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TRANSFORMING TOWARDS **DIGITAL BUSINESS**

**HUAWEI'S RYAN DING CALLS
FOR INDUSTRY TO EMBRACE,
ACT, ACCELERATE**

**INSIGHT: HKT'S DIGITAL
BUSINESS TRANSFORMATION**

**Q&A WITH TELEFONICA: A
CLEAR PLAN TO STREAMLINE
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THE TIME IS RIGHT FOR DIGITAL TRANSFORMATION

Telecoms operators have many different reasons to transform their digital operations, from making them more competitive and reducing time to market for new services to recouping network investment and improving operational efficiency.

But transformation ultimately is about creating additional business value while providing a better, more compelling experience for customers.

Boiled down to the simplest form, the purpose of digital transformation is really about preparing companies for the future.

While operators are now familiar with the reasons driving the move to digital transformation as well as the many challenges, the conversation has shifted from the whys to the hows and where to get started. Three years ago, the industry talked more about the technical architecture and the general direction to take. This year the focus has started to shift to actual digital businesses and services – an encouraging sign.

That's a timely change because, according to a recent survey, about 90 per cent of companies across industries say they are on some form of digital transformation. However, only about 15 per cent say they have a reasonably good idea of how they are to going to achieve that goal.

This is one of the main catalysts behind Huawei's efforts to create a detailed methodology to guide companies around the world along the digital transformation journey. Called the Digital Mastermind, the roadmap is a comprehensive set of actions, assessment tools and business processes for various stages of transformation that leaders need to ensure their digital transformation initiative is successful.

To achieve that change companies will need to select a pathway, otherwise it could be a very long, bumpy journey.

The stakes are high: will telcos move towards the customer or away?

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TRANSFORMING TOWARDS DIGITAL BUSINESS: EMBRACE, ACT, ACCELERATE

Ryan Ding, President of Huawei's Carrier Business Group, discusses how digital transformation has become a common business goal, moving from mere talk about the direction to specific businesses and services.

Digital transformation is now a common business goal. Over the past few years, we talked about the direction and architecture of digital transformation. This year, our focus has evolved to digital businesses and services. This is a very encouraging change. We are now working together with our stakeholders to accelerate towards digital business success.

LEVERAGING STRENGTHS

According to a survey by Huawei and IDC, 72 per cent of carriers believe that digitisation is a mid- to long-term process that will take three to six years to complete. More than half plan to provide more products and services to consumers and enterprises in the future. In addition to traditional voice and data services, enterprise IT and connectivity, video, and IoT services are the most important new business opportunities for carriers over the next one to two years.

These three services allow operators to give full play to their network advantages and are also well combined with digital technologies, which will boost operators' business growth. First, communications networks are operators' core assets. They help operators build three major strengths: wide coverage, massive connections and centralised operations.

Second, operators can use digital technologies to slice networks.

One physical network can deliver differentiated network capabilities to adapt to various use cases. Third, operators can combine their network strengths with digital technologies to redefine business, experience and connectivity.

REDEFINING BUSINESS

In the field of private lines, operators can fully leverage the strengths of cloud and network synergy to deliver one-stop, on-demand network services for their enterprise customers.

For example, the European Organisation for Nuclear Research (CERN) generates the world's fourth-largest datasets every year through the operation of the Large Hadron Collider. Last year it generated about 50PB data. By using its leading bandwidth resources in Europe, combining the digital technologies of high-performance computing, Deutsche Telekom (DT) ensures 10Gb/s private-line bandwidth for CERN, with more than 20TB of data transferred every day. Data is then safely and rapidly sent to the public cloud jointly operated by Huawei and DT. With private lines, DT delivers dynamically scalable high-performance computing and storage services to its customers.

In Asia, China Telecom provides the synergy service of agile private lines and the e-Cloud (the cloud brand of China Telecom) to hospitals using Huawei's SDN-based on-demand network solution. During the day, hospitals use an average amount of



bandwidth to ensure the daily medical data upload, while at night, bandwidth can be flexibly scaled up. In this way hospitals can complete cloud synchronisation of mass gene sequencing data. For hospitals this solution assures their service efficiency, while reducing costs. For operators it makes full use of the night's idle bandwidth and increases bandwidth utilisation.

REDEFINING EXPERIENCE

In the area of video, when facing requests for a compelling 4K HD video experience, operators will need to build high-bandwidth, low-latency networks in high-valuable areas. This can help operators improve users' experience and shorten the payback periods. For example, we helped Telkom Indonesia analyse video experience by using U-vMOS, a new standard for measuring video experience. We found that only when the index exceeded 3.5 did the service meet users' experience requirements.

In addition, we found that network bandwidth should be more than 50MB, the packet loss rate lower than 1 per 100,000, and the latency less than 35 milliseconds. We also analysed other factors such as location, resource consumption, user behavior and competition. The results of this analysis helped us make Telkom Indonesia's network planning model more targeted. The operator gained insight into high-value areas to enable a profitable, precise network rollout. This has helped the company build unique strengths in video. This year its U-vMOS index rose from 2.5 to 3.7, and its IPTV revenue increased by 39 per cent year-on-year.

REDEFINING CONNECTIVITY

In the field of IoT, Huawei has released Things Coverage, a network planning methodology for IoT. By assessing NB-IoT network performance from various aspects, it provides assurance for the battery life of modules and enhances connectivity reliability. China Telecom's project for Shenzhen Water Group is a good example. We input information about location networks, and devices into the system, and it will automatically simulate the assessment of key indicators such as device battery life, downlink path loss, RSRP (reference

signal received power) and SINR (a technical measure of signal strength). The methodology has enabled network optimisation and the deployment and maintenance of water meters. As a result, the meter reading success rate is over 99.6 per cent and battery life is more than seven years, meeting the specifications of Shenzhen Water Group for smart metering. By the end of 2017, the company will have deployed 100,000 water meters, covering the Shenzhen districts of Yantian, Longhua and Futian. Water applications and data storage will also be gradually migrated to the e-Cloud.

INVESTING \$1 BILLION

In the next three years, Huawei will invest \$1 billion in digital transformation solutions. We will continue to build solution-oriented business and technical capabilities, solution development processes and digital business enabler platforms, and also strive to close the loop from strategy to execution. At the same time, we are working with operators such as HKT on digital practices and joint innovation. We are developing a systematic methodology involving customers' business vision, business goals, blueprint design and solution customisation. We will continue to refine the methodology to better deliver solutions of value.

Huawei will also build a multi-layer ecosystem that includes business and enabler platforms and infrastructure to align with industry development trends and contribute to industry growth and business success. In the business domain, Huawei focuses on the incubation of business services and applications. In collaboration with our partners, we have incubated more than 200 industry solutions. In the platform area, Huawei works on open architecture and industry standards. We are now one of the top contributors in multiple open-source communities and industry alliances. As for infrastructure, Huawei practices multi-vendor integration and evolution at more than 20 Open Labs we have established around the world. Huawei wishes to become the most trusted partner of customers.

In the end, we believe that digital transformation actions speak louder than words. Huawei wishes to work with partners to accelerate digitalisation. Together with our partners and customers, we will embrace a new era of digital business.

MARKET REPORT

TRANSFORMING TO EMBRACE THE DIGITAL FUTURE



by *Mobile World Live*

To respond to rapid technological changes, embrace new business models and keep up with changing consumer demand, telcos need to streamline their networks and internal systems to be fast and flexible like the internet giants.

Mobile operators globally are transforming their businesses from the inside out as they transition into digital service providers. As they build new networks based on the latest 4G technologies, and look ahead to 5G innovations, they also have to consider how to become agile operators and learn how to launch digital services more effectively to drive new revenue streams and compete with over-the-top (OTT) players by offering a better customer experience. Failing quickly, and launching new services quickly, is the new mantra.

The July 2017 Capex Report from GSMA Intelligence (GSMAi) also provides an indication of where operators are currently investing their money to support their digital transformation strategies at the network level. It forecasts that between 2017 and 2020 mobile operators will spend \$673 billion on capex, compared with \$772 billion over the preceding four years.

GSMAi found that operators in developed markets are focusing their investments on network densification and upgrades within the LTE standard. "There is also an increased focus on investment in fibre networks, which can backhaul data and provide a competitive edge in the move to 5G, as well as offer operators the opportunity to provide converged products," the report said.

ADAPTING TO CHANGE

Deutsche Telekom's Erik Meijer, who is responsible for digital transformation at the telco, commented that operators are "turning everything on its head" to ensure that they not only transform their operations to meet changing customer demands and the threat of OTT players, but do it in a sustainable way.

Indeed, in its Digital Transformation for 2020 and Beyond report, Ernst & Young said the global telecoms industry landscape is changing faster than ever. "Erosion of legacy revenue streams driven by OTT competitors continues, forcing operators to consider new ways of remaining relevant to consumer and enterprise customers. While many have embarked on journeys to become digital service providers, the sector remains vulnerable to quickening shifts in terms of technology cycles, competitor actions and customer needs."

A report published by McKinsey in October 2016 outlined five steps that operators need to take if they are to win in this digital revolution. These comprise "reinventing the core" by introducing digital processes, analytics and an omni-channel experience for customers; moving into adjacent businesses such as financial services, IT services, media, or utilities in search of new opportunities and revenue streams; building talent and

digital capabilities; overhauling their IT infrastructure; and using the customer experience to inform their entire strategy.

"Only by walking in the customer's shoes along the entire customer journey from beginning to end can operators truly understand how to improve their performance," McKinsey said.

Operators are certainly taking these messages on board, and some are seeing the first fruits of success.

CUSTOMER FOCUS

Yves Bellego, director of network strategy at Orange Group, said digital transformation mainly addresses the customer relationship through customer relationship management (CRM) and customer experience management (CEM) tools. The goal is to enhance the "digital relationship" with customers through the development of an omni-channel.

"Big data is enabling us to improve CEM, and IT technologies such as DevOps are helping us to adapt our internal processes to the need for faster delivery of new functions. We have also applied digital transformation internally within Orange. For example, we have rolled out e-learning and have our own internal social network, named Piazza," Bellego said.

Furthermore, Orange has embraced the need to address adjacent industries, such as by launching financial services in some of its markets.

"A new opportunity for Orange is the development of banking services. For some years now, we have offered payment and money transfer services in our African operations through Orange Money, which has since extended into services like international money transfer and bill payments for utilities (e.g. electricity). We also announced the launch of Orange Bank, first in France before we roll this out to Spain and Belgium in the coming years," said Bellego.

Vodafone, meanwhile, has been working on the development of an omni-channel experience for its customers to meet the

needs of an increasingly digital-savvy audience.

In the UK it launched the Message Us messaging platform, designed to enable customers to start a conversation with a Vodafone UK customer adviser and then pick up the same thread at a later time. The service is based on a software platform developed by New York-based LivePerson. Future plans include the introduction of a group chat function later in 2017 and closer integration of Message Us with Vodafone's recently launched TOBi chatbot to enable the digital assistant to work alongside human advisers to deal with more complex queries.

Looking further ahead to the digital consumer and industrial innovations that 5G is expected to facilitate, Vodafone also produced a report with consultancy Arthur D. Little called Creating the Gigabit Society — the role of 5G in order to explore what could be in store in a new telco digital universe.

"In the next five years, we will see a revolution in the capability and application of high-speed digital mobile services, as telecommunications companies invest in the fifth generation of mobile radio networks," the report said.

THE NEXT WAVE

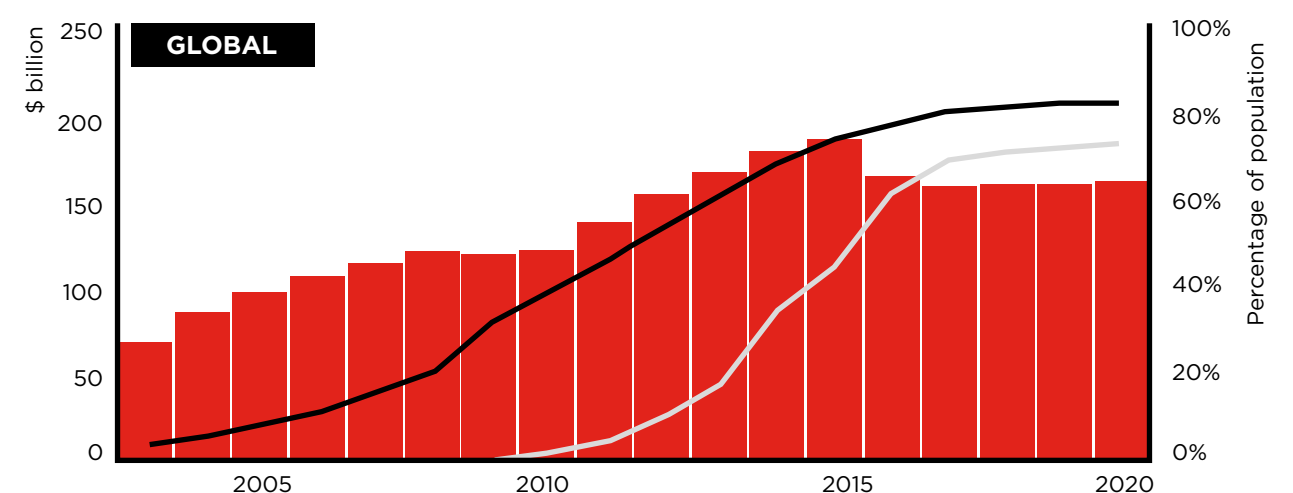
The industry is still in the early stages of 5G, but that has not stopped operators from supporting the development of digital services and applications that will one day benefit from the improved latency and higher speeds of 5G networks. Such services include virtual and augmented reality (VR and AR), which are regarded as offering huge potential for the consumer, enterprise and industrial segments.

The GSMAi's Global Mobile Radar report from May 2017 said VR and AR have been the focus of much hype and speculation in recent years, and also warned there are still a number of issues to overcome that will determine whether this technology can fulfil its potential and reach wide-scale adoption.

"AR/VR will more likely form an extension to the mobile ecosystem as a means of accessing content rather than a

Annual capex versus 3G and 4G network coverage

Source: GSMA Intelligence





platform in itself, leveraging the billions of smartphones already in circulation,” GSMAi said.

Early examples of success include AR-based Pokémon Go, which was widely promoted by mobile operators and has been responsible for huge spikes in mobile data traffic. GSMAi noted that Pokémon Go became the fastest mobile game in history to surpass \$1 billion in worldwide gross revenues, doing so after just over six months.

“Most other gaming launches have been VR based. Hundreds of developers are making VR games for launch in the near future,” GSMAi said.

These new technologies will not only enhance communications between people as connections and social media platforms become richer in functionality, but will give telcos new tools to engage with customers and improve the experience.

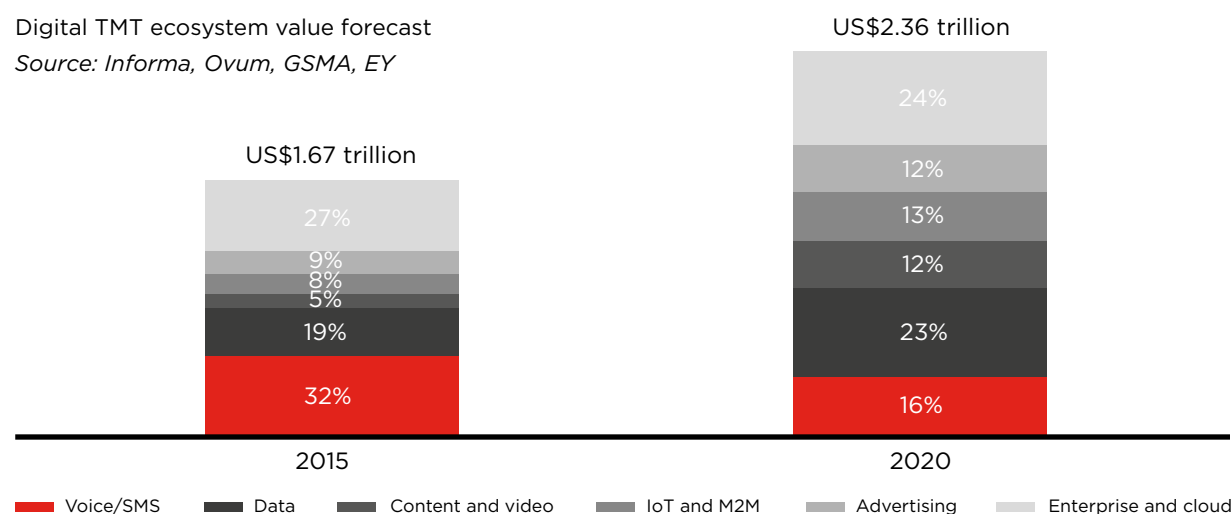
McKinsey said making smart use of digital technologies across

the whole business “is an imperative for telecoms operators that want to combat the declining growth, shrinking margins and intensifying competition of recent years”. It also noted the shift is vital to seizing opportunities that could make them stronger and more profitable than before, adding “getting it right will involve a wholesale digital transformation that starts with full commitment and strong leadership from the top”.

However, to be able to respond to rapid technological changes, embrace new business models and keep up with changing consumer demand, telcos must first streamline their networks and internal systems to be fast and flexible like the internet giants.

The digital transformation message certainly seems to be catching on, with 67 per cent of CEOs at the top 2,000 enterprises globally planning to make digitalisation their core strategy by end-2017, according to IDC. And nearly 50 per cent of IT budgets will be tied into digital initiatives by 2020.

Digital TMT ecosystem value forecast
Source: Informa, Ovum, GSMA, EY



GSMA EXEC CALLS FOR PARTNERING TO CLOSE GAP WITH OTT PLAYERS

The head of GSMA’s corporate strategy, Javier Albares, suggests operators take industry collaboration more seriously than they have in the past, particularly by investing more in customer knowledge.

The head of GSMA’s corporate strategy, Javier Albares, identified the need for improved monetisation as a key driver of digital transformation, noting the gap between the value of telecoms companies and ecosystem players is widening.

Albares noted that worldwide data traffic grew 60 per cent last year, but globally operators’ revenue increased only 1 per cent, highlighting that they are failing to cash in on the trend.

“As an industry, we have not been able to solve this,” he said. “There is a huge gap between the opportunities that we are creating as an industry, the services and the devices that run into our networks, and the revenues that we are capturing associated with those use cases.”

Operators also continue to expend large sums in terms of capex and opex to match the growing demand for connectivity, but are now “reaching the limit of what can be achieved with the current revenue structure”.

The whole model requires a rethink and a digital transformation is one of the possible solutions to address this gap.

Given that there is a growing consensus about the need for transformation, he asked why are we not able to move forward at a faster pace? “The reason is

we don’t share a common vision of what we want to be in the future. This is a problem because we spend a lot of time trying to agree on relatively low-level issues compared to the big problems we need to solve.”

MARKET CAP GAP

While the GSMA executive noted that the data vs revenue growth gap is an “inside-out” view of the challenges facing operators, other factors are somewhat the opposite: an “outside in” view.

Comparing the market capitalisation of six companies, including Google and Facebook as well as Microsoft and Tencent, with telecom operators, Albares noted the numbers have diverged over few years. Three to four years ago these six companies had a market cap that was similar to the combined market cap of the entire telecoms industry.

“While the telecoms industry is still growing and their market cap has grown maybe 3 per cent to 4 per cent per year”, the ecosystem players are growing “around 30 per cent per year”, and over the last four years their market value has grown probably threefold, he said.

“What are we doing that we are creating opportunities for all these people to really grow fantastically, while we are

unable to capture a share of the value that we’re creating?”

He asked if we don’t find a solution to the revenue growth problem of the industry, “where will we find a catalyst for long-term growth... with even more value to be transferred to these new players”?

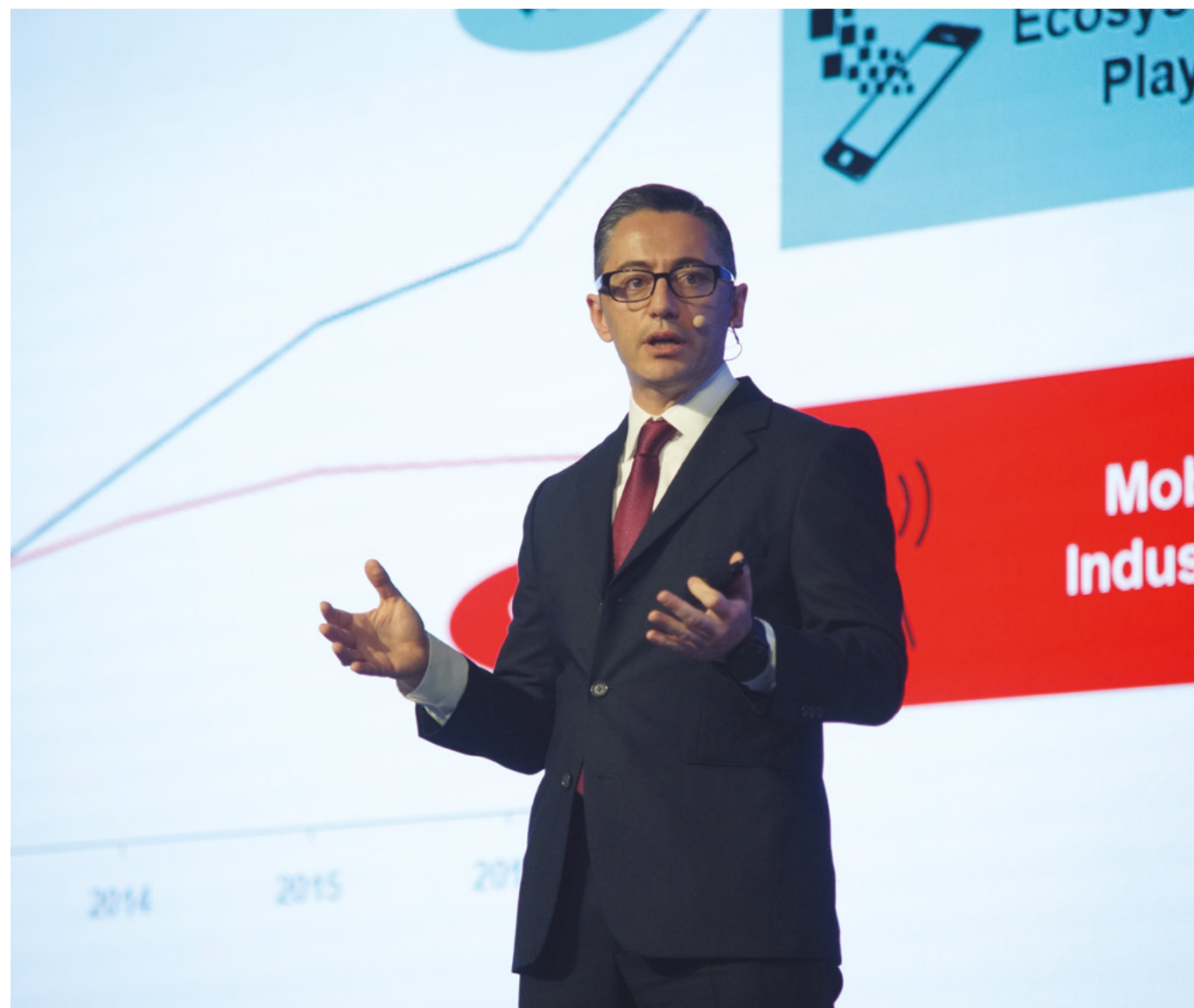
Addressing such future challenges will require a shift in the mindset of the mobile industry, including greater consensus over the direction it is moving in.

TRANSFORMATION PATH

Albares explained that digital transformation can involve three different types of conversations.

The first is related to “why”, which covers the business rationale and the implications to operators. The second discussion area is around the “why not yet?” question, with a good bit of skepticism from many operators. The third type is the “how” or the execution, which is an area that generates a lot a frustration for some operators.

“We have tried in the past many times to transform digitally, and we have a long history of attempts that have not been successful. What we want to do in our meetings is to understand why this is happening and figure out what do we need to change,” he said.



Looking at the future, it's essential that operators play a scale game, which is difficult when the industry is fragmented.

While he noted that investment in advanced networks is creating new opportunities, it is also creating a lot of new competition operators are not used to dealing with. "What we're seeing is the more sophisticated your network gets, usually the more complicated it is to sustain revenue growth. A lot of discussions at the GSMA are focused on this topic."

As the industry evolves technically, the level of operator control in many areas is shifting, he said. "We now have to share control with new players we didn't have to in the past. The

question is how to sustain the value as the technology evolves and how to avoid commoditisation?"

AREAS FOR COLLABORATION

On a more positive note, Albares sees three areas of opportunities for industry collaboration that operators need to take more seriously than they have in the past. To be relevant, first operators need to invest more in customer knowledge to extract value from our customer base collectively, representing 5 billion customers.

"I don't think you're thinking of the size of what your collective user base represents."

The second point is that operators will need to understand how to play in an ecosystem dominated by a few huge platforms. "I don't think all of you are going to be able to develop a platform on your own with the scale that is needed to compete with the big players. A higher degree of collaboration will be required," he said.

The third area is about attracting, developing and retaining world-class talent, which is vital to enabling a growth path in the future, he said. "We need to completely change the way we are perceived by young people so they see the industry as an attractive place to work."

HKT'S DIGITAL BUSINESS TRANSFORMATION



Alex Arena, Group Managing Director of HKT, details the operator's ten-year journey from being a network company to being a customer-centric service provider.

Hong Kong, from a telecoms perspective, is a horrifically competitive market. For more than 20 years we have faced brutal facilities-based competition; not virtual but real competition in this market. Also, we have probably some of the most discerning and demanding customers in the world.

HKT has been the incumbent telecoms company for close to 150 years. While the Hong Kong telecoms market is fully liberalised, I am pleased to say that we haven't lost many fixed-line customers and the reason for that is we have changed from a voice product into a data centric product. We remain number one in fixed line, broadband as well as mobile markets. With three mobile brands, we have about 40 per cent market share. Our sister company also has media, television and OTT assets, so we are able to offer quad-play services in the market.

Let me talk about the journey we have made as a telco as our services have evolved. Our standard service used to be fixed-line calls, and back then we referred to our customers as "subscribers", it was a technical term and not particularly

people-friendly. We kept the same thinking when we moved into ADSL, VDSL and fibre as we rolled out broadband. We kept the same when we came to mobile. This is the way we evolved our services. All our back-office systems, our ordering, provisioning and customer relationship systems, are all based on the concept of a 'line' to the "subscriber" (see figure 1, next page).

The whole relationship with the customer has changed dramatically since we started business, and we need to recognise that. Customer behaviour has been driven by a lot of other sectors, and other service industries like airlines, hospitality and even the shared economy. These industries are shaping the mindsets of customers and are setting the standards of service levels. And while we have been in a people centric business and we have to be customer focused we need to look even further forward. The way the world is moving now it is not going to be people to people services that will drive growth of our business. It is going to be people to machine and machine to machine, showing the importance of IoT (see figure 2, next page).

Figure 1 : HKT - Evolution of services

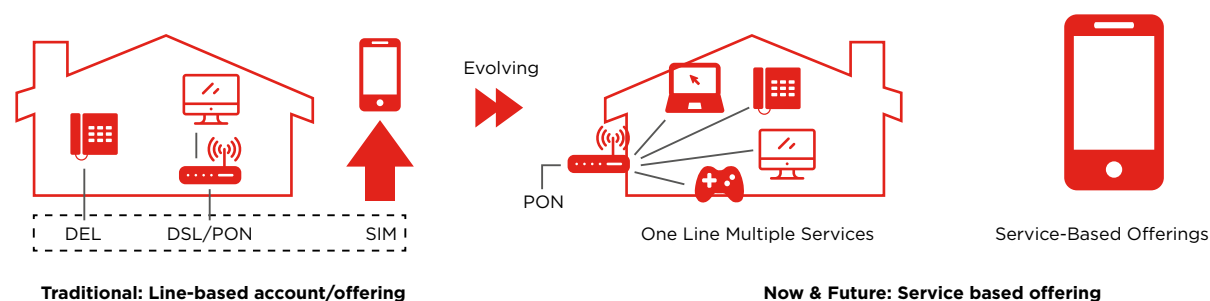
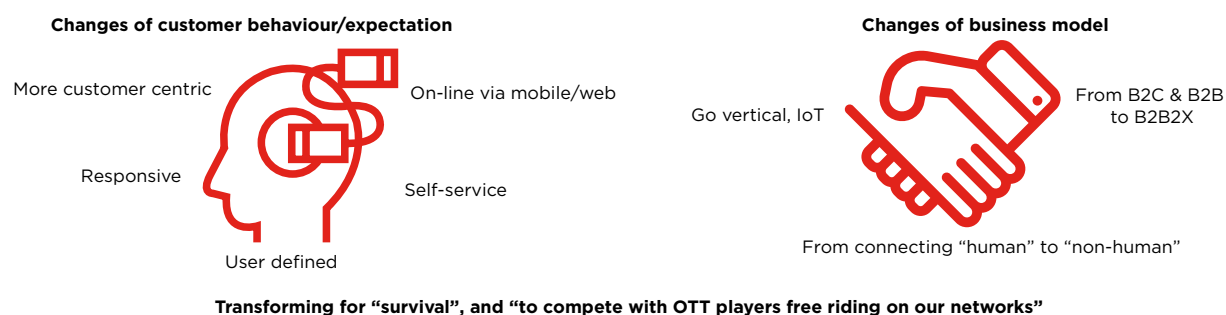


Figure 2: What's needed in the future



TRANSFORMATION APPROACH

We made a decision to transform our business a decade ago in order for us to excel today. I remembered telling my management team, "I do not want to be the CEO who Kodaks this company." We have a responsibility to keep this company going for another hundred years. As a result, we have to transform, to learn about how to compete with the OTT players, who are free riding on our networks.

The first thing is we have to stop being technology-centric, or network-centric, but start becoming customer-centric. We all know about the network-centric style, and we all have worked with great technology partners, like Huawei, etc. In some aspects, the technology takes care of itself. The toughest part is the customer side and we see three pieces in the chain (see figure 3, next page). We need to do the network transformation, which we are largely through, and we need to do the service transformation, which relates to customers so we don't call them subscribers anymore. In the middle, there is a whole set of processes that pulls together the way we manage our customers and the way we manage our networks.

SERVICE CULTURE

We started to transform with the hard stuff, which is the people. The first part of it was to get a sense of buy-in from all my direct reports, and we got that very quickly. Then we started to drive it down from the top to every level of the organisation. We adopted a motto that HKT is "Here to Serve". Whatever the customer wants, we are ready to provide it.

We have been on that journey for ten years, and we have put in a lot of micro efforts, and it has succeeded. One of the key metrics is the number of customer complaints. I have to admit that ten years ago we did not really collect customer complaints in a proper manner. It wasn't a key KPI. We didn't have a place for consolidated customer complaints data. Hence, the first thing we did is to build that system.

The number of complaints has been going down because our customers are more satisfied - in fact it is down by 60 per cent, or more, across most of our business. Another key KPI is compliments; we never collected data on compliments in the past but now we do - and the number of compliments has gone up tremendously and in most cases exceeds the number of complaints. And all of our staff have some of their annual pay, bonuses and incentives linked to these key KPIs - do you get customer complaints or do you get compliments? If you get complaints, you cannot get much of a bonus; if you get complimented, you will get to the top of the tree.

TECHNOLOGY DRIVE

On the technology side, we adopted the slogan that we must be "Building for Tomorrow, Today". Our customers expect us to understand technologies globally and understand where the technologies are going and make sure that Hong Kong gets them first.

Back in 2012 we moved to a passive optical fibre network and we offered the same price as we had for VDSL. We now have more than 84 per cent of all premises in Hong Kong where we can provide fibre to the home or the premise within four days. Sometimes, because of our dynamic field-force processes, customers can get it on the same day. When we sell 1Gb/s PON, we do a test in front of the customer, if it doesn't deliver a minimum speed of 800Mb/s, then we will not sell it.

Looking at mobile, we also have been pushing speeds, so we now have some cells that are running at 1Gb/s. That will be progressively rolled out to most parts of Hong Kong. The base in our network right now is 600Mb/s using three-carrier aggregation.

OFFLINE TO ONLINE

We are taking a step forward because we have been working on business transformation in a broad way. Now we have to consider

what role digital plays within that business transformation. In this respect we are doing service transformation and we are doing network transformation. In the past we started most of our service offerings based on offline channels e.g. call centres and traditional retail outlets. We are keeping those channels as they are important for some customers. However, we are moving to omni-channels by bringing in a lot more service portals and a lot more online support, as well as things like real-time charging. Effectively we are putting the customer in control of how they buy from us and how we provision services to them.

We are effectively doing the same with our network. The traditional closed network is now actually a cloudified network. As we move forward, we are giving customers the ability to instantly access the network, for example, our customers can use our "My HKT" app, which allows them to test their broadband service if they experience problems and to determine whether it is a network-based issue or a within-home issue. And through the same app they can access technical advice and remote remediation.

We also have a project to develop business-enabling tools, so customers can see how smart services and smart networks work together and finally eliminate the traditional line-based architecture. In September we opened a new shop in Elements shopping mall named "io.t by HKT" (inspiring our tomorrow). It is a new way to represent the retail experience to our customers.

Figure 3: HKT Transformation approach





Q&A:

A clear plan to streamline operating models

Juan Manuel Caro, Director of Operations & OSS at Telefónica, points out that cloud is a perfect way to improve agility and flexibility at a very reasonable cost.

Q: How important is digital transformation to Telefónica, and why?

Juan Manuel Caro (JMC): Digital transformation is paramount to Telefónica. Customer demands such as real time or omni-channel are key to compete, even to survive, in today's ecosystem. The traditional telco approach is no longer valid, so we need to reinvent ourselves to become truly digital. The technology for such a change is mostly available, but the challenge is the transformation needed both in mind-set and in processes redesign.

We are in the middle of this journey, which has put us in a great position to serve our individual customers as they deserve, and even to help our corporate customers to become digital themselves to improve their performance in other industries. However, as you know, transformation never ends...

Q: In terms of operational transformation, what have you found to be the critical missing components that need to be addressed?

JMC: This digital transformation that we are living right now impacts all the company, and to be successful we need to challenge everything. If I had to highlight two of the most important areas to be addressed, they would be:

□ Data. Data is not generally a problem, but to have the right combination of data from different sources available in real-time exactly when a decision needs to be made is what

can make the difference. Gathering, cleaning and a strong governance are mandatory to be successful.

□ Customer centric processes. Current processes may still reflect the past (the way we have always done things), or org charts (based in silos and handovers). A fresh new set of processes based on the customer experience is needed from the beginning, or all the automation and digitalisation applied over the legacy processes will not have the desired impact.

Q: What specific steps are you taking to restructure your operating model?

JMC: We have launched a corporate programme, called E2E digitalisation, across all areas and geographies, with full support of top management. Within this framework, we have clear goals and KPIs that guide and push us during this journey.

We have redesigned all our processes, with a clear focus on the customer experience and started to implement them in a brand new IT stack, both in the BSS and OSS domains. It has been a lot of work during the last four years, and we still have work to do, but getting rid of the legacy and simplifying the IT environment is key to being more flexible and agile.

Another very important milestone was the improvement of our big data and analytics capabilities, which allows a huge improvement in our operating model. I personally lead a project called data driven operations that will shortly bring us amazing improvements in that area.

Q: How are you using cloud resources to add scale and flexibility?

JMC: Cloud is a perfect way to improve agility and flexibility at a very reasonable cost. In operations and OSS, my area of responsibility, we have moved several applications to the cloud during the last few years. For example, most of the workforce management test and diagnosis or service problem management tools are already in a SaaS model or will be very soon.

Nevertheless, for some other domains, such as fault management, performance management or service quality management, the amount of data produced by our networks makes the on-premise solution more convenient.

So, cloud is definitely something that we are embracing in this transformation, but it has to be used wisely where it adds value to the business.

Q: I understand you are now using artificial intelligence (AI) applications to automatically build a customer satisfaction index. How is that changing the way you interact with customers?

JMC: We are moving from the traditional network-oriented operations, where we were looking for problems or alarms in the network elements, to service- and customer-oriented processes, where we monitor the quality of the services that we provide and the quality of experience of our customers using them.

For making that possible, we need to predict in real time what is the customer satisfaction of each interaction with the network based in lots of technical KPIs. We have built a huge platform and trained algorithms using machine learning and AI techniques with fantastic results.

With that capacity in place, we can now detect quality problems sooner, understanding better the customer point of

view, and how it relates to our network KPIs. We can then be more proactive and sometimes even solve the problem before the customer even calls.

Q: As you launch more complex services over your networks, such as VoLTE and IPTV, how is the new platform enabling you to improve or even guarantee quality of service?

JMC: This platform can work with all kinds of services. We have it currently working in some countries for mobile services, but the ambition is that every service in every country will be monitored from there.

The important thing is to gather all the data available related to that service in the network and train the algorithms to predict, for each interaction, the customer satisfaction. It is a process that we now understand very well. Once trained, you can have a clear picture of the quality that you are providing and link it to the network KPIs where you can work to improve their performance.

Q: In this transformation journey, what are the next steps you have planned?

JMC: As you say, this is a journey and we have many things to do yet. The good news is that we have set a goal and we have a clear plan to go there.

We need to continue growing our big data and analytics capabilities, finish our IT revolution with the new BSS and OSS stacks, deploy the service operations platform across all our geographies and, finally, take advantage of all these new capabilities to implement our new set of customer-centric processes.

I have stated it in simple terms, but the path ahead is amazingly challenging. We are living a true revolution, and we must change accordingly... and have fun on the journey!



DT: THE NETWORK IS ONLY PART OF THE TRANSFORMATION JOURNEY

Sven Hischke, MD of Deutsche Telekom's Pan-Net programme, believes the digital transformation journey does not necessarily involve travelling on a straight road.

Deutsche Telekom (DT) executive Sven Hischke said the company is working to improve operational efficiency and reduce costs by moving to a single European network and to develop service agility so it can cater to individual markets.

Hischke, MD of the operator's Pan-Net programme, said DT's transformation strategy has four pillars: an integrated IP network, the goal to offer the best customer experience, its partners and business-to-business services.

"You cannot do efficiency only on the network side and not look at the other pillars. Therefore, if you look at the details of Pan-Net, you'll see it's clear our overarching target is best customer experience, because without that what's the point of the most efficient production of services when your customers don't like you service?"

Hischke, who spoke at Huawei's Operational Transformation Forum in Hong Kong in September, also asked the audience if it's enough to become one of the leading telecoms operators in Europe, because unlike ten years ago, the competition isn't just other operators, you also have to look at the over-the-top (OTT) companies.

He explained that one of the reasons it started its Pan-Net transformation programme is that DT has 13 independent operations across Europe, each with "independent cultures and independent technologies, and most of them owned by the government in the past because they were incumbents".

But if you look at the OTT players, they

have a central approach, and "we do it locally. That can't be the way forward", he said. "Therefore, we have to change it, and we started the [Pan-Net] programme."

He said it has two challenges. "On one side we have the technology, where we have to transform, using that as an opportunity to go into NFV, SDN and all the new things. On the other side, we have to address the cost structure, otherwise we still have a disadvantage to the global players, because we have to do it locally, country by country."

Pan-Net combined both aspects by going into the new technology world, but doing it in a way that at the end you have one production for the services across Europe, he said.

MODULAR APPROACH

Because the market landscape has also changed, DT adopted a phased approach to its digital transformation, incorporating Pan-Net into its IP network, and forming a cloud architecture enabling its businesses in individual markets to select the components they need to offer tailored services.

Even the OTT players realise, for example, that the market in Romania is different than in Greece or Germany, he said. "We have to define and develop production for DT in Europe in a way that we can face different needs in different local markets."

Hischke compared its approach to the automotive industry years ago, whereby instead of building a specific model for

each market – 13 in DT's case – "you build components of that and then the local subsidiaries can combine it" to create localised services.

"That is our overarching aim. Yes, it's a very efficient production, but always with a target to have the best product in the local market."

The executive noted the modular approach extends to its virtualisation strategy. He said the operator wanted to avoid deploying hardware 13 times, and so employed standardised hardware and focused heavily on cross-border integration to ensure technologies need only be deployed once.

NOT DIRECT

Hischke believes the digital transformation journey for European operators does not necessarily involve travelling on a straight road. The fact the region's largest operators span several countries means they face a different path to digitalisation, and must exercise a degree of patience in executing the transformation.

The variety of elements to be considered means it is clear DT could not implement its digitalisation strategy in a single step. Hischke referred to the different ownership structures and ways of doing business at its various European businesses as "hurdles" which must be overcome.

"You can't always go straight to your target, you have some curves and try things out that everybody's convinced at the end can go to our target and to build only once."

SHOWING RESULTS

He said its first big milestone this year was it started real production. DT implemented its first data centres in Europe, which host its cloud, and its service operation centre and a backup to that are running, as well as a test lab, where it can on-board different solutions from vendors and partners and test on its infrastructure.

While the operator continues to add new services to its cloud portfolio, Hischke said it is already reaping the benefit in terms of reducing the time it takes to bring new services to market.

"We are now faster to change things

because we work now in the market, we work and are able to run that in a way like the OTTs and bring features more often to the customers."

On the talent side, he noted that you have to do transformation in a way that you take your people with you, because you can't lose the local teams.

To ensure the success of the programme, it followed a number of underlying principles. The first is the need for a cross-functional international team. "You can't start such a transformation as a technology project only. Others have tried that and have failed. We started with a cross-functional team from the beginning three years ago."

He noted it wasn't a headquarters driven project, but staffed out of its local subsidiaries.

The second principle is to produce cross-board to meet local needs. The third is to use open source as much as possible, which is important for its partners. And the fourth is to build only one cloud.

"Yes, we have different locations. But from a logical point of view, there is only one European cloud so you can optimise and you have only one team to maintain the cloud, but you can deliver across Europe," he said.



VIVA KUWAIT DESIGNED FROM GROUND UP AS DATA PLAYER

Zarrar Hasham Khan, CTO of VIVA, pushed to transform the operator's network operations using big data, analytics, artificial intelligence and process automation.

Zarrar Hasham Khan, CTO of Kuwait-based VIVA, said that a big advantage it had over incumbent mobile players around the world is that when it started in 2008 it was established as a data operator.

"This was a key consideration in all our product developments as well as in how we designed our network. This helped us define certain metrics, which looked at monetisation of data, and more importantly the margins on data. Every operational decision we take helps us preserve our margins in a data driven era."

He conceded that traditional operators have a very conservative mindset, with executives questioning why you would take risks, without ever challenging the norms. "This mindset, which still prevails today, allowed mobile players to get a hammering from the OTT providers because we are very inertia driven and don't see outside possibilities."

VIVA hasn't followed that path. It has pushed to transform its network operations using big data, analytics, artificial intelligence and process automation. A digital platform was deployed enabling real-time planning, online transactions and intelligent operations.

STREAMLINING PROCESSES

These technologies, he said, are critical because since the advent of 2G in the

late 1980s, the structure in which mobile networks are planned has not changed much.

"I think a lot of mobile operators have a planning team, we have a rollout team, then we have an operations team and an optimisation team. And the structure of the teams are more or less similar. SONs [self-organising networks] and similar technologies were not able to [integrate] into the operational processes, primarily because of the fact that the processes were so finely engrained that it was very difficult to disrupt them."

What VIVA did was to start with a clean slate and ask "what if we have the processes and we start to build the processes based primarily on analytics, machine learning and automation".

He explained that the key builder of its strategy was a layered strategy in which it wanted to first improve the network experience and then improve financial and operational efficiency. Planning looked not only at reducing costs, but also improving the customer experience.

"We look at the wishes of the customer. So in step one, we started to look at our customers and what are the insights primarily in terms of the applications use and the application performance. Based on the requirements of the customer, we had to go with agile planning, and to do agile planning you have to automate the entire process."

VIVA started working with Huawei on the project in 2016.

It came up with a product called CEO war room. It is data centric - all planning goes through a centralised data warehouse, which required it to consolidate information relating to billing, usage and rollout planning. "Our key requirement was that by 2020 we should reduce the number in our planning teams by 90 per cent and the number of our operations teams by 80 per cent."

He said structurally VIVA is a very lean company. It has relied heavily on outsourcing, which gives it a lot of flexibility.

VIVA has relied heavily on outsourcing, which gives it a lot of flexibility.



GROWING DATA USAGE

Mobile operators in Kuwait offer some of the most generous data allocations in the world, with 1TB per month priced at about \$35, but Khan doesn't believe this is sustainable in the long term from both a technology and behavioral point of view.

"I don't think it can continue forever. Today we have got to the point where technology is putting a wall in front of us. We have a four-carrier network. We have spectrum for a fifth carrier, but there is no five-carrier aggregation technology that is mature," he explained.

Khan said VIVA is arguably the operator with the highest data traffic per broadband subscriber anywhere in the world - much higher than other advanced markets such as South Korea or Japan. Its average traffic is more than 2GB per day per user. More than half its subscribers are on mobile broadband plans.

"Our baseline is a terabyte a month. You will see some really insane baseline data quotas, with no hidden text,

no throttling after 35GB. It's 1TB, no questions asked. None of the operators in Kuwait throttle video."

The key reason for this is people in Kuwait, a country of 4.2 million people, use mobile as a replacement for fixed broadband, he said. "They have their smart TV connected to mobile and use it as their primary broadband consumption mechanism."

KEEPING UP

The operator, with 2.5 million subscribers, is looking at offloading technologies to keep the cost of delivering data down while continuing to offer a quality service. It has about 2,300 sites and uses LTE-Advanced with four-carrier aggregation at more than 90 per cent of its sites.

With people in Kuwait early adopters of new technology, such as 4K video, it creates a lot of challenges - average monthly consumption is 63GB per subscriber and 57 per cent of traffic is streaming video.

"This puts a lot of strain in terms of how versatile the network has to be. It has forced us to be at the edge of technology possibilities." Advanced technologies were applied to provide an experience-driven network and improved the average user throughput by 39.2 per cent within one year, he said.

"Network resource improvement helped us manage traffic growth and enhance the customer experience. We have already deployed 8x8 MIMO, and we are the first operator to apply this technology. As traffic growth continues, we will go even further and optimise transmission and core networks through network improvement in future."

Last month VIVA's VoLTE traffic surpassed its 2G traffic. "We believe that we're probably the first in the world where this has happened. Once you get used to the VoLTE quality, you can't go back to 3G or 2G," Khan said.

The rapid uptake of VoLTE is supported by Kuwait's three mobile operators having VoLTE interconnect.

Q&A:

Open ROADS Community

Trevor Cheung, COO of Open ROADS Community (OPRC), and **Jerry Smith**, COO and Asia Chairman for OgilvyRED Consulting in Asia, explain how a different approach to digital transformation has created a common language across industries and is yielding strong growth.

Open ROADS Community executives explain why many businesses are worried about being disrupted and are taking steps to be future ready, which requires making sure they can be where the consumer wants them to be.

Q: How is Open ROADS Community approaching digital transformation differently than others have in the past?

Trevor Cheung (TC): Carriers need to operate a business, run marketing and deliver customer service, not just infrastructure. To perform digital transformation we need different stakeholders to come together. From the top to define strategy, we need the CEO involved. We also need business analysts and the domain experts on marketing, customer experience as well as human resources. To create better customer experience, we need design thinking or experiencing thinking, and ultimately architecture and technology expertise. All in all, we need to get all these people to come together and talk, and then it's really a digital transformation. There's no single community that can work on that.

The ultimate goal is in our name: ROADS, which stands for Real-time, On-Demand, All-Online, DIY and Social. These are the types of customer experiences we are hoping to help industry leaders create in their digital transformation initiatives.

Jerry Smith (JS): Across industries about 90 per cent of companies are on a form of digital transformation. However, only about 15 per cent to 17 per cent say they have a reasonably good direction of where they want to be going. By pulling not just the technology, but the customer and the human aspects to this, we're seeing interest in this model because it attacks the business problem from all the dynamics that are playing out.

Q: Can you share details about of the reference model you have developed?

TC: Based on Huawei's findings over the past two years as well as best practices identified by the both the Open ROADS Community and from wider industry, we created a clear methodology to guide us called the Digital Mastermind. It is a comprehensive set of actions, assessment tools, and business processes for various stages of transformation that

leaders need to ensure their digital transformation initiative is successful. For enterprises going through transformation, the methodology helps align a digital transformation ambition with business objectives, identify opportunities across the customer journey, maximise internal employee engagement to act on those opportunities, and quantifies the value created from transformation initiatives.

As one example of a tool, the Open Digital Maturity Model within the Digital Mastermind is an assessment tool that benchmarks an organisation's current digital maturity level against its own digital transformation goals and the performance of best-in-class organisations.

The Digital Mastermind is created by and for the Community. The methodology has already been put into practice with HKT's digital operations transformation project.

Q: Open ROADS Community has grown quickly since it was initiated two years ago. What is driving that growth?

TC: The number of committee members increased from 32 to 51 since the end of December 2017. The growth is driven by a number of factors. We've opened up a number of new committees and embraced a give-and-take attitude, which encourages people to bring their problems as well as their thinking. We work together to document the expertise as best practice learnings for the community.

JS: Many businesses are worried about being disrupted. They are worried about competitors taking an innovation lead by creating a more customer-centric offer. They are worried about keeping up with the way consumers are changing. Consumers are adopting new OTT-layer type connections that are improving the customer experience and many businesses fear being left behind. The time is right. Most people are worried that if they don't understand the customer, their customer will leave.

Q: How can they avoid that - what specific steps are they taking?

JS: That involves not only fixing the technology, but also examining your brand and making sure your customer experience lives up to the promise. All these aspects are built into the Digital Mastermind. Technology, marketing and human capital are fundamental to bring the promise to life.

Being future ready is making sure you can be where the consumer wants you to be when they 'pull' the message. Previous generations of businesses were about 'push' and products. We're in the 'I want it now' age and the first to deliver succeeds, provided it's authentic.

Q: So the Mastermind is filling a gap in the marketplace?

JS: The holistic nature is important because if you look at the last generation of change management, it was done in silos. Therefore, each department was changing something, but the cogs were turning at different speeds and sometimes in different directions. What we have here is the ability to create a vision and a roadmap on that vision.

Q: What have been the key milestones in 2017?

TC: First of all, many companies now agree the roadmap works at a high level, so we can speak the same language and know what we're talking about. To be honest, when we first began in early 2016, we thought we knew each other [stakeholders], but we really didn't. Now we have a common language.

The second achievement is actually realising digital operations successes.

The Digital Mastermind has been put into practice in HKT's

digital operations transformation project.

JS: I'd say it's the combination of thinking from multiple parties - we have the academics involved, practitioners and the ICT businesses. The strategy is leading to common goals. It's good to see academics endorsing the thinking as well.

Q: Where are you seeing the greatest interest?

TC: Interestingly, we're seeing a lot of interest in Southeast Asia, and Europe as well as Latin America are starting to show interest. In terms of the size of operators looking for guidance on transformation, there is interest at all levels - from the country level to the regional and group level.

Q: What are your goals for the future?

TC: To make the community a not-for-profit organisation and expand the community. We continue to welcome more thought leaders and diverse perspectives, as we see the Digital Mastermind as something that is fluid and that benefits from continuous feedback. For example, a Silicon Valley-based industry organisation, the Technology Service Industry Association, has shown interesting in joining. They have a lot of knowledge in cloud computing and want to work with us closely, so I want to bring them on board in the short term.

In addition to the ODMM Assessment, we are also working on further bringing the framework to life so more executives and industry leaders can apply it. We are working on a Digital Mastermind dashboard that incorporates assessments and tools that cover customer experience, marketing, talent, etc. This is something I really want to crack in the short term of the next six months.

MARKET REPORT

TELCOS LOOK TO THE CLOUD TO DRIVE BUSINESS SUCCESS

by *Mobile World Live*

New cloud strategies enable companies to increase operational efficiency, become more agile and lower costs – all in an effort to essentially achieve a new way to serve customers.

Telecoms operators are embracing the cloud both as a way to transform internally and to provide new services for consumers and business customers. They are tackling all elements of the cloud, with hybrid cloud solutions emerging as a popular way to provision combinations of private and public cloud services.

As highlighted by telecoms equipment maker Huawei, operators need to rethink their networks to support growth, deliver good service levels and reduce costs. Networks were traditionally designed for speed rather than flexibility, but the technology specialist said that will no longer suffice when flexible cloud-based services become the norm.

The challenge is to find and pursue the right cloud strategy. In a May 2017 report on cloud enterprise services, research and consultancy firm Ovum advised telecoms service providers to avoid the temptation to compete with global public cloud giants Amazon Web Services (AWS), Facebook, Google, IBM and Microsoft beyond a local or regional level.

“Network and infrastructure services providers, in particular, must rethink their roles, focusing on services integration skills, helping enterprises integrate and orchestrate hybrid IT and network services, and enabling them to deliver a seamless end-to-end user experience whatever the application, workload or platform,” Ovum said in the report.

BOLD APPROACH

However, in its report titled Digital Transformation for 2020 and Beyond, Ernst & Young said its findings suggest that telcos can – and should – be much bolder in their cloud strategies.

“Telcos currently favour private cloud approaches, but public cloud offers greater ROI in the long term, as long as operators accept that successful public cloud strategies require a greater focus on security implications and changing regulatory scenarios. Looking forward, cloud adoption – accelerated through partnerships – can improve the centralisation of IT management, enabling more flexibility in staffing and recruitment, while paving the way for greater focus on product and service innovation,” EY said.

In its 2016 report on the role of telcos in the cloud, STL Partners noted that the big four cloud companies (Amazon, Facebook, Google and Microsoft) still only account for about half the total spending. “The niche opportunities in cloud remain very real, and there are still potential opportunities for telcos that offer compelling technical and product differentiation,” STL said.

Looking at telcos such as AT&T, Telstra and Iliad, which STL believes have found a niche in the segment of special-purpose, regional, private and otherwise differentiated cloud providers, the research company said an important common factor has been the operators’ commitment to owning their technology and building in-house expertise, and using this to differentiate themselves from ‘big cloud’.

“AT&T’s network-integrated cloud strategy is driven by both using open-source software as far as possible, and investing in the key open-source projects by contributing code back to them. Iliad introduced the first full bare-metal cloud, using an innovative ARM-based micro-server it developed in-house. Telstra is bringing much more engineering back in-house, in support of its distinctive role as the preferred partner for all the major clouds in Australia,” STL said.

FIGHTING THE GIANTS

Deutsche Telekom (DT) is one of the telcos that has decided to take on the US public cloud giants, offering strict German data protection regulations and a “European alternative” as incentives to users. A year ago, the operator launched Open Telekom Cloud, which it described as a public cloud combining flexible IT resources with service and data protection.

DT’s OpenStack-based infrastructure-as-a-service (IaaS) solution is priced on an on-demand and pay-as-you-go basis. Hardware and solution expertise is provided by Huawei, while data centre, network, and cloud operation and management are provided by T-Systems, DT’s global managed services operation. The German telco also offers software-as-a-service (SaaS) and platform-as-a-service (PaaS) as part of its broader Telekom Cloud offering.



Spain-based Telefonica also provides global compute, storage, networking, database, analytic, application and deployment services as part of its OpenStack-based Open Cloud offering. The operator said Open Cloud is designed to have high scalability, high availability, high security and cost efficiency.

In September 2016, Telefonica also agreed to deploy Huawei’s CloudVPN solution to support its global CloudVPN procurement framework, and said a laboratory would be set up in Argentina for a pilot commercial deployment of the CloudVPN technology. Huawei said it developed its CloudVPN solutions specifically to help operators provide enterprises with virtualised and fully cloudified B2B services on SDN/NFV networks.

DRIVING TRANSFORMATION

Meanwhile, Cédric Parent, VP of marketing and strategy at Orange Cloud for Business, the Orange division dedicated to cloud services, pointed to the fact that migrating servers to the cloud is playing a significant role in digital transformation, although he noted that digital transformation goes further as it also impacts business lines within companies.

“All of our infrastructure is in – or is moving to – the cloud, including our unified communications and SDN (software defined networking) solutions, to improve the convergence and flexibility of IT, connectivity and security resources so that new services and businesses can emerge. The experience we have gained with cloud solutions is a strong asset both for us and for our customers,” he said.

Parent believes that the very DNA of a telecoms operator “allows us to offer our customers end-to-end solutions: the network, the security and, of course, the cloud infrastructures and associated services. This enables us to meet the challenges of

bimodal infrastructures that may require combining public with private networks to support enterprise digital transformation.”

GROUP-WIDE COLLABORATION

Vodafone Group, meanwhile, has embarked on a group-wide transformation of network and compute infrastructure towards virtualisation, network functions virtualisation (NFV) and cloud technology. The reference architecture for the Vodafone Ocean project is now in place, and the 26 markets within the group are now at various stages of adoption and implementation.

Michael Sullivan-Trainor, an analyst at Technology Business Research (TBR), said there had been pushback from some operators including Telefonica and Vodafone as some vendors had been trying to sell “non-cloud-native” solutions.

The drivers for Vodafone are to increase operational efficiency, become more agile, lower costs, gain a more holistic overview of the network through a new end-to-end architecture, and essentially achieve a new way to serve customers. In a report for Vodafone Group titled Creating a Gigabit Society – the role of 5G, Arthur D. Little noted that future technologies, including 5G architectures, NFV, SDN, and the use of widespread control APIs and edge-computing will reinvent the structure of mobile networks.

Some forecasts on market growth seem a good way to round off this exploration of telco cloud strategies. According to research from Gartner, the worldwide public cloud services market is projected to increase by 18 per cent in 2017 to reach \$246.8 billion, up from \$209.2 billion in 2016. The research company said the highest growth will come from IaaS, which is projected to grow 36.8 per cent this year to \$34.6 billion. SaaS is expected to increase 20.1 per cent to hit \$46.3 billion.



Q&A:

Simplification & rationalisation

Bouke Hoving, EVP of Networks & IT at KPN, says the key to future-proof business models is the agility to enable rapid business model changes to react to the shifting business environment.

Q. What does digital transformation actually mean to KPN – how will it impact your network, your services and your customers' overall experience?

BH: Digital transformation first and foremost means to KPN enabling customers to interact via digital channels, making it easier to do business with KPN. Beyond digital sales and services enabled by digital front-end IT, digital transformation requires KPN to upgrade back-end IT and ultimately networks to enable real-time customer interaction.

Q. Can you update us on the status of your multi-year transformation project? What have been your major successes and challenges?

BH: KPN started three and a half years ago to replace front-end IT to enable digital sales and service and subsequently rolled-out digital IT to other channels as well to enable omni-channel customer experience. Initially the digital frontend IT was connected to legacy back-end IT via a decoupling layer. Decoupling frontend from back-end allowed KPN to simultaneously improve and digitise customer journey and consolidate, replace and decommission legacy backend. After three and a half years, digital customer interaction is now a dominant channel and the number of calls has been reduced significantly – by 50 per cent.

Q. In terms of networks as well as IT, what key steps are you taking to streamline your operational efficiency with an eye to enhancing the customer experience?

BH: In the front-end we focus on redesigning the customer journey from product and channel dependent to product independent and omni-channel with the side-effect of rationalization of legacy frontend. In the back-end we focus on consolidating, replacing and decommissioning legacy backend.

Q. How is all this making KPN more competitive?

BH: On the back of transforming KPN's operating model from product and channel dependent to product independent and

omni-channel, we have experienced a huge uptake in our net promoter score by more than 20 points while we realised savings of more than €500 million in three and a half years.

Q. With technology changing so rapidly, how can any operator build a so-called future-proof business model?

BH: The key to a future-proof business model is agility to enable rapid business model changes to react to the shifting business environment. Agility in business model requires simple, modern, modular and digital IT.

Q. How important is simplification in your transformation, particularly when it comes to back-office operations, such as BSS?

BH: The key to a future-proof business model is agility to enable rapid business model changes to react to the shifting business environment. Agility in business model requires simple, modern, modular and digital IT.

Q. How have your business support systems (BSS) changed in the past few years and how different will they be say five years from now?

BH: We have transformed multiple product-dependent and highly customised BSS systems into a highly simplified and standardised set of systems, and expect the role of BSS to reduce further as billing relationships keep on being simplified in the near future.

Q. How do you see the role of service providers evolving in terms of the commercial, monetisation relationship with customers, partners and third parties?

BH: In a fully connected digital world, telco services will be also more and more packaged into third-party digital propositions, which will require telcos to open up their operating model, eg allow third parties to instantaneously activate services on a telco network.

SHARING BEST PRACTICES TO BOOST BUSINESS VALUE



Huawei OTF event takes transformation discussion to next level: How to serve diverse industry sectors by delivering capabilities catering to the specific needs of each sector.

Huawei held its second Operations Transformation Forum in Hong Kong in September on the theme of "Transforming towards Digital Business - Embrace, Act, Accelerate". The event attracted more than 600 attendees from across the telecoms ecosystem, with participations from operators, standards organizations, academic and research institutions, as well as Huawei partners.

While operators are transforming their operations to create new growth opportunities, Ryan Ding, president of Huawei's carrier business group, pointed out in his keynote that the diverse range of digital services means networks need to be adaptable to varying use cases across industries.

Digital transformation is now a common goal for operators, but communications services in different industries are diversified, and to serve those sectors operators need to deliver capabilities that cater to the specific needs of each sector.

For example, for enterprise IoT the most important thing is to reduce time to market, while for video higher bandwidth and lower latency are critical, but for NB-IoT it's lower power consumption and wide areas coverage.

"These are totally different areas and services that have totally different business requirements. So carriers must redefine their network capabilities from end-to-end. We believe operators must integrate their network strengths with digital technologies to redefine business experience and connectivity," Ding said.

NEW REVENUE STREAMS

Javier Albares, head of corporate strategy at industry association GSMA, identified the need for improved revenue generation as a key driver of digital transformation, noting the gap between the value of telecoms companies and ecosystem players is growing. "As an industry, we have not been able to solve this," he said.

Albares noted that data traffic grew 60 per cent last year, but operators' revenue increased 1 per cent, highlighting that they are failing to cash in on the trend. "There is a huge gap between the opportunities that we are creating as an industry, the services and the devices that run into our networks, and the revenues that we are capturing associated with those use cases," he said.

Operators also continue to expend large sums in terms of capex and opex to match the growing demand for connectivity, but are now "reaching the limit of what can be achieved with the current revenue structure".

Peter Weill, chairman of the Centre for Information Systems Research and senior research scientist at MIT Sloan School of Management, said the purpose of digital transformation is simply to prepare companies for the future, and outlined a few different paths businesses can take to achieve the change.

"As you think about your future, think about the capabilities you need. You have to have an executive committee that talks about transformation, and you have to build a new infrastructure. And then there's capabilities to support operational efficiency and then there's capabilities to support customer experience," Weill said.

The good news, he said, is it's one of the most exciting journeys you'll ever be on. "I think operators are at a very interesting point whether they are going to move away from the customer or towards. Whichever way you choose you need a pathway."

THREE INGREDIENTS

During his keynote Howard Liang, Huawei's SVP and chairman of Open ROADS Community, said digital operations transformation ultimately is about creating additional business value, while providing a better, more compelling experience for customers. But operators have many different objectives for transforming their digital operations, such as making them more competitive, reducing time to market for new services or recouping network investment or improving operations efficiency.

Liang went on to outline the three key ingredients needed for a successful transformation: follow a digital 'mastermind' to navigator the journey, create an industry reference model that allows best-in-class solutions, and prioritize the transformation activities to ensure real value is delivered throughout the process.

For the first point, he recommended following a comprehensive set of prescriptive methods for transformation built on the work of the Open ROADS community.

SURVIVAL

Hong Kong operator HKT needed to transform its business to survive, group managing director Alex Arena admitted. "I remember telling my senior management team, 'I do not want to be the CEO that Kodaks his company'. We have a responsibility to keep this company going," he said.

The aim of the work is to create cloud-based infrastructure and



platforms to enhance its digital capabilities. This will enable it to better serve customer needs in an increasingly competitive market.

Paul Cobban, chief data and transformation officer at DBS Bank, told the audience that banks are similar to telcos in many ways, with high opex, high security requirements and complicated back-office systems.

"At DBS we want to make banking joyful," he said. It went through five steps on its transformational journey after setting a strategy with the assumption that digital innovation impacts every part of DBS.

The journey started with eliminating waste by streamlined complex procedures and then designing from the customer back. The third step was to use data-driven approaches to improve efficiency and accuracy of prediction. Finally, a special

innovation team was set up to take overall responsibility of innovations and efforts are made to consolidate the company's culture.

REVENUE RECOVERY

Koichi Takahara, SVP and GM of NTT DoCoMo's Smart-Life Solutions Department, said the new unit over the last two years has enabled new growth and the operator is now on the "recovery track".

"Our non-telco business is now 20 per cent of total operating revenue. Operating income increased 50 per cent to \$1 billion last year, and the target for Smart-Life is \$1.2 billion for the end of this year," he said.

Its revenue projection is trending up for the next five years, he

said. "Our performance could serve as a leading indicator for the industry."

Deutsche Telekom executive Sven Hischke discussed how its digital transformation across its European operations reduced the time it takes to add new services to its cloud portfolio.

"We are now faster to change things because we work now in the market, we work and are able to run that in a way like the OTTs and bring features more often to the customers," said Hischke, MD of the operator's Pan-Net programme.

NO COMPROMISE

Bouke Hoving, EVP of networks and & IT at KPN, noted that most digital transformation programmes choose between either cost efficiencies or customer experience improvements. "I was refusing to choose between the two, and not willing to accept a vague compromise."

KPN's efforts to modernise its business led to a work which saw KPN cut 80 per cent of its products and 25 per cent of its IT systems to improve its flexibility and simplicity.

"When I started, I said if I only delivered the savings, I would consider the programme to be a complete disaster and failure. Because ultimately what this transformation is about is a step-change in customer interaction," Hoving said.

PROCESS FOCUS

Zarrar Hasham Khan, CTO of VIVA, talked about the framework of digital operations that it has developed to optimise its operations and improve its financial position.

In the past, operators couldn't integrate the many operational processes primarily because the processes were so finely engrained that it was very difficult to disrupt these processes across teams, he said.

"What we did was, we started with a clean slate and we started by saying 'what if we start to build the processes based primarily on analytics, and machine learning and automation. The key builder of our strategy was a layered strategy in which we wanted to improve the network experience...and then also improve the efficiency, primarily financial efficiency," he explained.

Tadashi Iida, VP of SoftBank's West Japan Tech Division, suggested there is a huge opportunity to optimize its entire network operations, which today are handled mostly by human.

"Our goal is to automate operations in the future. We have more than 3,000 working on our network team. By introducing AI or machine learning and automated operations we can reduce our workforce by 50 per cent without sacrificing any quality of performance. But we're not going to make any layoff, so the other half will shift to new businesses."

Another key issue highlighted at OTF17 was the need for operators to have the right people and skills to support their digital efforts.

TRANSFORMING
TOWARDS
**DIGITAL
BUSINESS**



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Editors and Contacts:

Joseph Waring - JWaring@gsma.com

Zhang Sen - Huaweiservice@huawei.com

Support: Justin Springham, Zheng Ruguo, Luo Xumeng, Liu Qi, Wang Xiaowen, Liao Yingchuan, Lei Ming, Henry Cheung, Deng Dan, Gaoyanhui, Wang Jianzhou, Zheng Zelong, Lei Yong, Gao Xiang, Xia Heng