment, working together to achieve objectives without damaging market incentives.

If governments refrained from extracting the maximum monetary fees when awarding licenses, this would free up the funds set aside for 5G infrastructure by operators. A nation's CTO would be able to see these benefits, and could mediate and set the priorities needed to stimulate an open and competitive market that would drive innovation for all.

2: Enable enterprises to leverage advanced infrastructure

Without access to adequate infrastructure, the digitalization of society and industries will lag behind.

Fewer industries will be able to operate and innovate at the leading edge of technology. In the long- term, this not only creates opportunity costs for enterprises - it also impacts their overall competitiveness against peers from other regions.

It is critical to put policies in place that enable enterprises to leverage the power of the new network platform with virtual networks - so-called network slicing - and the high performance and security of the 5G platform.

The future is bright

Technology is now intertwined in every modern process: from education, transportation, health and energy to homeland security. Digital transformation is occurring at an unprecedented rate, and there is a risk that if we are not leveraging 5G effectively, the whole economy will suffer.

It is up to the information and communications technology (ICT) industry and governments to work together to improve the deployment of this new technology and increase productivity, to create new jobs and reskill old ones, to future-proof business and safeguard future societies. It is only by working together that we can create strategies that will address the current needs of society and create a lasting impact for future generations.

Regardless of who tackles these challenges, governments and ICT players share a responsibility to make tomorrow better than today. T

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Telecoms operators and startups: Rethink and reinvent

Harnessing the disruptive power of startups

Arthur D. Little

Telecoms operators around the world are already engaging with startups in an attempt to benefit from their agility, execution speed and disruptive power. However, realizing tangible benefits and value from these initiatives has been a persistent challenge. Fundamental changes to current approaches are required to truly harness the innovative power of startups, young companies and digital upstarts: operators must rethink their business and operating models, reinvent their engagement models, and refresh their processes, governance mechanisms and cultures.

Telecoms operators around the world are already engaging with startups in an attempt to benefit from their agility, execution speed and disruptive power. However, realizing tangible benefits and value from these initiatives has been a persistent challenge. Fundamental changes to current approaches are required to truly harness the innovative power of startups, young companies and digital upstarts: operators must rethink their business and operating models, reinvent their engagement models, and refresh their processes, governance mechanisms and cultures.

Telecoms operators need to innovate

It is no news that telecoms operators have faced disruptive competition across their traditional core businesses – voice, data, messaging, ICT services – from startups, digital players and cross-industry disruptors. Operators have long grappled with engagement approaches with such disruptors, ranging from co-creation, competition and investments to outright regulatory challenges. Meanwhile, young and ambitious companies have lived up to their own hype by becoming vehicles to drive innovation and disrupt the business models and value chains of traditional industries: the potential for riding this vehicle remains untapped in most operator engagement models we have seen.

Telecoms operators seek startup collaboration…

When we asked senior executives of some of the main telecoms operators across the globe about the rationale for their association with startups, the dominant answers were "innovation", "future" and "agility", as well as "opportunity" and "partner". Corporates realize

that engagement with startups needs to be carefully aligned with the overall strategy and executed meticulously to create value.

… yet telecoms operators are still far from being the partners of choice for startups

Over 90 percent of telecoms operators we spoke to in our last study considered innovation partnerships with startups and established players relevant or highly relevant, but still, few telecoms operators felt capable of actually executing these kinds of partnerships. Startups need specific sets of conditions to perform, especially under umbrellas of large telecoms or media companies, even in cases in which dedicated digital units or innovation arms exist.

Based on our work with leading telecommunication and media corporations worldwide, we see many struggling to capture the intended value of startup collaboration due to risk-averse cultures, slow decision-making, rigid processes and tight governance mechanisms, and lack of knowledge on how to internally collaborate with startups.

Pragmatic approaches are available

Telecoms operators need to develop collaboration capabilities ranging from initiating interactions with startups, such as startup screening, valuation and selection, to managing long- term collaboration, such as internal and external collaboration steering. However, building up these capabilities might require long time commitments, and there are more pragmatic approaches available.

This requires collaboration with startups to be baked into a firm's thinking rather than an afterthought or a "me-too" approach. This requires telecoms operators to:

1. Rethink current business and operating models to clarify their ecosystem propositions
2. Reinvent their startup engagement models to gain the best value from collaboration
3. Refresh processes, policies, procedures, governance mechanisms and corporate cultures

Source: Company information of 25+ telecoms operators, Telecom Carrier Council Conference 2016, Arthur D. Little analysis

Rethink! your business & operating model

Innovation priorities of telecoms operators range from innovating and digitizing the core to increasing customer advocacy and generating new revenue pools from core, adjacent and non-core businesses. (See figure 2)

To become more innovative and even disruptive, telecoms operators must consider innovation opportunities across a wide range of areas and using different digital building blocks

. The "new kids on the block", such as startups and digital players, can be future partners and potential vendors to help solve some of the growing challenges that telecoms operators are facing today. Clear focus on the part of the operator is required to create impact and clarify the proposition to the startup ecosystem and potential collaboration partners, such as innovative startups and young companies. A come-one, come-all approach may work in a marketing sense, but does not lead to a lasting positioning in the ecosystem.

Reinvent! your engagement models

Many telecoms operators struggle with launching innovations with the help of their startup investment activities and/or in their incubators and accelerator programs. Their focus is often too narrow, only on equity investments and "niche" parts of the value chain, i.e., new business models. However, the collaboration spectrum is broader than just partnering and entering new markets. Companies often forget that innovation happens across the whole organization – not only top-line-driven. Some telecoms operators are already leveraging smart ways of working with startups, young companies, and digital disruptors beyond equity-based or partnership models. These operators have realized that their past efforts were too narrow, putting too much effort and time into partner search and governance and too little into the realization of innovative products and services.

We advocate a more pragmatic approach for startup collaboration: Corporates can choose either to a) "partner with" or to b) "procure from" startups or similar entities.

a) Telecoms operators "partner with" startups

Many believe that telecoms operators need to expose capabilities to third parties and integrate third parties into their product portfolios in the current "age of collaboration" or "age of APIs". Hence, the majority of engagements with startups are centered on creating innovative products, services and customer experience driven by marketing & sales. Telecoms operators open up their customer bases and partner portfolios for startups and young companies to use to pilot, commercialize and market their products and services.

However, the disruption potential within an operator's internal operations is still often neglected. Telecoms operators have the opportunity to reimagine their operations, leveraging innovative and digital technologies to compete with leaner and more agile competitors.

b) Telecoms operators "procure from" startups

Supplier/vendor collaborations or partnerships have clear, pre-defined objectives, and therefore traditionally higher success rates. However, certain enablers, such as governance models, processes, and organization and transformation roadmaps, need to be set up for value extraction. The value potential of this approach is often disregarded – AT&T was able to source radically new solutions by including new, smaller players in its existing processes and future initiatives.

Example: AT&T was able to source radically new solutions through including startup and SME companies in its various sourcing programs and initiatives such as Foundry, Domain 2.0 and in its internal processes. Innovations such as deploying drones in the network-planning process, using them to provide enhanced LTE wireless coverage at packed venues, and using a self-optimization network solution from Intucell to reduce dropped calls all led to concrete improvements in the effectiveness and efficiency of the company's traditional operations. (Source: AT&T, Interviews)

Procurement can be the key enabler in digitization and startup collaboration. Today most telco organizations are not flexible enough in their policies, procedures, guidelines and cultures to grant startups access as suppliers to their portfolios. Their products and services might be fit for purpose, but startups and similar entities are not given the chance to prove themselves due to internal hurdles around procurement. Project sponsors and procurement leaders have to radically rethink their external engagement models to bring the best value to their organizations.

Example: KPN, the integrated incumbent operator of the Netherlands, fosters outside-in innovation through an integrated startup collaboration approach. The company facilitates contacts and knowledge exchange, joint product development, commercial and strategic cooperation, and financial investments among all relevant stakeholders in the ecosystem. In particular, KPN collaborates with startups, early-stage companies, universities and government bodies to develop innovative solutions in the areas of Internet of Things (IoT), smart home, digital healthcare, cloud services and cybersecurity. (Source: KPN Ventures, Interviews)

Refresh! your processes, governance mechanisms and cultures

Telecoms operators' internal and external processes, governance mechanisms and corporate cultures are often not fit for purpose for startups and young companies. Procedures and policies are legacy, often coming from different monolithic corporate eras.

Startups or startup-like companies are rarely considered in tendering processes due to not fulfilling the formal criteria, e.g., number of years in business, reference clients, yearly revenue, specific certifications and so on. Telecoms operators need to be open to integrating innovative companies into their business models. Procurement can play an important part in supporting innovation – so strategic alignment and buy-in are key.

Example: Leading European operator Orange set up a "startup-friendly" procurement process to better embrace and include startup engagements. This process allows lower pre-qualification standards as well as shortened payment cycles (i.e., less than 30 days), exclusively operationalized by a dedicated team within the procurement department. This "flexibility in procurement" has made the company one of the most attractive partners for startups in the industry. (Source: Interviews)

Telecoms operators need to ensure that mechanisms to integrate, onboard and manage young, innovative companies are in place. Operators need to facilitate an easy and simple on- boarding process, which is key in today's digital era.

A more significant issue is the corporate culture, which, in most large organizations, is resistant to disruption and change and tends to focus on potential risks. Such risks include those associated with procuring products and services from startups due to the newness of the business and the potential absence of a large-scale proof of concept or existing customer base.

Example: The open and cooperative culture at one of the world's largest telecoms operators helped, in a joint effort with a highly innovative early-stage supplier, to customize and implement a radically new billing functionality: commented, real-time video bills make it easier for customers to understand their bills, reducing complaints and increasing customer satisfaction. (Source: Interviews)

Telecoms operators need to ensure that they empower and reward their employees, especially in business functions, for taking calculated risks in allowing startups and startup-like companies access to their supplier or partner portfolios – even if only with minimum-viable products. This requires leadership commitment and an adjustment in relevant KPIs, as well as employee training and enablement. T

NEWS

Avaya and Sestek to bring voice-enabled smart technologies to Avaya platforms

Sestek becomes a member of the Avaya DevConnect Partner Ecosystem

Sestek, a provider of speech-enabled smart technologies announced today that it has become an Avaya DevConnect Technology Partner. Through direct R&D engagement, deep product integration, and strong support relationships, the Avaya DevConnect ecosystem delivers a wider range of technology options for Avaya users to drive their business forward and provide value to their customers, from ready-made solutions validated for interoperability to custom-tailored applications.

By joining the Avaya DevConnect Program, the two companies will explore uses of Sestek's advanced technologies with Avaya's leading communications platforms. Sestek will develop enhanced applications for Avaya platforms to provide customers with end-to-end solutions that address the evolving business challenges posed by digital transformation.

Avaya's DevConnect Program is intended to drive expansion of the open and agile Avaya application ecosystem so that more fully formed solutions can be delivered through its platforms. The program is designed to deliver more customer-centric outcomes for technology buyers, who can be confident that they are gaining access to the most advanced and innovative technologies they need to deliver solutions across the business.

"Our capabilities in voice biometrics, speech recognition, text-to-speech, and conversational AI, make us an ideal DevConnect Technology Partner for Avaya. Not only does Avaya recognize the importance of voice in the modern communications industry, but the company has made its platforms incredibly friendly to innovative third-party technology companies. We are eager to deliver solutions that solve our joint customers' business challenges," said Prof. Levent Arslan, CEO of Sestek.

"As voice continues to reassert itself as a key customer service channel, we're excited to see the value that Sestek's speech-enabled innovations can bring to our communications platforms. As we continue to expand our ecosystem, we're enabling a simpler delivery mechanism for these disruptive technologies, driving new applications for voice across the customer and employee experiences and greater growth opportunities for our channel partners," said Fadi Moubarak, Vice President – Channels, Avaya International. T

du announces its first health blockchain solution to ensure patient safety in UAE

du has announced its latest Blockchain Platform as a Service (BPaaS) use case by entering into a collaboration with Dhonor HealthTech – a national company focused on global healthcare blockchain solutions – to build Patient Safety Blockchain Solution.

du's BPaaS use case will empower and enrich lives through the country's first patient-centric safety verification blockchain solution. This builds on the telco's proud legacy of delivering life-changing technological solutions and will support the nation's progress towards achieving the UAE Blockchain strategy 2021 in creating a paperless economy and digitally transform the country.

Not only is Blockchain used for data integrity over a decentralized network, but it also ensures high security and transparency of data that allows a patient-centric approach to Blockchain in healthcare. This incorporates direct communication with key stakeholders, access to healthcare resources, and verification of authentic medicines, which are the main drivers of the Patient Safety Blockchain solution.
This solution is design on du's Blockchain platform as a service (BPaas) in order to provide authenticity and compliance traceability that delivers the transparency and trust that has eluded the healthcare industry to date. With immutable data, it has the potential to give all stakeholders access to reliable information, including the origin, state, and viability of use for medical products. The solution is based on NFC tags standards that enable access to Blockchain solution in order to verify if blood bags and pharmaceutical products are authentic across the medical supply chain.

du's BPaaS is a cloud native blockchain infrastructure that can provision private blockchain networks with a high level of customization, support multiple consensus algorithms, with monitoring, managing capabilities and smart contract capabilities which will give its users the ability to create blockchain networks, deploy and run their use cases, using intuitive UI (User interface). Without much knowledge of Blockchain networks configuration and DevOps, the platform supports Etherum and Hyperledger Fabric v1.3 frameworks.

Jihad Tayara, Vice President Business Development and Partnerships- New Business & Innovation, du, said: "du continues to be at the forefront of blockchain adoption in the UAE, and our BPaaS is a direct response towards supporting the objectives of the country's blockchain vision. BPaaS provides immense scalability, compatibility and cost efficiencies, but it also ensures high security and transparency of sensitive data. In the healthcare sector, protecting patient data is paramount, hence we are proud to implement the next deployment of BPaaS within the healthcare sector where it will contribute towards saving countless lives and raising the quality of care that patients receive."

'Empowering patients across the UAE'
"Through Dhonor's core business tenet as an advanced patient safety platform, our ability to empower patients through innovative technological developments will be significantly enhanced with du's BPaaS. The need for transparency and visibility to verify the authenticity and condition of the medicines that patients' lives depends on is essential. By adopting blockchain into our everyday operations, this will be an important step towards the digitisation of the UAE's healthcare sector and revolutionise patient-centricity," said Wassim Merheby, Dhonor Healthtech, CEO and Co-Founder.

'The First Patient Safety Blockchain Solution'
Patient-centric Safety standards are enabled with Patient Safety solution by checking & verifying of medicines and blood bags which helps the health authorities to address all 5 Patient Rights:
1- Right Patient
2- Right drug
3- Right dose
4- Right route
5- Right time

This most recent BPaaS use case builds on du's strategic partnership announcement with ConsenSys to build the UAE's first BPaaS, at GITEX technology week 2018. This was showcased through an exciting use case using smart contract capabilities to facilitate and automate the process of document and certificate attestation by government entities. T

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Drone are paramount for building safer and smarter cities

What makes a successful smart city? The idea of a smart city entails a synergy of various technologies that are deployed to transform cities or particular areas into more connected and safer environments to live and work. Technically that means that by using actual devices and sensors city can optimize the performance of city operations and services. This can be achieved by monitoring what's happening across the city, interacting with communities, managing the city's evolution, and generally improving the lives and safety of citizens.

Smart Dubai is the most successful smart city concept in the Middle East region to date and it continues to evolve every day. While there are multiple elements to this concept, number one objective of Dubai's government will remain to make this city the happiest place on earth where the quality of life and public safety will be remain government's top priority. Public safety is being constantly enhanced and Dubai is actively introducing new technologies, solutions, and campaigns to enhance emergency response that


Rabih Bou Rashid

guarantees the highest success rates in the world.

Last year the Dubai Police launched Android Emergency Location Service (ELS) that provides accurate location information to first responders during an emergency. According to the brigadier Kamil Butti Al Suwaidi, director of Operations Department at Dubai Police, 95 per cent of emergency calls come from mobile phones inside the country. The location is transmitted when an Android smartphone user contacts the emergency number. The same year, Dubai Corporation for Ambulance Services has launched ESEFNI ('Help Me' from Arabic) application that is designed to reduce the response time to emergencies. The first of its kind across the Arab world, the app is involving community members who are qualified to help patients and identify their locations to become first emergency responders. World's first rescue drone called Flying Rescuer entered UAE airspace in 2018 allowing Dubai beach-goers feel safer. Drone developed by the Dubai Municipality can transport up to four life buoys at a time and can also be used to drop off a rescue raft that automatically inflates when it hits the water.

While Dubai government is taking various steps to improve its emergency services that play an instrumental role is the betterment of the smart city environment, further

introduction of the unmanned aerial vehicles (UAV), or drones which is the widely known the term to the public, is paramount. According to the 2018 Center for Digital Government (CDG) survey conducted by DJI amongst 220 public sector leaders, 92 percent of respondents say drone technology will have a significant impact on state and local government in the USA. Public safety functions are also the top motivations cited by CDG survey respondents. A separate CDG analysis of requests for proposals (RFPs) involving drones found more than half (52 percent) come from public safety agencies, including law enforcement, corrections and fire departments.

There are several ways drones can help save lives and sooner these options are explored by the federal governments as well as private entities that operate within hazardous environments, faster smart cities like Dubai will reach their full maturity.

Search and rescue missions will probably top up the list of drones' emergency service applications today. From lost hikers wondering in the heart of Hatta's picturesque valleys to kayakers who have drifted due to the rough winter sea breeze, drones can be deployed to speed up the process where helicopters and night vision goggles fail to do the job. Where people can't help any further the thermal heat scans taken by the drones can deliver unmatched rescue operation performance.

Drones can significantly improve fire extinguishing process as they already have a better ability than the naked eye to detect wildfires and high-rise flames, similar to ones we often experience in Dubai during windy winter weather periods. Drones are also an instrumental asset when it comes to extinguishing fires, and in increasingly improved ways. While drones are great tools for scene monitoring, rapid 360 degrees assessment of burning structures and the ability to see through smoke with thermal imaging cameras, their active participation in the fire extinguishing process is what makes an enormous difference. By engaging drone technology during an active fire extinguishing efforts, many lives can be saved, not just those of the fire victims but firefighters as well.

Last but not least, ambulance drones can respond and deliver emergency equipment faster than any ground modes of transportation. In 2017 Dubai Ambulance piloted its first world's fastest cargo drone that will be delivering an automated heart defibrillator to a heart-attack victim in Dubai parks, beaches or public areas at speeds of up to 155 kph.

The delivery of defibrillators is just the first phase of the project and in the nearest future drones could carry other medical equipment to sites of road accidents and multiple injury events. It's important to note that the true first responders, whether that means bystanders or law enforcement, could have access to more tools faster, which would allow them to help victims more effectively until official emergency service teams arrive on the scene.

Drones are great policemen buddies and can be actively engaged in the hot police pursuits, but we are most likely to witness such scenes at a movie theatre rather than on Dubai roads. This city is getting smarter and safer every day and technology will remain just one element of its growing success. T

A historical record for Zain Saudi Arabia as 2018 full-year net profit growth soars to reach SAR 332 million (USD 89m)

Zain Saudi Arabia has announced historical record-high financial results for all key indicators for the full-year and fourth quarter ended 31 December, 2018 with the operator serving 8.1 million customers.

Zain KSA Key Performance Indicators (SAR and USD) for the Full-Year 2018

Total Active Customers	**8.2 million**
Revenues	SAR 7.5 billion - (USD 2 billion)
EBITDA	SAR 3 billion - (USD 800 million)
EBITDA Margin	40%
Net Income	SAR 332 million - (USD 89 million)

For the full-year 2018, Zain KSA generated revenues of SAR 7.5 billion (USD 2 billion), a 3%Y-o-Y increase of SAR 225 million, while EBITDA for the year increased by 20%Y-o-Y to reach SAR 3 billion (USD 800 million), reflecting an EBITDA margin of 40%. Net income soared to reach SAR 332 million (USD 89 million), reflecting a 27-fold increase on the 2017 full-year net income of SAR 12 million (USD 3.1 million).

Zain KSA Key Performance Indicators (SAR and USD) for Q4 2018

Revenues	**SAR 2 billion - (USD 546 million)**
EBITDA	SAR 1.1 billion - (USD 292 million)
EBITDA Margin	54%
Net Income	SAR 399 million - (USD 106 million)
Net Income	SAR 332 million - (USD 89 million)

For the fourth quarter of 2018, Zain KSA recorded revenues of SAR 2 billion (USD 546 million), a 19% increase to the same three-month period in 2017. EBITDA for the quarter reached SAR 1.1 billion (USD 292 million), reflecting a 54% EBITDA margin, up 86% from SAR 590 million (USD 157 million) recorded in Q4 2017. Net income for the three months reached an unprecedented SAR 399 million (USD 106 million), reflecting a marked improvement on the loss of SAR 45 million (USD 12 million) recorded for Q4 2017.

Bader Al Kharafi

Key Operational and Financial notes for the 12 months ended 31 December, 2018:

1. On 16 December 2018, Zain KSA signed an agreement with the Kingdom's Ministry of Finance (MoF), Ministry of Communications and Information Technology (MCIT), and Communications and Information Technology Commission (CITC) to consolidate and reduce the annual royalty fee for commercial service by 5% from 15% to 10% of net revenues retrospectively, backdated to 1 January, 2018. The financial impact of applying the unified annual royalty fees in the first nine months of 2018 resulted in a decrease of fees payable and provisioned for an amount totalling SAR 220 million (USD 59 million). The royalty reduction thus positively impacted the full-year 2018 and Q4 results when applied at the updated rate, with this 5% reduction set to positively impact the company's financial results going forward.
2. Furthermore, this aforementioned agreement included the settlement of disputed amounts related to the payment of annual royalty fees by Zain KSA to the CITC for the nine-year period between 2009 and 2017, under the condition that Zain invests further in expanding its infrastructure in addition to other conditions over the coming three years. Financial impact of this settlement is expected to reach SAR 1.7 billion (USD 453 million).
3. Additional relevant financial issues of note include:
a) Revenues increased by SAR 225 million (USD 60 million) as a result of the increasing demand for the company's appealing array of products and services.
b) Earnings before Interest and Tax (EBIT) improved by 35% (SAR 316 million), reflecting an EBIT amount of SAR 1.2 billion for the full-year 2018.
4. Zain KSA was able to reduce its accumulated deficit to SAR 1,800 million for 2018 representing 30.8% of its Share Capital of SAR 5,837 million, a marked improvement when compared to SAR 2,263 million for 2017 which represented 38.8% of its Share Capital.
5. Total capex investment for the full-year ended 31 December, 2018 was SAR 1.924 billion (USD 513 million)
6. During the fourth quarter of 2018, the Company made a second early voluntary payment for the Murabaha financing agreement amounting SAR 525 million, following a SAR 600 million voluntary payment in September 2018. The total voluntary payments since the refinancing of the Murabaha financing agreement in June 2018, brings the total voluntary payment to SAR 1.125 billion. These early payments in reducing debt portray the company's solid cashflow generation ability and shrewd cash management in containing interest charges as interest rates rise.

Bader Al Kharafi, Zain Vice-Chairman and Group CEO, and Vice-Chairman of Zain KSA commented, "Zain Saudi Arabia has experienced an incredible year placing the company in a much stronger fiscal position that will only get better. The year shall go down as a milestone for us and shall be looked back on many years from now as the year Zain KSA truly came into its own." T

Zong 4G and Huawei partner for digital transformation

Aftab Raza Khan

Zong and Huawei have announced a partnership for digital transformation. The partnership will see the integration of Artificial Intelligence (AI) and Big Data to enable Zong 4G in offering seamless connectivity and digitally enhanced solutions for its customers.

The collaboration will ensure development of state of the art system to utilize the new technologies in optimizing processes for network expansion through higher levels of efficiency. With the market leading capability for accurate prediction to meet the capacity demands, the technologically advanced solution will improve the network planning and deployment of new cell sites & existing network's Expansion, consequently, ensuring seamless network experience for more than 10 million 4G subscribers.

"By partnering with Huawei, we will enhance network planning and expansion to deliver uninterrupted connectivity for our customers. This partnership reflects Zong 4G's commitment of delivering the best possible experience to our customers. Through constant upgradation and enhancement of our network, our focus is to further improve our customers' satisfaction." Said Mr. Wang Hua, Chairman and CEO Zong 4G. T

Zong 4G celebrates 10 Years of Excellence

Zong 4G, Pakistan's No.1 Data Network commemorated "10 years of Excellence". The event was attended by Dr. Khalid Maqbool Siddiqui, Federal Minister for Information Technology and Telecommunication, His Excellency, Mr. Yao Jin, the Chinese Ambassador to Pakistan and Maj Gen (Retd) Amir Azeem Bajwa, Chairman, Pakistan Telecommunications Authority along with dignitaries from various government entities, telecom industry and the corporate sector. Over the years, through seamless integration of digital into the lifestyles of millions of Pakistanis, Zong 4G has been at the forefront of digital innovation and revolution across the country. The company has been a telecommunication network pioneer and a market leader, delivering on the many firsts of the industry. Being the first to launch 4G in Pakistan, first to cross the prolific mark of 10,000+ 4G towers and the first to reach the more 10 million 4G customers mark.

Dr. Khalid Maqbool Siddiqui, Federal Minister for Information Technology and Telecommunication, said, "Zong 4G has been a significant player in creating a digital ecosystem in Pakistan. Through its continued investments in the telecommunication infrastructure, the company has played a pivotal role in the uplift of the industry." He further added, "The Government of Pakistan remains committed towards the advancement of ICT led development and creating a knowledge based economy." T

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Ericsson lays out vision for cellular IoT with new segments and solutions

Outlines evolution of cellular IoT in four segments leveraging new capabilities with 4G and 5G to tap growth opportunities from industry digitalization

Introduces Broadband IoT and Industrial Automation IoT as new segments in addition to Massive IoT and Critical IoT

Ericsson has unveiled the next steps in the evolution of cellular IoT and launched new solutions that will enable service providers to address a larger part of the IoT market with diverse use cases across verticals including automotive, manufacturing, and utilities.

Ericsson outlines cellular IoT evolution in four market segments: Massive IoT, Broadband IoT, Critical IoT, and Industrial Automation IoT. Two of these segments are new – Broadband IoT and Industrial Automation IoT. Broadband IoT adopts mobile broadband capabilities for IoT and supports higher data rates and lower latencies than Massive IoT. Industrial Automation IoT will enable advanced industrial automation applications with extremely demanding connectivity requirements.

In line with its cellular IoT vision, Ericsson is launching enhanced functionalities for Massive IoT* and new solutions for Broadband IoT. One example of Massive IoT enhancement is the NB-IoT Extended Cell Range 100km, which stretches the standards-based limit from around 40km to 100km through software updates without changes to existing NB-IoT devices. This opens huge opportunities in IoT connectivity in rural and remote areas, particularly for logistics, agriculture and environment monitoring. Ericsson has deployed NB-IoT data connections up to 100km with Telstra and DISH.

The Broadband IoT solutions being launched include drone detection and link control, radio access network (RAN) slicing, Advanced Subscriber Group Handling, and Multi-Gigabit LTE for 2Gbps data throughput and around 10 millisecond latency. The new solutions will enable a wide range of use cases in automotive, drones, AR/VR, advanced wearables, smart manufacturing, and smart utilities.

Fredrik Jejdling, Executive Vice President and Head of Networks, Ericsson, says: "Cellular IoT is moving from early adoption with Massive IoT to global rollout. We are now describing 'what's next?' for our customers and how they can make the most out of their 4G and 5G investments on the same network and address more advanced IoT use cases across industries."

Evolving cellular IoT

Ericsson's evolution concept describes how cellular IoT can move from the more basic use cases of Massive IoT such as asset tracking and smart metering to increasingly sophisticated use cases enabled by Broadband IoT (for example infotainment in cars, AR/VR, drones and advanced wearables), and then by Critical IoT (for example, autonomous vehicles), and Industrial Automation IoT (for example, collaborative robotics in manufacturing).

This stepwise approach will make it easier for service providers to match cellular IoT capabilities with current and future use cases by continuing to enhance LTE networks while preparing for 5G. With effective use of techniques such as network slicing, service providers can support all four segments in a single network, allowing them to optimize their assets and tap into revenue opportunities within industries. According to the Ericsson Mobility Report, the number of cellular IoT connections is expected to reach 4.1 billion in 2024 – increasing with an annual growth rate of 27 percent.

Patrick Filkins, Senior Research Analyst, IoT and Mobile Network Infrastructure at IDC , says: "Ericsson has come up with a uniquely clear vision for cellular IoT with well-defined segments for service providers to address new business growth opportunities from industry digitalization. Ericsson's cellular IoT evolution concept will support service providers to incrementally allow add-on use cases even within a single vertical." T

2019 enterprise mobility trends in the Middle East

Aruba has identified specific technologies that will be game-changers in 2019 in the enterprise mobility space. Modern technologies like Artificial Intelligence (AI) and Machine Learning (ML) will make inroads, known solutions like the cloud and high-speed connectivity will consolidate their standing, and cyber threats will continue to plague enterprises. The major trend that we foresee will be the ability to draw insights about the network and its health and to maintain continuous uptime, which is a necessity in today's world.

Gamal Emara
Country Manager of Aruba, UAE

Here, are various trends in the enterprise mobility solutions space in 2019 that businesses in the Middle East should be aware about:

Insider threat and cybersecurity remains a priority

Networking solutions need to be secure, but more importantly, the ability to know who's on the network, know what's on the network, know what they're doing and then doing continuous monitoring to ensure that bad things are not happening, is going to be an equally important priority.

Cybersecurity will remain top of mind for enterprises in 2019. They must implement new tools that go beyond traditional cybersecurity measures, including user and entity behavior analytics (UEBA) solutions. UEBA can identify patterns in typical user behavior and alert IT teams when they notice abnormal or anomalous behavior, providing actionable intelligence that allows quick responses. By detecting anomalous behavior and enabling quick remedies, UEBA solutions can provide real-time protection that traditional systems miss.

Modernizing the campus core network

Enterprises have been on an IT modernization journey, and as more companies embrace mobility, cloud and IoT as part of their daily operations, they find that campus networks need to be refreshed as well. The campus network must be ready for demanding applications like voice and video, while ensuring strong security and be easily scalable as needs change. The network will need to be capable of being programmed and able to leverage analytics and telemetry to automatically adjust to changing application demands, while making the network easier to monitor and troubleshoot. As networks become more programmable and smarter, IT teams will spend less time on manual operational tasks and more time focusing on innovation.

Need for Blazing fast Wi-Fi speeds for **connectivity**

Next Generation Wireless will connect even more users, devices and remote locations at wired speeds in 2019. With BYOD devices expected to rise throughout 2019, the need to rapidly connect employees, offices and buildings rises too. As new and innovative technologies are increasingly being used in campuses, legacy wireless networks can be bottlenecks. The need for advanced wireless networks will become more prevalent as institutions, like schools for example, expand deployment of digital, collaborative and immersive learning environments across new and modernized buildings and campuses.

Cloud adoption extends to wireless networks

What once was a snail's crawl toward the cloud computing model, has become more distinctive recently, and studies have shown that enterprises are adopting cloud computing faster than ever before. Enterprises are investigating the benefits of managing wireless networks through the cloud. Yes, cloud is a different way of thinking about network management, but it's a far easier way to configure and manage networks at locations scattered around the country or the world.

Enterprise Safety

This is not a new trend, but in 2019 many large enterprises will take advantage of advanced technologies such as location-based services (LBS), in large schools for example, to enhance campus safety and security. Here's one example of using LBS to respond to an onsite threat event: first responders can have access to 4D visualization of buildings, showing reported threat locations, as well as entry and exit points and can provide real-time communication between staff, students and visitors to confirm which rooms have been secured and which rooms have not. This allows responders to focus on the correct areas - the ones needing the most immediate attention.

Surge in AI-Powered Analytics and Machine learning

In 2019, Machine-based learning will go mainstream in all areas of the campus. Limited staff and stagnant budgets are forcing IT to get creative in implementing smarter networks that utilize features incorporating machine-based learning and automated intelligence to augment deployment and support efforts. In the coming year, we will see an expansion of these technologies throughout the campus environment, impacting not just Information Technology, but Instructional Technology and Operational Technology as well. The network should be able to tell you how it's performing when problems occur and also the potential root cause. And even better – it can recommend optimizations when it detects things like new smartphone updates, changes to the network infrastructure, or even when the floorplan of a building is modified.

By monitoring the network from the user's perspective as well from the infrastructure itself, network operations teams will seek better access to the data they need, to easily identify root causes. Machine learning provides a faster and more prescriptive way to analyze the data. And ultimately, intelligent insights help fix potential issues before users are left with a lasting and negative impression of how the network performs.

Evolution of the MSP Model

MSPs are becoming more refined and are gradually aiming to deliver enterprise-grade solutions that are easy and simple to use and deploys. MSPs will grow to become virtual CIOs serving small and medium businesses (SMBs) by offering Network-as-a-Service.

Apart from managing an SMB's day-to-day IT operations, these providers will become active members of these customers' organizations and contribute to their success by recommending the latest advancements in networking technologies to support business goals in real-time.

Conclusion

With the increasing trend of the latest technological advances, companies have to invest a lot in improving businesses processes. Automation remains the key aspect of boosting companies' productivity and efficiency. The above-mentioned enterprise mobility solutions can play a crucial role in this department and companies that implement them will have a distinct competitive advantage over those that lag behind.

Jean-Pierre Brulard: 'Artificial Intelligence innovation key to UAE's digital transformation'

On a recent trip to the UAE, VMware's Jean-Pierre Brulard, Senior Vice President and General Manager EMEA, talked about how 2019 will be the year for the UAE to adopt Artificial Intelligence (AI) innovation in order to fuel nationwide digital transformation.

"Artificial Intelligence and machine learning will see major breakthroughs in 2019, and the UAE's government and industry verticals are ideally-positioned to encourage and adopt these to drive digital transformation," said Brulard.

Brulard predicts that, in 2019, businesses in the region – especially across education, energy, financial services, and governmental – will leverage the power of AI to confront security challenges.

"From Expo 2020 Dubai to Dubai's Smart City initiatives, AI is becoming the foundation for organizations to react to peoples' needs in real-time, predict how

government services will transform citizen experiences, and ensure that costs, security and innovation are optimized," says Brulard.

"The UAE's leadership is one of the most visionary in the world, encouraging connectivity and recognizing the potential for technology to serve as a force for economic growth and societal good."

Brulard believes the UAE has a tradition of leading digital innovation for the region – especially the UAE's Strategy for Artificial Intelligence, and the potential of this to drive digital transformation and drive the future economy.

Regarding technology infrastructure, he predicts that 2019 will be the era of the 'self-driving data center' – in which AI and machine learning will be deeply infused into private and public clouds, reducing complexity and driving the next generation of digital infrastructure. All achievable by laying a strong digital foundation.

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Starcom technologies is currently focused on Mobile Backhauling using Metro Fiber & Wireless (License Band & ISM band) VCS, IoT, WiFi, FTTH (xPON) & Wireless Radio solutions. Especially, it has expertise of ODN Planning, Designing, Supplies, and Laying of Optical Fiber Infrastructure Network. As well have Carrier Class Mobile Front haul & Backhaul hardware solution with flexibility. Starcom has expertise for Telecom implementations of BTS, MSAG,

> Starcom technologies is currently focused on Mobile Backhauling using Metro Fiber & Wireless (License Band & ISM band) VCS, IoT, WiFi, FTTH (xPON) & Wireless Radio solutions.

MSAN, MSAP, Routers, Switches, VoIP Gateway, FTTB, FTTC, FTTH and many more.

Starcom is specialises in Test & Measurement hardware solution for GSM/Mobile & Telco operators TDM, IP, Power, GPS, Synch-E & many more. it is the pioneer in providing Services to major Telco operators which consist on below key points and are supported by its three core service offerings:

- Professional Services - Consultancy & Design, Integration.
- Managed Services - 24x7 network support, management, SLA.
- Technology Services - Industry leading products, Configuration & Installation.

Group's Vision

- To keep the customer updated with innovation, occurring globally in Telecom Market and sync with it.
- To offer cost effective solution with cutting edge technology.
- To adopt customer approach and offer solution according to it.

Asghar Ali
Chief Executive Officer
STARCOM Technologies

- We believe in working closely with customer as their team member round the clock.

Starcom's Mission

To be the outstanding specialist provider of breakthrough communications solutions and services combining our passion, knowledge, and agility to enable our customers to continually exceed their business aspirations.

Strategy and - Key themes

- Continued acquiring latest technology for our customers
- Continuing our move up the value chain whilst investing in vertical skills Terms of reference: Increasing the delivery of business value.
- Taking advantage of the sourcing opportunity

Terms of reference: Increasing service efficiency & effectiveness. T

Omantel achieves significant milestone on its multi-play digital transformation, launching Optiva Charging Engine

Regional Middle East telco acts on its digital transformation strategy, offering to its customers new multi-play and converged products

Optiva Inc. an innovative software provider of mission-critical, cloud-native, monetization solutions to communication service providers globally, has announced the new phase and commercial launch of Omantel's multi-play billing and charging transformation on Optiva Charging EngineTM.

Danielle Royston, CEO of Optiva

Omantel, the leading telco provider in Oman and regional leader in the Middle East, is experiencing growth in its subscriber base as a result of massive acquisitions. The growth, coupled with an increased demand for mobile connectivity and specifically data, has made digital transformation critical for Omantel.

The successful launch of this new phase assists Omantel to further revolutionize its fixed-line and multi-play services. Omantel gains increased flexibility to create and tailor new products specific to its customers, launch new offerings to market faster and

> Omantel, the leading telco provider in Oman and regional leader in the Middle East, is experiencing growth in its subscriber base as a result of massive acquisitions.

engage with a larger variety of customers and businesses to generate greater business value.

"Optiva is integral to our corporate strategy and to our digital transformation. We count on Optiva Charging Engine and the payments solution as well as their reliable support, maintenance and managed services to allow us to monetize a variety of multi-play services, including mobile prepaid and postpaid, hybrid, fixed, cable and internet," said Samy Al Ghassany, COO of Omantel.

"Optiva is a strategic partner to us, and we look forward to our continued collaboration as our program enters its next phase of 5G, IoT and cloud transformation."

Omantel has earned a reputation as a trusted and innovative provider as shown by their partnership with the Oman Government Network. In this role, they support the government's telecommunication infrastructure and digital transformation, improving public services and providing a secure, reliable network.

"We are excited to be a key partner in assisting Omantel in achieving their

Samy Al Ghassany, COO of Omantel

corporate strategy and their digital transformation for their BSS ecosystem. Omantel's investment in their digital transformation and commitment to act on

> Omantel has earned a reputation as a trusted and innovative provider as shown by their partnership with the Oman Government Network.

their multi-play strategy will allow them to provide a world-class experience to their customers and ultimately increase revenue while retaining their base," said Danielle Royston, CEO of Optiva. T

Avaya - UAE Consumers Demand 'SuperService'

Four-in-five UAE consumers expect an immediate response from the organizations and vendors they contact—part of a growing demand for 'SuperServe' customer engagement, according to the research conducted by Avaya and Davies Hickman Partners.

The two companies polled 8,000 consumers across Australia, France, Germany, Italy, Saudi Arabia, Singapore, South Africa, the UAE and the UK, on their views on interacting with large organizations. The findings reveal a demand among consumers for 'SuperServe' organizations—those that go above and beyond typical levels of service to anticipate and act upon customer requests.

According to the report, 82% of UAE consumers believe that large organizations should make customer contact easier, compared to a global average of 79%. The report also found that UAE consumers are more demanding of SuperServe organizations, with 86% wanting an immediate response from the organizations they contact. That figure is compared to the global average of 79%. What's more, UAE consumers are prepared to support organizations that make interacting with them easier. 81% of those surveyed said that convenience is more important than price, compared to 63% of consumers globally, who said the same thing.

"SuperService is becoming a key demand among UAE consumers. We have conducted this research biennially since 2010, and this year's results shows that customers will remain loyal to organizations that provide outstanding customer service, across every channel, and make communication easy," said Fadi Hani, Vice President – Middle East, Africa and Turkey, Avaya.

"Based on this research, the path to becoming a SuperServe organization involves taking on four key considerations. The first, and most obvious, is that SuperServe organizations will provide easy and immediate responses to customer queries across any channel. Secondly, they'll re-think the self-service model by implementing new technologies that empower customers, rather than offload work onto them. They will also augment new channels with AI and predictive analytics. Finally, SuperServe organizations will extend the stellar customer experience to the entire enterprise, meaning employees are just as empowered as the customers they're serving."

Certainly, the UAE consumers polled for the report expressed a desire for large organizations to adopt emerging, advanced technologies that will improve the customer

experience. Over 60% said they'd like to use a smart speaker such as an Amazon Echo to access customer service, while 78% would like to use voice biometrics to bypass identification and verification questions. Those figures compare to global averages of 50% and 71% respectively.

The research also found that consumers in the UAE would be happy to deal with organizations that use AI and predictive analytics to improve the customer experience. Over four in five say they like it when organizations notice if they're having difficulty with a process, and 59% want AI to notify them if there's a problem with a product or service. Additionally, UAE consumers expressed trust in the algorithm; 63% want AI to make better recommendations about new products and services.

Despite this desire to interact with organizations in exciting and advanced ways, however, the report noted that voice remains a crucial part of the customer experience. Almost two-thirds of UAE consumers prefer using the phone to explain customer service problems, and 73% say they get the best answer to queries by using the phone.

"SuperServe organizations recognize the importance of high-quality human interactions, and will provide a contact center service that leverages AI to anticipate customer needs. The organizations aiming to be successful will also make it possible to provide the same great experience across every channel—be it social, chat, email or phone," said Hani.

SuperServe companies in the UAE do, however, need to be careful around the use of personal data, if the report is anything to go by. The results show that consumers do buy more from organizations that make it easier to do business with them, but 84% worry about security when giving out credit card details over the phone. What's more, 78% believe that large organizations are not handling their data securely.

"Too often, protecting personal data inevitably means poor customer experience as extra layers of interaction, data or passwords are required. SuperServe organizations will utilize technology to help enhance security whilst improving customer ease going forward," added Hani. T

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Zain Group introduces revolutionary HR policy embracing Working Mothers

Zain Group has introduced one of the most progressive and innovative human resources policies in the region, providing female employees who become new mothers with four months of paid maternity leave, with a flexible schedule for returning to work.

This restructured leave policy, which falls under the Human Resources Policy Transformation theme, will be rolled out as a Group-wide initiative ensuring a unified approach to the program.

The new policy soon follows the creation of a new senior position within the organization, namely Chief Inclusion and Diversity Officer, to drive Empowerment initiatives that define, enhance and continue to cultivate an equitable work environment within all Zain operations.

The introduction of flexible working models has also been designed including six-hour work weeks for mothers with children up to four years old and an optional compressed working week enabling working mothers to work more hours over a compressed week to avail one day off. The incoming flexible work program will complement Zain Group's recruitment, retention and development efforts, as the company shows itself to be an organization in tune with the needs of female employees to balance their careers with their family responsibilities.

The announcement follows the hosting of the second annual Gender Diversity (WE) conference held in Kuwait in November 2018, where Zain Vice-Chairman and Group CEO, Bader Al-Kharafi, the brainchild of the WE initiative, first announced the significant regional first regarding the application of flexible hours for working mothers with children up to the age of four years.

Commenting on the new HR policy, Bader Al-Kharafi said, "As a leading innovative corporate entity in the region, it is incumbent on us to providing more supportive working environments for female employees and forging an inclusive working environment."

He continued, "There are very few companies globally that offer a uniform family leave policy and we are proud to be bringing new standards of human resources support and implementation to the region. As an organization we are already well on the path to empowering our female counterparts on numerous levels, and this new maternity leave and flexible hours policy for working mothers will add further momentum to our efforts."

Once the new HR policy is fully implemented, Zain Group's Human Resources team will measure the impact and effect of the policy, through annual engagement surveys, the cost benefit involved such recruitment and retention and the number of returning mothers.

Zain's WE program has already scored major successes in raising the profile of women in the organization, with the organization working towards increasing female leadership positions within the organization from 14.5% to 25% by 2020; and ultimately evolving towards a gender diverse workforce. T

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19 - 21 March 2019

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01 - 03 April 2019

IoTx
Dubai, UAE

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07 - 09 April 2019

5G MENA
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18 - 20 June 2019

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August 2019

TechExpo
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09 - 12 September 2019

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