

This PDF is provided by the International Telecommunication Union (ITU) Library & Archives Service from an officially produced electronic file.

Ce PDF a été élaboré par le Service de la bibliothèque et des archives de l'Union internationale des télécommunications (UIT) à partir d'une publication officielle sous forme électronique.

Este documento PDF lo facilita el Servicio de Biblioteca y Archivos de la Unión Internacional de Telecomunicaciones (UIT) a partir de un archivo electrónico producido oficialmente.

جرى إلكتروني ملف من مأخوذة وهي والمحفوظات، المكتبة قسم ، (ITU) للاتصالات الدولي الاتحاد من مقدمة PDF بنسق النسخة هذه رسميةً إعداده

本PDF版本由国际电信联盟(ITU)图书馆和档案服务室提供。来源为正式出版的电子文件。

Настоящий файл в формате PDF предоставлен библиотечно-архивной службой Международного союза электросвязи (МСЭ) на основе официально созданного электронного файла.



Smart digital transformation – what's next?



Arr Pel Si Sid to tak

Smart Spectrum Solutions



Systems Solutions and Expertise in Spectrum Management, Spectrum Monitoring and Radio Network Planning & Engineering.

Towards a world of smart digital transformation

Houlin Zhao, ITU Secretary-General



This edition of ITU News Magazine captures key insights on the important issues discussed at ITU Telecom World – issues that are only increasing in relevance as we head into 2018. rom smart cars to smart cities, we are living in a world where products, services – and increasingly whole industries – are making innovative use of information and communication technologies (ICTs) to improve our lives.

The growing trend to integrate manufacturing with smart technologies promises tailored products to meet individual customer requirements at low cost and in high quality, with huge impact for companies, economies and societies across the globe. This is 'Industry 4.0', or the 4th Industrial Revolution, demonstrating the enormous transformative potential of smart technologies in all aspects of life.

Indeed, the potential is enormous. But realizing it involves a range of challenges in the realms of technology, policy, society, regulation and business.

How can traditional telecommunications companies adapt to the rapid industry changes and transform their business models and operations to stay competitive? How can regulatory models adapt to meet new needs for cross-border services? How can governments foster the growth of Small and Medium-Sized Enterprises (SMEs) to help fuel the ICT innovation that powers the digital economy?

The new technologies that will power our smart future require international standards in order to provide seamless, interoperable services on a global scale; fair and meaningful allocation of radiofrequency spectrum; and unqualified privacy and security.

(Editorial)

ITU is well-placed to provide global leadership in this regard and earlier this fall, **ITU Telecom World** brought together public and private sector leaders from developing and developed markets around the world to exhibit, debate and network on the theme of smart digital transformation, its impact and opportunities.

This edition of ITU News Magazine captures key insights on the important issues discussed at ITU Telecom World – issues that are only increasing in relevance as we head into 2018, a year set to bring rapid advancement in smart technologies.





2

(Contents)

Smart digital transformation – what's next?

(Editorial)

1 Towards a world of smart digital transformation Houlin Zhao, ITU Secretary-General

(Digital transformation)

- 4 How can telcos transform themselves?
- 9 Smart banking for smart cities
- 12 CTOs discuss how AI will affect 5G network standards

(Innovation economy)

- 16 Investors share tips for tech startups in emerging markets
- 19 How a Japanese startup uses smart tech to improve prenatal care
- 21 How Malaysia is embracing digital innovation to become 'future proof'
- 22 Spotlight shines on the winners of the ITU Telecom World Awards 2017

(Smart Republic of Korea)

- **25 How the Republic of Korea became a world ICT leader** By Theadora Mills, ITU News
- **31 The Republic of Korea's innovation economy** *By Theadora Mills, ITU News*

(Thought leadership)

- **35 Digital reinvention no longer a choice** By Rob Van den Dam IBM Institute for Business Value
- **38 Reinventing telcos: What's needed now? What's next?** By Dean Bubley Founder & Director of Disruptive Analysis



Cover photo: ITU/YEO

ISSN 1020-4148 itunews.itu.int Six issues per year Copyright: © ITU 2017

Editor-in-Chief: Matthew Clark Art Editor: Christine Vanoli Editorial Assistant: Angela Smith

Editorial office/Advertising information: Tel.: +41 22 730 5234/6303 Fax: +41 22 730 5935 E-mail: itunews@itu.int

Mailing address: International Telecommunication Union Place des Nations CH-1211 Geneva 20 (Switzerland)

Disclaimer:

Opinions expressed in this publication are those of the authors and do not engage ITU. The designations employed and presentation of material in this publication, including maps, do not imply the expression of any opinion whatsoever on the part of ITU concerning the legal status of any country, territory, city or area, or concerning the delimitations of its frontiers or boundaries. The mention of specific companies or of certain products does not imply that they are endorsed or recommended by ITU in preference to others of a similar nature that are not mentioned.

All photos are by ITU unless specified otherwise.



How can telcos transform themselves?

elecommunications companies (telcos) face enormous opportunities and challenges in a greatly disrupted industry.

In order to seize the opportunities, reverse downward revenue trends, and connect more customers to more new services worldwide, telcos must evolve much more rapidly. In some cases, they must transform their business models, overhaul operational procedures and redo their human resources training and recruitment policies. This was the consensus among a group of industry leaders and analysts gathered at the **ITU Telecom World 2017** in Busan, Republic of Korea earlier this fall.

Telecommunications is "the only industry where volumes are growing 40-60% a year, but revenues are shrinking," said Maikel Wilms, Director of the Boston Consulting Group, Netherlands, in a panel discussion on The transformation of telecom operators: reinventing telcos. He added that there will be some 500 billion euros in industry investment in western Europe in the coming years. "The return is not there if nothing changes," said Wilms.

Security and privacy – key to any digital transformation

There are real opportunities to use technologies to transform not just the telecom industry, but many industries, such as healthcare, energy, and others, says Hossein Moiin, technology advisor for Nokia.

"Smart digital transformation means that we use technology to improve our lives, and what I mean by that is that we are very cognizant of the benefits, but also the pitfalls of new technologies," said Moiin, during an interview on the sidelines of the ITU Telecom World event in Busan, Republic of Korea. "Any transformation will have positives, but also side effects that we need to mitigate and have plans for."

In the next five years, the key will be to spread new technologies "to the broad society, but in a manner that respects fundamental human rights, such as privacy, such as security," said Moiin.

Moiin also discussed how Nokia is approaching the rollout of 5G infrastructure and services. ■



Watch the video to learn more

And if telcos think the industry is disrupted now, Wilms predicted that the landscape will soon be some 10 times more fragmented than it is today. This will soon cause telcos to really consider their unique value propositions.

"You need to figure out which assets you can invest in that are relatively unique," he told the panel and the audience. "Unless you have a pretty good notion of where you're going to be differentiated, there's a risk you will not be able to monetize anymore."

Where is the industry heading?

It is clear that the telecommunications industry is headed towards providing a wider range of services. What is less clear is: which services and for whom?

Rob van den Dam, Global Telecommunications Industry Leader for the IBM Institute for Business Value at IBM Netherlands said his group interviewed 5000 industry leaders last year to try and find out where the industry is going. It was very clear that there is great angst over "the Uber syndrome" – the fear of competitors coming out of nowhere. Some 75% of telcos were worried about this, he said.

What will be the new sources of revenue? Almost all of those surveyed said IoT (the Internet of Things), said van den Dam. But then when asked the follow-up question about "How does that really work? there was often silence," he said.

Opportunities: enterprise, video, IoT

After getting higher efficiency, telcos need to be more agile to go where customer needs are going, says Mohamed Madkour, VP of Global Wireless Network Marketing, Huawei Technologies, China.

"The pie will not be bigger unless we all transform. Everyone needs to be quicker to market," with new products and services based on shifting user needs, said Madkour.

The three biggest areas of promise for telcos moving forward, said Madkour, are enterprise IT connectivity, video, and IoT.

He stressed the need to get into cloud services and video. "Cloud and connectivity are two sides of the same coin," he said. "They have to go together."

But he pointed out two major roadblocks: 1) a conflict between long-term and short-term financial goals, and 2) cultural resistance to change within large telcos.

Cultural resistance to change

Others flagged that cultural resistance was a big stumbling block, and shared some insights on how to overcome that.

"The most difficult thing to change is the culture," said Saiful Hidayat, Director of Telkom Group Transformation Project at Telkom Indonesia, pointing out that it is challenging, but now necessary, for telcos to invest and work with the likes of railroad companies, central banks, and payment businesses.



The most difficult thing to change is the culture.

Saiful Hidayat, Director of Telkom Group Transformation Project, Telkom Indonesia

Jean Michel Serre, CEO of Orange Labs Tokyo, Japan, said that his group is focusing on partnering with different actors in the region to drive innovation within Orange as a legacy telco. Specifically, his group is focused on accelerating startups.

"We think that startups will be key in our transformation. We have started more the 20 startups and aim for 500 by 2020," said Serre, adding that part of the goal is to change the culture to one of innovation and to inspire employees to take ownership of building new ways of doing business. "We think we have to focus on helping these employees to be actors in this transformation, to change their way of management, to have an open way of coping with the world."

While most people seemed to agree on the importance of creating a culture of innovation that embraces the changes as opportunities, some pointed out that human resource concerns go beyond culture.



We think that startups will be key in our transformation.

Jean Michel Serre, CEO of Orange Labs Tokyo, Japan

"Clearly culture is a challenge, but the biggest challenge we see is the inability to attract the right talent," says Wilms of Boston Consulting Group. "The talent doesn't go to the telcos. We will need to attract that talent to be successful in the future."

How can regulation help?

IoT, Big Data, 'cloudification' of services all have great potential to drive innovation and help telcos transform their business models as needed, but where does regulation come in to help or hinder the changes needed in today's dynamic marketplace?

"The sectors are getting more and more intertwined. The speed of development is so fast that it's very difficult for regulatory bodies to keep up with it," said Beate Degen, Partner, EY, Germany.

'Smart digital transformation' in Indonesia

Indonesia's Communication and Informatics Minister Rudiantara was one of dozens of high-level officials who stopped by the ITU Telecom World 2017 video studio to share what his country is doing to use technology to accelerate development and improve lives.

He explained that for Indonesia "smart digital transformation" means answering the question of how to maximize the use of digital technology to the benefit of all people, not just those in big cities.

For the 60% of Indonesian people who live in Java, information and communication technology (ICT) infrastructure is more than adequate, he said, adding that entrepreneurship is flourishing through technology. More than 50% of Indonesia's economy in GDP is comprised of micro, small and medium enterprises, and Java has been the beneficiary of big commerce marketplace platforms such as Tokopedia.

But for the rest of the 17 000 islands, it is also crucial to narrow the gap, he said, which is why Indonesia is focusing on building the ICT infrastructure, and has as its goal to connect all regions of Indonesia to broadband by 2019.



Watch the video to learn more

$\bullet \bullet \bullet$

Indeed, with all this disruption, "regulation is vastly outdated in many parts of the world and not fit for purpose," says Natasha Jackson, Head of Public Policy & Consumer Affairs, GSMA, United Kingdom. "The regulations need to be much more flexible and future-proof."

Robert Middlehurst, Vice President of International Regulatory Affairs at Etisalat said that "regulators should ask themselves: 'How do we move from a traditional telco-based law, to one based on provision of services?'"

"As we look toward the next stage of evolution ... [software-defined networking] SDN, softwarization, cloudification of services ... regulation, which is country-specific, doesn't allow us to do it," said Middlehurst. "If I want to provide services in Egypt, but run it out of UAE, I can't do it."

Policymakers really need to look at what's outdated, said Jackson. For operators who are regionally based, not being able to transfer data across borders really hurts their ability to scale. Startups could go global faster if they could share data globally. Governments that are putting these restrictions in are inhibiting growth, said Jackson, who pointed out that GSMA is running capacity building training courses on mobile industry change that are free for policymakers. "Things are changing so fast, we're having to constantly update them," she said referring to the courses.

Jackson also said that regional mechanisms can become global if they are good models and explained that GSMA is working with member states of the Association of Southeast Asian Nations (ASEAN) to do uniform regulatory standards for data usage, building on bilateral and regional discussions. As a country in the middle of the development spectrum, Indonesia has "to learn, what [...] the advanced countries [are] doing, how to develop the digital technology, how they can maximize technology to the benefit of people," said Rudiantara.

For Indonesia, this is one of the main objectives of attending ITU Telecom World, said Rudiantara, who offered to share Indonesia's experiences with others who may find the information useful. ■

She recommended the ASEAN and the Asia-Pacific Economic Cooperation (**APEC**) regulatory frameworks as good examples in which the mechanisms work well.

So how can regulatory best practices be shared around the world to lead to cross-border policies that don't inhibit growth and the change needed for operators to survive in today's environment?

"It's really crucial to develop cross-border policies that work," said Danielle Jacobs, Chairman, International Telecommunications Users Group, Netherlands. "With the change happening so fast, maybe there's a need for ITU or someone else to help foster the discussions."

8

44



Smart banking for smart cities

Al is going to eliminate jobs.

Jobs will not be eliminated, they will simply change. "

his was a central line of debate at a session on 'smart' banking for smart cities at **ITU Telecom World**, held in the smart city of Busan, Republic of Korea. The key question at the heart of it all was: How will stakeholders in smart city banking, from government to telcos, financial institutions and regulators, need to re-position and collaborate in the age of Artificial Intelligence – and what is the impact for society? "70% of the world do not trust their government or their banks," asserted Toufi Saliba, CEO of the blockchain advisory group PrivacyShell and Toda-Algorand. This has opened the door to new business models for banking, and has allowed Al-supported blockchain and cryptocurrencies to come in, in a big and disruptive way, he said.

As a serial entrepreneur, he was optimistic that new user-centric governance aka decentralized banking services could bring financial inclusion to more people than ever before.

"To homosapiens, money is a necessity, just like water and oxygen, people will be in control of their own money," he stated in a comment to ITU News.

The role of blockchain

Blockchain technologies are increasingly becoming the backbone of decentralized smart banking.

"73% of banks have some blockchain and 100% will have by the end of the year. As a phenomenon, it has taken hold," said Jane Treadwell, Practice Manager of ICT, Digital Platforms and Solutions at The World Bank.

Extending financial services and building trust

There are currently 1.2 billion people without a formal or registered identity and there are 2.9 billion without a bank account, said panelists – so how can new financial services reach these people, considering 3.9 billion citizens are still without Internet and connectivity?

According to Jane Treadwell, the role of government in the increasingly connected age should be to "facilitate the closure of the gap."



73% of banks have some blockchain and 100% will have by the end of the year. As a phenomenon, it has taken hold.

> Jane Treadwell, Practice Manager of ICT, Digital Platforms and Solutions at The World Bank

The **first symposium of the Financial Inclusion Global Initiative (FIGI)**, was held recently in Bangalore, India.

FIGI is a three-year programme of collective action led by ITU, the World Bank Group and CPMI, with support from the Bill & Melinda Gates Foundation. The initiative is designed to advance research in digital finance and accelerate digital financial inclusion in developing countries. Read more <u>here</u>.

FIGI symposium

Bengaluru, India

#financialinclusion



Danial Mausoof, Head of Strategic Marketing for Nokia Asia Pacific and Japan, said that from the infrastructure perspective, regulation has been a block to connecting the 3.9 billion and that's what heralded the uptake of new platforms coming in – including Al and blockchain – enabled by the smart phone as the device that we interact on and connect to these new technologies.

In the smart cities of the future, the outcomes of these advancements may be even greater in emerging markets than in the developed countries, but a key element will be ensuring users' trust in these AI-enabled systems.

On the need to build trust in these new systems, Satoshi Amagai, President & CEO, Mofiria Corporation, talked about new authentication technologies that could help foster confidence in these new banking systems. Many of which are already well-known, such as finger print and facial recognition, other newer methods such as vein recognition may prove even more secure.

The AI debate and regulation

Throughout ITU Telecom World 2017 discussions, many debates centered around the disruptive nature of tech innovation – especially for telecom regulators trying to respond to overthe-top (OTT) players and AI-enabled, self-regulating systems.

A key takeaway from the lively and engaging debate around jobs, was made by Nokia's Mausoof when he said, "The narrative [of eliminating jobs] is slightly disruptive. Why not engage the regulators – not scare them into thinking they don't have a job. It's simply changing... Same argument with jobs. Jobs will not be eliminated, they will simply change."





CTOs discuss how AI will affect 5G network standards

wenty industry executives met in late September 2017 with senior ITU management for the ninth invitationonly CTO Meeting, which was held in Busan, Republic of Korea on the eve of the annual ITU Telecom World 2017 event.

Chief Technology Officers (CTOs) and other top executives from companies such as KT, Ericsson, Fujitsu, Huawei, Orange, Nokia, Samsung, ETRI, KDDI, NEC, Tunisie Telecom, Telkom (Indonesia), Trace Media, KT, TTC, and NICT discussed a range of topics, which included a focus on how machine learning and artificial intelligence (AI) could help power smart 5G networks. They also highlighted the importance of international standards to improve networks and reduce operational costs at a time of great change.

"This type of change has not happened in our industry before," said Lauri Oksanen, VP of Research and Technology for Nokia, referring to new high-bandwidth and low latency requirements driven by data-heavy consumer usage as well as interconnected smart cities, ports and factories. "If VR [virtual reality] really takes off, that will really increase the bandwidth requirements a lot. ... This is one of the things that we as an industry need to look into."



At a time when operator margins are getting squeezed, everyone is looking for better ways to get more efficiency out of their networks.

Dr Dong-myun Lee, CTO and Senior Executive Vice President of KT

Oksanen shared a presentation on network architecture evolution toward smart 5G systems by saying that ITU has been successful in building widely recognized technological leadership in transport networks. That leadership has been beneficial for the telecommunications industry as a whole and should be maintained as a common asset, he and others agreed.

Intelligence for network automation, augmentation and amplification

Operators seized the opportunity to share how they offer Al-enabled services as a unique selling proposition to their subscribers. Korean operator KT, for instance, gave numerous examples in a presentation that also showed fellow executives and senior ITU management examples of how AI and operator data helped plan urban night bus routes and prevent contagion.

At a time when operator margins are getting squeezed, everyone is looking for better ways to get more efficiency out of their networks, said Dr Dong-myun Lee, CTO and Senior Executive Vice President of KT. He also asked ITU to find a way to solicit from operators best practices on how to apply AI for more efficient networks.

In the context of future 5G systems, AI methods will allow for a better understanding of the behaviour of both users and the network, enabling the optimization of the use of scarce radio resources and the prediction of related decisions' impacts over time.

Automatic detection and resolution of anomalies and other incidents of inefficiency, as well as predictive maintenance, will help limit operational costs of network operators, and service providers in other sectors, participants agreed. They also urged that new studies should cover an analysis of existing and emerging standards and specifications in this domain.

Convergence calls for flexible networking solutions

CTOs agreed that the use of intelligence and virtualization techniques at the network edge constitutes yet more evidence of the convergence of the IT and telecommunications sectors. Convergence, and the entrance of fast-growing "over-the-top" (OTT) players and other industry sectors to the ICT ecosystem, yields a new set of requirements to be met through common, flexible, programmable and scalable networking solutions.

CTOs called for ITU's standardization arm, **ITU-T**, to take these new requirements into consideration, addressing short-distance, large-bandwidth and low-cost datacentre interconnection, edge cloud inter-networking, and emerging fronthaul and midhaul technologies to support the deployment of 5G systems.

Participants also encouraged ITU-T to engage with OTT and vertical sector organizations to identify, understand and respond to networking requirements in a timely and accurate manner.

"ITU-T needs to consider how to absorb OTT and vertical industry players into ITU-T network standards work by winning their trust," said Huawei's Noah Luo, Senior Manager Standard and Industry Department, Europe. This would help to avoid further fixed-network industry fragmentation, he and others agreed.

Responding to the call

To demonstrate ITU-T's responsiveness to this call, ITU's Telecommunication Standardization Bureau Director, Dr Chaesub Lee, mentioned recent visits to Google and Facebook and new memberships from auto and finance companies such as Hyundai Motors and eCurrency. Other ITU participants mentioned promising meetings with Amazon Web Services and Akamai as evidence of new moves to embrace new players.

ITU management also briefed the CTOs on ITU's standardization work, including new initiatives on 5G, artificial intelligence (AI) and distributed ledger technologies such as blockchain.

Dr Lee, extended an invitation to the CTOs to participate in a meeting of C-level executives of ICT companies, and invited guests representing other industry sectors, in December in Dubai, the United Arab Emirates.

The live and kicking!

Some 400 ITU titles currently available on an annual subscription basis through a new partnership with OECD.



(Innovation economy)



Investors share tips for tech startups in emerging markets

uture economic growth for many
countries will increasingly depend on
domestic tech innovation.

That's why the annual **ITU Telecom World** event is increasingly focused on including the tech startups and small and medium enterprises (SMEs) that are at the forefront of disruption and growth.

However, attracting investment is not always easy for many tech startups in emerging and frontier markets. Lack of access to capital, especially follow-on growth capital, is regularly cited by entrepreneurs in these markets as one of the key barriers to growing their businesses.

So how can tech SMEs attract investors? What are investors looking for? And how can leading stakeholders better enable investor confidence, and create a virtuous cycle of investment, growth, exits and re-investment in their domestic ecosystems?

A panel discussion of investors took on all those questions and more at ITU Telecom World 2017. Here are some of their top tips.

(Innovation economy)



What we as investors are interested in is: 'What is your exit strategy?'

Richard Wnuk, Blue Heron Ventures

Make sure your business model is tight

"You've got to tell us how you're going to make money. It's about the business model, not technologies," said Omobola Johnson, Partner at Nigerian venture capital fund TLcom Capital. "For many of the entrepreneurs in Africa, it's their first time and they focus on revenue" rather than profit.

"In Africa, there's a discipline needed," said Ms. Johnson. "Show me a pitch deck that's only 4-5 slides and no more than 5-10 minutes. Show me a 3-5 year plan." Richard Wnuk, a senior advisor at Blue Heron Ventures said his fund used to adhere to a "spray and pray" strategy of investing in many promising startups. But now they insist on seeing a revenue model that is defendable.

"Don't do projections on market size. Don't say it's a \$100 million dollar market and we're going to get 2%," said Wnuk. "We're becoming more and more interested in justification of all your numbers, all your facts."

"What we've been seeing is a big disconnect between the entrepreneur with a tech background and the business plan," said Wnuk. "What we as investors are interested in is: "What is your exit strategy?"

Stay focused on customer needs

The panelists agreed that entrepreneurs are often too focused on improving the product and lose sight of customer needs.

"Make sure your product-market fit is very tight," advised Johnson.

Nathan Millard, CEO & Co-Founder of G3 Partners in the Republic of Korea also stressed the need to create a feedback loop of customer insight.

"Chase your customers," said Millard. "Find out who they really are. Make sure they really need your product."

Build a good support system

The group emphasized the importance of a good team.

Wnuk stressed the importance of a support system whereby entrepreneurs surround themselves with people that have skills in finance, legal, marketing, and other domains, so they are not just focused on the product.

"What we're looking for is an entrepreneur or a group of entrepreneurs who understand this and understand what they're going to do, the steps necessary to do it," he said.

Regulatory risk is a key issue

Regulatory risk in emerging markets was a key point during the discussion.

"The feeling with a lot of people is that there is a difficulty with dealing with certain governments in emerging markets, such that it's not worth investing in companies in those countries," said Wnuk. "The company needs to show us a clear path through regulatory risk."

'Don't take easy money'

"Don't take easy money from investors," said Peter Jaewon Chun, CEO, XnTree, United Kingdom. "You need to have investors that are lined up with your philosophy and goals."

"You have to do your homework looking at the different investment companies," said Wnuk. "You've got to ... be in control and understand what different investment companies are looking for. You have to keep your ownership position in a way that you're comfortable with."



How a Japanese startup uses smart tech to improve prenatal care

omomi Takagi, CFO of **Melody** International, spoke at ITU Telecom World 2017 in Busan, Republic of Korea, about his startup that is using smart technology to improve lives.

Telemedicine company Melody International develops prenatal devices and telemedicine platforms for pregnant women worldwide.



There are many areas, even in a crowded country, like Japan, where there are very few obstetricians available. So sometimes, pregnant women have to drive over an hour to see a doctor and it may become a very big burden for her.

> Tomomi Takagi, CFO, Melody International

Their mobile cardiotocograph (CTG) consists of a monitor that checks a fetus' heart rate and the mother's contractions and then transmits data to doctors to allow them to remotely check a baby's condition.

In many developing countries where there are few or no obstetricians, this device allows pregnant women to avoid long-distance travel to see a doctor, and trials have already been conducted in Thailand in partnership with Chiang Mai University in the rural northern areas where there are few obstetricians.

The small and light device allows pregnant women to check their fetus' condition at any time, and the data transmission function allows communication of data to monitors, laptops, and smartphones.

Takagi said that Melody is looking for local partners, particularly in developing countries in Asia, where the solutions can make a real difference.

<image>

How Malaysia is embracing digital innovation to become 'future proof'

EO of the Malaysia Digital Economy Corporation, Datuk Yasmin Mahmood, joined the studio at ITU Telecom World 2017 in Busan, Republic of Korea, to talk about how to "future-proof" our nations and the importance of striking the right regulatory balance to allow innovation to soar.

"To develop, to champion the digital economy ... this is a very important agenda, not only for Malaysia but all countries. And it's about ensuring that we are able to 'future-proof' in a way, our nations in a world where digital innovation is becoming so disruptive," said Mahmood. "So I think, embracing digital innovation for the social and economic benefit of the country is no longer a question of 'should we?' or 'why?' It's a question of 'how do we do it?""

What is important for a country is to ensure that policy is not only about regulating but also about enabling, she said.

When it comes to growing the digital economy, Malaysia has two key focuses right now, said Mahmood.

One is "to ensure that our talent – our future talent, especially – are not only consumers of digital innovation, but also can be innovators and producers of digital innovation. So how do we shift that mindset?"

The other focus is around enabling and encouraging the startup ecosystem.

You have to put the bet on these young people with creativity, with a passion, purpose, drive, and they're the ones that will be able to push the envelope, and these will be the people ... the job creators of the future...

> Datuk Yasmin Mahmood, Chief Executive Officer MDEC, Malaysia

Watch the video to learn more

(Innovation economy)

Spotlight shines on the winners of the ITU Telecom World Awards 2017

he journey for startups is often wrought with highs and lows, challenges and opportunities, successes and failures.

For a select group of innovative tech startups across the globe, 28 September will certainly be remembered as one of the high points – when they emerged winners of the prestigious **ITU Telecom World Awards 2017**.

"I feel blessed to have this opportunity. Of course winning the award is massive, but ITU Telecom World has been an experience I wouldn't trade for anything," said Temitope Awosika, co-founder of the Nigeria-based health startup, Medsaf, which won the award for Greatest Social Impact.

ITU Secretary-General Houlin Zhao presented winners and finalists in several categories with trophies and certificates in an excitement-filled ceremony hall packed with government ministers, industry leaders, representatives of media, academia and international organizations from across the globe.

(Innovation economy)

Houlin Zhao, ITU Secretary-General presents Iwan Kurniawan of Modalku, Indonesia, the Winner Award for Global SME Excellence

Digital solutions for social impact

From micro-lending to a location-based shopping platform, to an artificial intelligence-powered concierge robot, to a voice recognition-based diagnostic system for babies, the third edition of the ITU Telecom World Awards celebrated creativity and innovation in digital solutions meeting real-world social needs.

During the ceremony, the excitement of the winners was palpable and the crowd of supporters equally so.

The Global SME Awards recognized the best innovative ICT-based solutions with social impact from small and medium-sized enterprises (SMEs) present at the event in five classes – Best Business Model; Most Scalable; Most Innovative Use of ICT; Greatest Social Impact; and the Global SME Excellence Award, for the SME with the highest all-around score.

Here's the full list of the 2017 Global SME Awards Winners and Finalists

Global SME Excellence Award

Winner – Modalku, Indonesia

Best Business Model

- Winner Simplus Innnovation, South Africa
- Finalist Nile Center for Technology Research, Sudan
- Finalist Tukang Sayur, Indonesia

Most Innovative Use of ICTs

- Winner Shanghai Terjin Radio Technology Company, China
- Finalist Ubenwa, Nigeria
- Finalist KonoLabs, United States of America

Most scalable

- Winner Security Platform Incorporation, Republic of Korea
- Finalist InvestED, United States of America
- Finalist Roborus, Republic of Korea

Greatest social impact

- Winner MEDSAF, Nigeria
- Finalist Kampung UKM Digital Belimbing, Indonesia
- Finalist Healthy Living Support, Azerbaijan

ITU Telecom World Thematic Awards

- eHealth winner Telkom Indonesia AdMedika, Indonesia
- eEducation winner SK Telecom, Korea
- Smart emerging technologies winner KT Corporation, Korea

ITU Telecom World Government Award

Winner – Nigeria

ITU Telecom World Host Country Awards

- Winner CIOT Inc.
- Finalist Idealink Inc.
- Finalist S-WINNUS Co.

Thematic awards were presented for the most promising innovative solutions with social impact in the areas of eHealth, eEducation and smart emerging technologies.

Winners express their happiness and aspirations

The winner for Most Scalable solution, Security Platform Inc., from the Republic of Korea aims to provide access to finance for those without formal accounts. In their acceptance speech they noted that "financial inclusion is one of the greatest challenges of our generation," and they hope their platform will help scale solutions.

"Winning the 2017 Global SME Excellence Award is truly a great honor for Modalku, both for us as a team and as Indonesian citizens." said Iwan Kurniawan, Co-Founder and COO of Modalku upon accepting the award. "I would like to thank the Ministry of Communication and Informatics for their support towards Indonesian startups during ITU Telecom World 2017. Modalku's mission is to help create financial inclusion in Indonesia through technological innovations and empowering the micro, small and medium enterprise (MSME) sector, which has always been the backbone of the national economy. MSMEs need working capital to grow, but the majority lack access to loan products that suit their needs. By providing working capital loans with no required collateral and an efficient online process to MSMEs, Modalku is actively playing a role in strengthening the Indonesian economy. Moving forward, the award will motivate Modalku to narrow the existing financing gap in Indonesia."

Rigorous selection process

All SMEs in these categories underwent a rigorous application and selection process, with an external jury of social entrepreneurship and tech experts assessing each entrant on the basis of business model, scalability, innovation and social impact.

"Entrepreneurship is a team sport... To get the validation from the judges, it's invaluable," said Matthias Brodner in his acceptance speech on behalf of the South Africa-based startup, Simplus Innovation, which won the award for Best Business Model.

Those shortlisted for the Global SME Award were invited to take part in a quick-fire pitching session on the event showfloor during the event.

"Winning our Award and having innovative solutions recognized by a global panel of experts at our event will help these talented enterprises grow and scale up their business, taking it to the next stage," said ITU Secretary-General Houlin Zhao. "Previous Award winners have enjoyed great success, coming back to later events as exhibitors and sponsors – I look forward to following the developments of this year's Awards alumni, too."

Namsan Seoul Tower 1F-OLED Tunnel

How the Republic of Korea became a world ICT leader

By Theadora Mills, ITU News

n the Republic of Korea, 'ubiquitous connectivity' is not some aspirational industry buzz word. It's a way of life.

With lightning-fast connections to streaming wireless Internet on a range of digital devices, Koreans are proudly some of the most connected people on the planet. And walking along the brightly lit streets of the capital, Seoul, provides a glimpse into the digital future for most of the rest of the world.

Digital payments are accepted at almost every store. Taxi drivers operate with not just one, but up to four or more screens mounted to their dashboard. And it's not just the Republic of Korea's urban youth who have adopted digital technologies, but in fact the whole country has embraced new technologies in everyday life.

A world leader in ICTs

Korea has a well-earned reputation as a global information and communication technology (ICT) leader, and it's not hard to see why. Home to world-leading electronics and ICT companies such as Samsung, LG, SK, and KT – Korea's economic growth is digitally delivered. The Republic of Korea has some of the world's fastest Internet speeds. It's in the race to be first with 5G. And it leads the world in Internet pene-tration rates, with nearly every household online.

These are some of the reasons why the Republic of Korea has ranked in the top three of **ITU's Global Information and Communication Technology (ICT) Development Index (IDI)** in each of the past five years. In addition, the country reigns supreme in the **Bloomberg Index** of 'Most Innovative Economies.'

So how did the Republic of Korea emerge as a leader in tech? What steps allowed for the momentous leaps and bounds the country has taken towards digital transformation? And what can other countries learn from the experience of the Republic of Korea?

Republic of Korea's journey as an ICT pioneer

It is no accident that this Asian nation became the world's leader in tech.

As the Republic of Korea emerged from the Korean War in the mid-1950s, they were one of the world's **poorest economies**.

But through decades of government interventions and investments in modern technology, the country has soared to become one of the most developed countries in the region.

In the ultramodern Gangnam district, the financial and business centre of Seoul, ITU News sat down with Dr Seung Keon Kim, Vice President of from the Korea Association for ICT Promotion (KAIT), to uncover the story of the Republic of Korea's journey from the past to the digital future.

The Republic of Korea's transformation is the result of the government's ambition to speed transformation to the digital economy, says Dr Kim. He posits three major factors that have formed the basis for growth of the country's digital economy: the advanced education system, cultural characteristics, and the "Government's vision for ICT."

21st-Century education

Firstly, the value of education is highly prized in the Republic of Korea. "[For] many people in my father's generation, education was regarded as a ladder to overcome poverty," says Dr Kim.

76

The education system focuses on traditional subjects like Math and Science, which are basic prerequisites for many technical careers in the digital economy. However, students are not taught in a traditional way with blackboards and notebooks. Instead, schools have integrated ICTs at all levels of the school system to foster "21st Century learners."

See why the Republic of Korea is a world leader in ICT development

Watch the video to learn more

"Wireless Internet, electronic blackboards, virtual reality (VR) devices, notebooks, tablet PCs, digital textbooks... are being used by individuals, teams, and classrooms..." says Professor Jeong Rang Kim from the Department of Computer Education, Gwangju National University. "The goal is to strengthen the 21st-Century learner's capacity. In particular, we focus on 4Cs: Critical thinking and problem-solving, Collaboration, Character, and Communication. Nowadays, software education is in full swing, so we try to improve computational thinking."

'Pali pali'

Education has been a necessary component to the digital transformation of the Republic of Korea, but according to Dr Kim, societal changes were expedited by cultural characteristics and especially Koreans' desire to move "quickly" as a driving force behind their rapid adoption of ICTs.

"As many Korean people say, 'pali-pali,' it means 'quick and quicker.' This characteristic is very accustomed to ICT..." says Dr Kim. The ambition to move quickly towards new technologies, merged with the flexibility to adapt plans has made the Republic of Korea an agile competitor in today's digital economy.

To overcome the digital divide between urban and rural areas of the country, the Republic of Korea's politicians decided to roll-out the **Broadband Convergence Network** (BcN) in 2004, and was a pioneer in connecting even the most remote areas. "We put the money in rural areas to overcome the digital divide... Many people said: 'We need time to consider some things.' But our leaders think: 'OK, let's do it now. And if some problems happen after that, we will fix it.' "

Key government role started decades ago

The government's support for ICT development began as early as the 1990s, when Internet started its initial upswing. By the late 1990s, the Korea Agency for Digital Opportunity & Promotion (KADO) was set up to increase access to the Internet and supply digital literacy training to over 10 million inhabitants to be Internet-ready.

The government also made direct investments into new technologies by dedicating a large portion of its national Gross Domestic Product (GDP) to Research and Development (R&D) projects.

"The Republic of Korea is one of the best countries, as far as R&D budget is concerned. Our R&D budget is more or less around 5 per cent [of GDP], and maybe that's a world first or second," says Jong Lok Yoon, President of the National IT Industry Promotion Agency.

If this figure of 5 per cent seems low, consider that the country spends approximately 91 billion dollars on R&D, according to **OECD data**, making the Republic of Korea the second biggest spender (proportionately) next to Israel. With world-leading investments into the future of technology, the Republic of Korea is preparing for the 4th Industrial Revolution, with smart city technologies and next-generation wireless services.

The Korea model: What can other countries learn?

The Busan Metropolitan City, works with international and municipal governments to apply lessons learned and to advance global Smart City solutions. From Phuket, Thailand to Barcelona, Spain, Busan is working on technology transfer and capacity building to help spur global investment for Smart City technologies.

At the Busan IT Industry Promotion Agency (BIPA), international delegations and visitors can view some of the Smart City construction projects underway. Thesele Maseribane, Minister of Public Service in Lesotho, visited the Busan Agency and was delighted to take home ideas for the small African State.

"We are interested in innovation hubs in Lesotho... to have all stakeholders networked together," he said to ITU News. But more importantly, he was interested in the innovative ways that new technologies could be applied for health and education in the country.

"The challenges of [Lesotho's] geography is complex. Like Busan we have mountainous regions, but roads and basic infrastructure are lacking," Maseribane explained. So, new technologies offer some innovative ways to "overcome the challenges." For example, for the health sector, drones and phones could help bridge the need for doctors in remote clinics. And in education, he saw many applications for "virtual reality in remote schools."

Visions of the Future: Smart Cities, IoT and 5G

Busan Metropolitan City, the country's second most-populated city, is as economically important as the Republic of Korea's largest shipping port and one of the world's **Top Ten** Largest Container Ports. In recent years, it is being reimagined as a Smart City of the future – using technology to improve the lives of its citizens – and propelling the country towards next generation technologies.

The pioneering Smart City of Busan boasts a "first of its kind" policy that was announced at **ITU's Plenipotentiary Conference in Busan in 2014**, said Vice Mayor for Economic Affairs in Busan, Kim Young-Whan during a Smart City Tour during the recent ITU Telecom World this autumn.

In Busan, Smart City projects for community safety, traffic improvement, urban living and energy conservation are already being implemented. Open data projects and data monitoring systems are at work monitoring traffic flows and working with emergency services on real-time communications flows. Other test-bed projects including IoT-led solutions and cloud architectural projects are aiming to make life more convenient for Smart City dwellers.

5G leadership

In addition to Smart City technologies, the Republic of Korea is also leading the development of next generation wireless broadband technologies, and aims to deploy 5G earlier than any other country. 5G is expected to become the infrastructure backbone for the 4th Industrial Revolution. It is predicted that the Internet of Things revolution will reach more than **30 billion wireless** connections by 2020. These devices will be constantly connected and will demand bandwidth supplied by 5G and next-generation services.

Visitors to the 2018 Winter Olympics in PyeongChang, Republic of Korea, will have the chance to experience next-generation technologies. With the theme "Passion. Connected" Olympic organizers are integrating ICT throughout the Olympic programme. With 360 degree cameras, personalized viewing along with superfast 5G wireless, the country is viewing the Olympics as a world stage to unveil their unrivaled ICT infrastructure and an opportunity to debut a number of cutting-edge products.

KT, a leading wireless provider in the country, is planning to premiere their 5G services in PyeongChang.

"KT made it a goal to complete the intelligent network early, so it will be the pipeline of the 4th Industrial Revolution... We believe that at this Olympics will be the field that we can [share] our ICT technologies with the global community," said Jiyoung Lee, Senior Public Relations Manager at KT.

It is clear that the Republic of Korea is in an ideal position to lead the future of 5G, Smart Cities and the 4th Industrial Revolution, and has valuable lessons for countries aiming to modernize their economies.

Lessons for ICT development

The Republic of Korea is keen to share its knowledge with the world, and has numerous ICT promotion agencies acting as intermediaries and educators for developed and developing countries.

"For underdeveloped countries, ICT is a very good tool for those countries. Because we just don't want to give money or food, that's only short term assistance. We want to [teach] them 'how to catch a fish,' and ICT is a good tool and a very good industry for supporting those countries," says Dr Kim, Vice President of the country's ICT Promotion Agency.

"Many countries ask, how can we develop? What is your suggestion or recommendation for other countries?" And Dr Kim's answer: "If Korea can do it, any country can do it."

Many countries ask, how can we develop? What is your suggestion or recommendation for other countries? And my answer: If Korea can do it, any country can do it.

> Dr Seung Keon Kim, Vice President of the Korea Association for ICT Promotion (KAIT)

The Republic of Korea's innovation economy

By Theadora Mills, ITU News

TU News recently talked to some of the Republic of Korea's newest and brightest startups to glimpse at what's next for the future of innovation and to find out how the government and the private sector are supporting the next generation of tech entrepreneurs and small- and medium-size enterprises (SMEs).

The K-Startup Grand Challenge 2017 brought innovative global SMEs to Korea by offering 50 selected startups an opportunity to participate in a 4-month-long accelerator programme in Korea's new Startup Campus in Pangyo. K-Startup is laying the groundwork for new ventures in the country, because for them, "economic potential today cannot be achieved without building new industries and starting new businesses."

During an Interview at ITU Telecom World 2017, Jong Lok Yoon, President of the National IT Industry Promotion Agency, one of the implementing partners of the accelerator, said that their strategy focuses on the key question: How can we cultivate our young generation's imagination?

have to cultivate our young generation's ideas, but we are also supposed to encourage foreigners to come into our country for startups, or for innovation, and that's why we started the K-Startup Grand Challenge.

> Jong Lok Yoon, President of the National IT Industry Promotion Agency

"Not only do we have to cultivate our young generation's ideas, but we are also supposed to encourage foreigners to come into our country for startups, or for innovation, and that's why we started the K-Startup Grand Challenge," said Yoon.

According to Yoon, " ... imagination is a journey to the future," and Korea's economic development depends on the success of this journey. SMEs account for the majority of jobs in the country – approximately 99% of enterprises and 88% of total employment – according to the **Ministry of SMEs and Startups**.

Korean award-winning innovations

At ITU Telecom World, Korean startups have stood out from the pack, two years in a row.

The ITU Telecom World Award 2017 for 'Most Scalable Solution' was given to a Seoul-based startup, **Security Platform Inc.**, a company that pursues a vision of trusted connectivity in the era of the Internet of Things (IoT) by providing hardware-based device security solutions.

"Our slogan is to make the trusted world of IoT. And [winning the Telecom World] Scalable Award means that our business will be scalable and our IoT ecosystem will be scalable, too," said Daniel Lee, COO of Security Platform Inc., after winning the award.

At last year's ITU Telecom World, in Bangkok, ulalaLAB, a Korean smart manufacturing startup, took home the top prize as the overall 'Global SME' Winner. "Industry 4.0 puts most of the industries in a dilemma in terms of cost, human power, complexity and time. Continuous innovation in the area of ICT makes it possible to address these issues by producing better and more affordable products..." writes Aibek Amandanov, Global Marketing Manager at ulalaLAB.

In the capital city of Seoul, visitors from around the world visit **Dongdaemun Design Plaza** (DDP) to see futuristic designs and leading-edge innovations from many of Korea's young trendsetters. ITU News met with Tg Nam, the founder of **loys**, a 3D-printing startup that specializes in creating one-of-a-kind souvenirs.

Using the latest technologies, customers can turn images into a lifelike 3D-printed figurine.

Thinking outside of the box, Nam "started this company to make new culture in 3D." As he said, "many people take a lot of photos while they are travelling, or for special occasions. However, they barely look at them afterwards. Unlike ordinary photos, people can put 3D figurines beside them and remind them of the memory all the time." With a short production lead time and innovative use of 3D printers, his company offers a one-of-a-kind experience for visitors to the country.

Taking risks with new ideas

Whether it is the Internet of Things, smart manufacturing or 3D printing, Korea's young innovators are taking risks with new ideas and winning big. But the journey is not always straightforward for entrepreneurs. "Through uncountable tries and experiments, we succeeded... we have to work hard to compete with other leading companies in technology," said Nam.

Korea is traditionally perceived to be a riskaverse country, and we were interested to know how the country reconciles the fear of failure with a startup culture of risk and investment.

"I think that failure is a teacher of success," says Dr Seung Keon Kim from the Korea Association for ICT Promotion, a government supported institute and ICT promotion agency. "We have many success stories... as well as many failure stories."

Supporting innovative startups in Korea

There are a myriad of organizations striving to support startups in Korea. New accelerator programmes, long-term government investments and even corporate innovation hubs – are all working to prepare for the coming "Fourth Industrial Revolution" in which next-generation technologies are deeply integrated throughout the economy and society.

The Government of the Republic of Korea invests heavily in next-generation innovations and spends a relatively high amount on research and development (R&D), nearly 5 per cent of GDP. Why? Because "Korea's ICT industry is the main tool for sustaining and maintaining our country," says Dr Kim.

Corporations are also stepping up to support young innovators. ITU News talked to **Samsung NEXT**, a branch of Samsung Electronics, one of Korea's largest tech giants, which aims to empower entrepreneurs around the world by scaling businesses and technologies. "We differ from our venture capital peers in [Silicon] Valley in that we're laser-focused on accelerating the growth of startups – and to do so, we give them the ability to leverage what Samsung can offer from our capital, resources, expertise and connections," said Hani Durzy, Head of Communications, Samsung NEXT, Samsung Electronics, to ITU News. "We mirror our strategy with startups internally, as well, to ensure that we are equipped to meet startups and entrepreneurs wherever they are in their own journey."

With a focus on 'frontier tech,' Samsung NEXT has invested in more than 60 startup companies and has made 15 acquisitions for companies in IoT, Blockchain, Artificial Intelligence, Cyber Security, Smart Cities and more.

As new ventures are poised to be key drivers of the economy and the main creator of jobs in the years to come, it is clear that public and private interests must align in the support of startups and their increasingly important role in the new innovation economy.

Digital reinvention – no longer a choice

By Rob Van den Dam

IBM Institute for Business Value

hat makes the world's top executives cringe? From our latest C-suite survey covering responses from 5247 business leaders from 21 industries it is clear that it is the "Uber syndrome." They expressed their fear that a competitor with a completely different business model enters their industry and flattens them.

Seventy-six percent of communications service provider (CSP) executives expect more competition to come from outside their industry in the coming years. In fact, competition from outside has already been a threat for traditional CSPs for many years, with digital disrupters as Skype, WhatsApp and WeChat destroying the so profitable revenue streams from voice and messaging.

In this year's ecosystem study, 54% of CSP executives told us that engaging in ecosystems is the most effective way to access new markets and geographies.

The 2020 CSP benefits from both its customers and extended ecosystem

These trailblazing companies have reset the expectations for customer experience and many CSPs have yet to transform their business models to respond to these new expectations.

In an environment that is in a severe state of flux, the ultimate winners may be either the new entrants that move and scale the fastest, or traditional CSPs that are willing to adapt and change. Successful CSPs will need to deliver superior customer experiences, disrupt their own business models, and implement the cognitive and personalized paradigm to secure their footholds in a changing strategic landscape and an altering industry hegemony.

Making this Digital Reinvention[™] a reality requires simultaneous progress along two trajectories (see **Outthinking disruption in communications**). The successful CSPs will emerge as providers along two digital service axes: The digital services provider (DSP) and the digital services enabler (DSE). As a DSP, the CSP delivers high-quality customer experiences through online channels. It values data and analytics – and will embrace cognitive capabilities to further improve the customer experience and its operations. To become a DSP, today's provider must overcome challenges. Siloed processes and divisions are the biggest obstacles in implementing customer experience initiatives for most CSPs, but also not understanding what makes good customer experiences and the lack of the right digital skills are clear hurdles.

Along the other axis, the DSE recognizes the growing importance of ecosystems and the associated market opportunities. Though the key focus of many CSPs still is on connectivity services and selling products, we see an increasing interest in playing a role in ecosystems. In the digital world, what eventually differentiates winners from losers is often not the best product – but the right business model. And the most powerful business models are based around ecosystems.

CSP executives point to new benefits from ecosystems

In this year's ecosystem study, 54% of CSP executives told us that engaging in ecosystems is the most effective way to access new markets and geographies.

Fifty-five percent believe that partnering in ecosystems is essential for them to build new capabilities. And though there are different ways that organizations can engage in ecosystems, 57% of CSP executives want the role of platform provider by creating integrated environments that support and enable ecosystems to operate.

New, compelling customer experiences delivered through ecosystems are at the core of Digital reinvention. Indeed, 54% of CSP executives we surveyed reported that the experiences customers now demand can only be delivered through business ecosystems. Digital reinvention, combined with digital intelligence-enables radical new ways of interaction with customers and reveals powerful insights that transform businesses. Together, digital reinvention and digital intelligence create a cognitive enterprise

Digital reinvention reflects a fundamental rethinking of the organization, reimagining structure, operations and governance from a customer-centric perspective. It is not an easy journey and probably the hardest thing for CSPs to do. But in today's evolving landscape, digital reinvention and becoming a cognitive company, is no longer a choice: It's a survival skill.

Reinventing telcos: What's needed now? What's next?

By Dean Bubley

Founder & Director of Disruptive Analysis

n 27th September, I moderated a panel discussion at the ITU World 2017 conference in Busan, South Korea, on the theme of "The transformation of telecom operators: reinventing telcos."

This is a topic we've heard discussed for at least the last 10 years in various forms, yet we still seem to be at or near the starting point. The panel looked at what can we do differently, to change the dynamics. In particular, it focused on the internal organization and processes of the telecom industry, both within and between telcos. **G** Telcos – and their regulators – have until recently been poorly-suited to this new world, although some are making interesting attempts to 'turn the super-tanker'.

Other conference sessions considered new services, industry verticals, and the customer perspective.

Across the globe, traditional CSPs are trying to adapt their cultures and operational models, in the face of ever-increasing competition and substitution from new players. As well as other rival service providers such as cable operators, telcos now face challenges from Internet-based peers, niche specialist SPs (for example in the Internet of Things), and even enterprises and governments building their own networks. On the horizon, new technologies such as Al threaten to change the landscape even more. The nature of what it means to be a "service provider" is changing.

This goes beyond just implementing next-generation networks, whether fixed or wireless. While these are necessary, they are not sufficient for true reinvention – and they also require enormous new investment. The real question is what options exist for operators to best-allocate scarce resources (money, skills and time) to maximize the value from such investments in infrastructure. There is also a risk that emphasis on the "hard challenges" of raising finance, acquiring spectrum or sites, and building networks, means less focus on the "softer" problems of culture change, service design, organization, customer-centricity and partnership. This in turn poses problems for regulators, especially at national levels. Usually driven by domestic politics and local economic situations, they somehow need to ensure a strategically-important sector remains healthy, while also recognising the huge global-scale advances from many technologies and services that transcend national or regional boundaries.

It is not realistic for every country to have three or four competing local providers of social networks, IoT management tools or future AI platforms. Citizens and businesses expect similar functions to work internationally and immediately, with rapid incremental improvements. Unlike networks, innovation in services and applications often favours fast-evolving proprietary platforms, rather than committee-led interoperable services like the PSTN.

Telcos – and their regulators – have until recently been poorly-suited to this new world, although some are making interesting attempts to "turn the super-tanker".

The session touched on four or five key areas:

Innovation: What is the best way for telcos to innovate, given regulatory & cultural constraints? Arms-length subsidiaries? Huge retraining programmes? Business units targeted on verticals / technologies?

How much freedom should product units have, for example should they be forced to use the company-wide core network & NFV platforms, or should they be able to go "off piste" and act independently? Are "platforms plays" viable in telecoms, or just unrealistic wishful thinking?

- Regulation: What should regulators be doing, to simultaneously encourage new entrants/innovators, but also allow telcos to make enough returns to take long-term investment views? And how can regulators deal with the overlaps, competition and tensions between very distinct groups, such as traditional infrastructure-oriented telcos and Internet-based "web-scale" platforms? One group has huge capex and strict regulatory constraints, the other huge R&D and greater risk of failure: how can one set of rules span both, where they intersect?
- Industry coordination: How do the current pan-industry structures (e.g. bodies like ITU & GSMA & 3GPP) need to change? Can they be made faster, more willing to take risks, faster to acknowledge errors, bring in nontraditional stakeholders?
- Technology catalysts: Are 5G & NFV really "transformational" enablers of re-invention? Or will prolonged hybrid/transition phases from older tech mean there can't be fast shifts? How should telcos deploy technologies such as AI, blockchain or IoT internally, as part of their reinvention?

One other thing framed the debate: language – how we describe the problems, or wider communications environment. Words, analogies and narrative arcs are psychologically important – they shape the way we perceive problems, and can either enhance or misdirect our responses. We should recognize the unhelpfulness of terms like:

- "Digital": Morse Code was digital in 1843. Telecom networks have used digital technology for decades, as have most businesses. It's about steady progress and evolution, not a "digitalization" step change.
- "OTT": usually said in a negative tone, I believe this prejudiced description of Internet services has hugely harmed the telecoms industry over the last decade. For example, it obscures the fact that larger Internet companies do more deep technology than telcos: they make network equipment and chips, build infrastructure and conduct billions of dollars of R&D.
- "Level playing field": telco executives, regulators and lobbyists use this phrase with abandon. Yet the analogy is meaningless, when everyone is playing different sports entirely.

The narrative needs to change substantially. My **ITU Telecom World 2017** session aimed to reset the debate, and catalyse thoughtful (but rapid!) future action by operators, regulators and industry bodies alike. 40

The original article was first published in the ITU Telecom World Blog. Views expressed are the author's own.

NATIONAL COMMUNICATIONS AUTHORITY, GHANA

REQUEST FOR EXPRESSION OF INTEREST

CONSULTANCY SERVICES TO DETERMINE THE WHOLESALE INTERCONNECT RATE (WIR) FOR THE PERIOD 2018 TO 2020

(Contract No. GR/NCA/CS/011/17)

- a) Introduction: The National Communications Authority Act 2008 (Act 769) and the Electronic Communications Act 2008 (Act 775) mandates the National Communications Authority (NCA) to periodically determine the Wholesale Interconnect Rate (WIR) for Voice and Short Message Service (SMS) among mobile network operators. In pursuance of its mandate, the NCA requests for Expression of Interest (EOI) from eligible Firms/Consultants for the provision of the above mentioned assignment.
- b) Basic Objective of the Assignment: The purpose of this exercise is to assist the Authority to provide accurate, reliable and comprehensive bottom-up long run average incremental cost model with a glide path approach for a three (3) year period, i.e. from 2018 to 2020. The Firm/Consultant will develop a cost model to be used to determine service charges for interconnection on voice and SMS, national and international interconnection rates for voice and SMS, Inbound International rate and Wholesale access charge on Shelters, Towers and Power of network operators.
- **c) Eligibility Criteria:** Eligible Firms/Consultants must indicate their interest by providing the following information:
 - Profile of the Company including commercial and financial resources availability.
 - Provide Company Registration Certificate, Regulations Certificate, SSNIT Clearance Certificate, GRA Tax Clearance and VAT Registration Certificate. *(For foreign firms requirement relating to SNNIT Clearance and GRA Tax Clearance are not applicable).
 - Experience and past performance of similar assignments performed.
 - Work plan, Technical approach and Methodology of how the said assignment would be executed within a maximum period of four (4) months. Deliverables will include, Inception, Draft, Final Draft and Closure Report.
 - Qualifications of local or foreign Skilled/

Professional staff that would be deployed for the said assignment.

- d) Selection of Consultants: Shortlisted Firms/ Consultants will be selected based on the above criteria and will be invited at a later date to respond to a detailed Request for Proposal (RFP) for the said assignment. Selection of Consultants shall be in accordance with procedures set out in the Public Procurement Act 2003 (Act 663) and the Amended Public Procurement Act 2016 (Act 914). (Only shortlisted Firms/Consultants who score a minimum of 80 points would be issued with the Request for Proposal (RFP) Document.)
- e) Submissions: Eligible Firms/ Consultants must submit one (1) original copy and four (4) copies of the Expression of Interest on the above subject (Proposals should not include Financial) and must be delivered to the address (ii) below, by 16:00 GMT on Thursday, 18th January, 2018 at the Procurement Department.

Interested Consultants can obtain further information at the address (ii) below, during office hours of **09:00 to 16:00** hours, **Monday to Friday**.

Documents must be addressed to:

i) The Director General

NCA Towers No.6 Airport City Kotoka International Airport, Accra P. O. Box CT 1568, Cantonments, Accra Tel: (+233) 302 776621/771701 Fax: (+233) 302 763449

Documents must be delivered to:

(ii) Procurement Unit NCA Towers No.6 Airport City Accra

Tel: 0302 771 701, 0501 451 522/3 | Email: info@nca.org.gh | www.nca.org.gh

F National Communications Authority Ghana | 💆 @NCAGhana | 🛅 National Communications Authority

Communications for Development

Stay informed

The weekly ITU Newsletter keeps you informed with:

Key ICT trends worldwide Insights from ICT Thought Leaders The latest on ITU events and initiatives

