

IoT NOW

HOW TO RUN AN IoT **ENABLED** BUSINESS

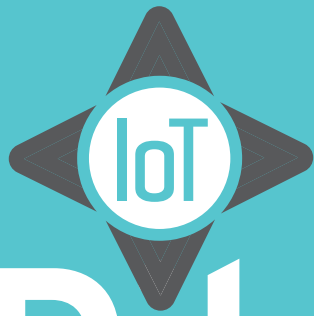
GSMA **MOBILE**
WORLD CONGRESS
BARCELONA 26 FEB-1 MAR 2018

GUIDE TO MOBILE WORLD CONGRESS 2018

INTERVIEW

Aeris' Mohsen Mohseninia describes the data-driven, future-proof, scalable and secure attributes of mature IoT

PLUS: Dodge the drones, swerve the connected cars and augment your show attending reality with our MWC2018 event preview • News on this year's main Congress themes • Are IoT failures caused by trying to do too much too soon? • Latest news online at www.iot-now.com

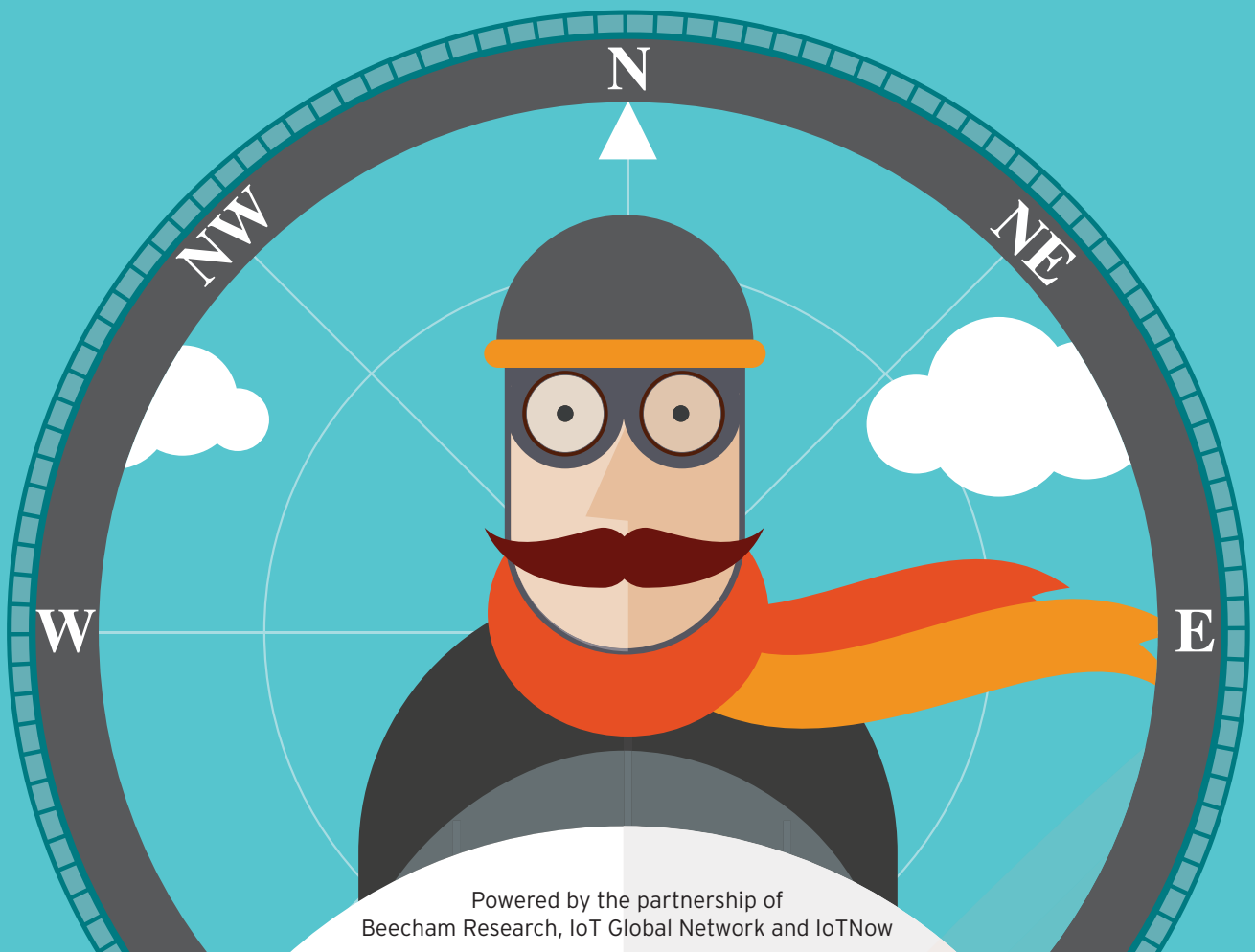


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IoT Now GUIDE TO MOBILE WORLD CONGRESS 2018



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Cover sponsor: Aeris is a technology partner with a proven history of helping companies unlock the value of IoT. For more than a decade, the company has powered critical projects for some of the most demanding customers of IoT services today. Aeris strives to fundamentally improve their businesses by dramatically reducing costs, accelerating time-to-market and enabling new revenue streams. Built from the ground up for IoT and road tested at scale, Aeris IoT Services are based on the broadest technology stack in the industry, spanning connectivity up to vertical solutions. As veterans of the industry, Aeris knows that implementing an IoT solution can be complex and the company prides itself on making it simpler.

Visit www.aeris.com or follow Aeris on Twitter [@AerisM2M](https://twitter.com/AerisM2M) to learn how it can inspire you to create new business models and to participate in the revolution of the Internet of Things.

NEWS IN BRIEF

NEC to highlight 5G at MWC 2018

NEC has announced it is to present technologies and solutions for working together with telecoms carriers in the co-creation of new business models and the implementation of 5G solutions at Mobile World Congress (MWC) 2018.

NEC will demonstrate solutions and technologies that help address the needs of both carriers and businesses alike through its '5G. A Future Beyond Imagination,' concept, which positions NEC and carriers as service enablers for the co-creation of new business models for a wide variety of vertical industries, including the security, agriculture and transportation fields, that maximise resources and reinforce earnings.

At the NEC booth, the company's portfolio of AI technologies, NEC the WISE, will be introduced, as well as NEC's series of biometric authentication solutions, Bio-IDiom, which includes some of the world's fastest and most accurate facial and fingerprint authentication technologies. ■

China to drive cellular IoT in 2018

A new report from IoT market research firm **Berg Insight** estimates that the global number of cellular IoT subscribers increased by 56% during 2017 to reach 647.5 million. The accelerating growth is expected to take the global installed base to almost one billion at the end of 2018. By 2022, Berg Insight now projects that there will be 2.7 billion IoT devices connected to cellular networks worldwide.

"China is playing a key role in accelerating and transforming the global cellular IoT market," said Tobias Ryberg, senior analyst and author of the report. "The Chinese government has set a goal to connect 600 million devices to NB-IoT networks by 2020." ■

Sequans and NTT DOCOMO partner to accelerate adoption of LTE-M in Japan



Georges Karam,
Sequans

LTE for IoT chipmaker **Sequans Communications** has formalised an agreement with **NTT DOCOMO**, the Japanese mobile operator, to accelerate the development of LTE-M devices and applications on DOCOMO's network, using Sequans' Monarch LTE Platform.

The two companies have been working together on LTE for IoT for several years, beginning first with LTE Cat 1 technology, and the goal of this current collaboration is to develop and mature an end-to-end LTE-M ecosystem in Japan.

"We are pleased to extend our longtime and successful partnership with Sequans to address the LTE-M market," said Toshiyuki Futakata, the vice president

and general manager of the Communication Device Development Department at NTT DOCOMO. "The use of Sequans' Monarch technology will be instrumental for us in reaching our goal of widespread adoption of LTE-M technology across Japan. Sequans is a key player in IoT in Japan and its Monarch solution has the key characteristics needed to spur rapid adoption, including low power consumption, low cost and ease of integration."

Georges Karam, the chief executive of Sequans, added: "Working in close collaboration with DOCOMO over the years has yielded excellent results and we look forward to continuing our work together in anticipation of DOCOMO's LTE-M network launch. DOCOMO has everything in place to serve its IoT customers well and we are proud that our Monarch technology will be a key part of DOCOMO's LTE for IoT solutions." ■

Smart grids to save city dwellers US\$14bn in energy costs by 2022, says Juniper Research

New data from **Juniper Research** has found that the development of smart grids linked to smart cities will result in citizens saving US\$14bn (€11.67bn) per annum in energy bills by 2022. This is up from the US\$3.4bn (€2.83bn) saving estimated for 2017, resulting from smart meter rollouts, energy-saving policies and sensing technology to improve grid reliability and efficiency.

As part of the new study, *Smart Cities: Strategies & Forecasts in Energy, Transport & Lighting 2017-2022*, Juniper analysed and ranked global cities to assess their performance and approach towards energy consumption and delivery. First was Seoul, followed by San Francisco, New York, Portland,

Oregon and Barcelona.

"Seoul's large-scale deployment of electric vehicle charging infrastructure, smart street lighting and smart meter roll-outs will undoubtedly accelerate the development of smart grid infrastructure to manage these elements," said research author Steffen Sorrell. ■



Steffen Sorrell,
Juniper Research

HPE, PTC and Wind River join effort to speed IoT software purchasing



Volkhard Bregulla,
HPE

Three of the largest software vendors in IoT – **HPE, PTC** and **Wind River** – have agreed to join the IoT **M2M Council's (IMC)** fledgling template RFP Program for IoT Software Platforms.

Using input from many vendors and more than 100 software buyers in an open-source

process, the IMC developed a template reference document that will ease buying of IoT software and, later, hardware and connectivity solutions. HPE, PTC and Wind River have agreed to have their platforms assessed by the IoT M2M Council which represents 25,000 enterprise users and OEMs that buy IoT solutions.

The RFP programme will simplify sourcing of IoT platforms for buyers by providing reference documentation and demonstrating capabilities of established

software platforms and, for participating vendors, it will ultimately shorten the sales cycle.

The validation process, conducted by UK-based **Beecham Research**, includes surveying vendors for responses to the RFP, contacting their customers anonymously for references, and a hands-on analysis of the platforms for ease-of-use.

“No other industry group or major consultancy is talking to buyers at scale and looking at the actual IoT sales process,” said Volkhard Bregulla, the vice president of Global Industries, Manufacturing & Distribution at HPE. “My staff spends a lot of time responding to RFPs. The IMC’s RFP Program gives us a report from a credible third-party that allows us to respond to RFPs more quickly, as well as a place to send potential buyers where they can access a template RFP document and learn more. If this programme reduces my sales cycle, even just incrementally, it will be well worth it.” ■

Field services operations bullish on emerging technologies, finds Red Hat survey

Field workers are now at the forefront of digital transformation where artificial intelligence (AI), smart mobile devices, the Internet of Things (IoT) and business process management (BPM) technologies have created new opportunities to better streamline and transform traditional workflows and workforce management practices.

To better understand how these technologies are being applied and the impact they are having in the enterprise, **Red Hat** commissioned research firm **Vanson Bourne** to survey 300 IT decision makers from organisations in the US, Europe and Asia that employ a significant

field workforce. The survey examined investment trends, current and future adoption patterns, use cases and implementation challenges.

According to the results, strong technology investment is expected by respondents with an average increase of 25% through to November 2018, reflecting the importance of technology in transforming field service operations. Top business factors identified as influencing this investment include increasing field worker productivity (46%), streamlining or optimising field operations and processes (40%), and improving customer service (37%). ■

NEWS IN BRIEF

Roboadvisors to manage US\$1tn assets by 2022

New data from **Juniper Research** has found the market for roboadvisors – digital wealth management platforms – under full control of artificial intelligence (AI) systems will reach US\$987bn per annum in AUM (assets under management) by 2022.

These fully-automated roboadvisors will represent approximately 25% of total roboadvisor AUM in 2022 and their growth will considerably outpace semi-automated, supervised deployment types with lesser reliance on AI. These roboadvisors are forecast to grow their AUM at close to 155% per annum on average versus 69% growth for the overall market according to Juniper. ■

Europe falls behind US in adoption of AI-led security

IoT (Internet of Things) strategies are hampering security management, with almost half (47%) of executives in a new survey saying it has become more difficult to stay secure in the last year. This is one of the key findings of the 2017-2018 Global Application and Network Security Report, just released by **Radware**, a provider of cybersecurity and application delivery solutions.

Adding to the problem is the complex issue of who is responsible for IoT security. When asked who needs to take responsibility, there was no clear consensus among security executives. Responses pinned responsibility on the organisations managing the network through to the manufacturers, but the majority said it was down to consumers using these devices (56%).

Andrew Foxcroft, regional director for Radware UK, Ireland and Nordics, said that it’s time companies closed the debate and assume responsibility themselves: “Everything that is attached to the network is a threat to security. The longer we debate who is responsible the more advantage we hand to the hackers who will do everything that can to exploit weaknesses.” ■



Data-driven, future-proof, scalable, secure are the key attributes of mature IoT services

Mohsen Mohseninia is vice president of market development, Europe, at Aeris, the IoT pioneer that is both a technology provider and a cellular network operator delivering comprehensive IoT/M2M services to leading brands around the world. Here, he tells George Malim, the managing editor of IoT Now, that as IoT matures, the need for an ecosystem that links vertical industry experts with providers of secure, reliable, future-proof technology is more apparent than ever. The positive news as we enter 2018 is that proof points for successful IoT deployments now exist and the supplier ecosystem has learned to collaborate with customers and other vendors and enable truly successful partnerships that provide customers with robust, attractive IoT-enabled experiences that are profitable to participants across the value chain

George Malim: One of the drivers for IoT has been the ability to extract value from the data organisations generate. However, a further step is to become a data-driven organisation. How soon could this be a reality and what are the challenges?

Mohsen Mohseninia: All organisations and enterprises are going to be impacted by IoT. Some are going to be impacted in ways that are transformational to how they do business, interact with customers, and conduct product management and product lifecycle management. Some will be impacted in the ways they deliver products as those products become sold as services.

How soon these impacts happen is an interesting question and it all depends on a number of factors, not all of which are clear today. Most organisations have had capex programmes that are not necessarily going to be amortised overnight so investment in IoT will be dependent on investment cycles. For example, a milling machine won't be changed overnight if the company has just paid a million dollars for it.

The change, therefore, will be evolutionary rather than revolutionary. Some companies will be IoT-enabled sooner, others later but, ultimately, everyone will arrive at this point.

At the moment, what is a clear barrier in terms of growth of IoT within the enterprise, retail and consumer markets is lack of trust. That lack focuses on where does personal data go, who has access to it and what do they do with it? The concept of the General Data Protection Regulation (GDPR) in Europe, and similar regulations elsewhere that are addressing the issues, will result in accelerated adoption of IoT, which, in turn, will accelerate organisations to become data driven.

GM: IoT is increasingly recognised as an enabling ecosystem rather than a set of self-contained solutions. How do you see that ecosystem being delivered?

MM: I think, increasingly, we are seeing the emergence of players that are trying to assemble the ecosystem of solutions to create an end-to-end solution that then ►

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can be delivered as a branded product or service to an enterprise or consumer. I think this is what will happen because I don't think the concept of the ecosystem coming together to serve an individual customer need will work.

Those that end up selecting different parts of the ecosystem [from a range of vendors] will end up building partnerships themselves and that will have an effect on how they enter the market.

GM: Do you expect greater efforts to be made to harmonise systems and technologies in the absence of standardisation?

MM: I think standardisation is a necessary evil that will create better interoperability amongst the different components of ►

Mohsen Mohseninia,
vice president of
market development,
Europe, Aeris



Scalability is a key attribute that organisations need to look for so they get future-proven technologies that give the assurance the technology is fit for purpose

the IoT world. One of the fears that currently exists among major enterprises is being locked into something. The cost of replacing technologies can be prohibitively high.

The drive for standards and consolidation is a real one. In 2018 and 2019, we'll see some serious standards start to emerge where you either have to abide by them or have a very strong reason not to.

GM: What do you think the key milestones for, and achievements of, IoT will be in 2018?

MM: A number of things are coming together – it's not one thing. Some are social, some political, some technical.

We've all heard about the millennial generation and what that has is a new culture. This generation has a culture of sharing rather than owning, which prefers buying a service rather than acquiring a product. More and more, we will see a transformation in the business case and business model towards providing a pay-per-use solution.

That's the social part. The political part is the drive towards sustainability and environmental issues, which will see increased re-usability of technologies and platforms. We'll see the pay-per-use mode change the mind-set from growing a business by producing more to growing by getting more use out of each product. That will emerge in 2018 and we'll see accidental relationships become more prevalent. For example, providers of leasing and finance and original equipment manufacturers (OEMs) will form relationships to enable new business models.

GM: As IoT matures and organisations bring larger volume services to market, what attributes should they be looking for from their technology partners?

MM: Scalability is a key attribute that organisations need to look for so they get future-proven technologies that give the assurance the technology is fit for purpose. Being scalable and future proof are the keys because of the likely cost and disruption IoT will cause to an enterprise.

Being future proof and scalable is one aspect. Solutions also must be reliable and have proof points to demonstrate that. A further vital proof point is security. It may seem to be a cliché because everyone talks about it, but you can't talk

enough about it. That focus on security needs to be not only from the perspective of whether an organisation's IT infrastructure is secure – which is, of course, important – but also it must take in whether the supplier is secure and reliable and whether it is stable enough to still be operating many years from now. Remember, IoT solutions will have operational lives often of more than a decade.

The world is full of companies with great ideas that left their customers in the lurch and the old statement that nobody got fired for choosing IBM has some applicability in IoT. I'd advise organisations to look carefully at the credentials of their suppliers and ensure they take advice to ensure the solutions they choose fit their needs.

GM: How do you see partners playing a role in the servitisation of unconnected product businesses? To what extent is vertical-specific knowledge needed from the technology perspective?

MM: If you talk about servitisation, such as pay-per-use, ecosystem players in finance and manufacture need to come together to create propositions by changing the way that product is sold. To do that, they need to know how to bill, how to rate, how to monitor and recover data in ways that are appropriate to each offering.

As a supplier ourselves, we often struggle where we don't understand or are unaware of the specific verticals' processes, challenges and competition. We have great technology that performs many aspects well but some verticals actually need something different. To me, it's essential that vertical knowledge is applied to the process of technology selection for deployments to deliver the expected results. ▶



There's no silver bullet to enable anyone to say, I've deployed my service or my technology and it works

GM: Do you think organisations with vertical-specific experience will come to companies like Aeris to partner for IoT technical experience?

MM: We've seen attempts from management and business consultancies with deep vertical knowledge of a market trying to find out how to make use of IoT within that vertical. However, in most cases, we've seen these consultancy firms just looking to learn technologies from an IoT perspective and sell it themselves because they want a greater share of the pie.

We've seen more collaboration and harmonious relationships where a particular partner has a deep relationship within a particular vertical and understands that IoT is of benefit to that vertical and sees that Aeris has the technology. The customer then becomes part of the ecosystem and, together, we can solve a problem. I certainly see more of that happening as the IoT market matures.

GM: Do you think the concept of any vendor will provide a comprehensive IoT proposition and, in effect, deliver end-to-end IoT to customers?

MM: One of the many things I like about IoT is the fact that the ecosystem is important. This is because nobody has a complete solution but the method and the way the ecosystem works needs to be shoulder-to-shoulder, side-by-side. It has to be a partnership rather than a supplier and consumer relationship.

There's no silver bullet to enable anyone to say, I've deployed my service or my technology and it works. As much as the technology stack exists today, and broadly it does, a large amount of work still needs to be done. The ability to bring new innovations, new approaches and new processes to the table will continue to be absolutely essential to enable the further maturation of IoT and to ensure it delivers on the promise of scalable, flexible, secure, reliable and, ultimately, profitable new models for businesses of all types. ■

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IoT failures can stem from trying to do too much too soon

IoT has now got to the stage in its development where things can go wrong and opportunities are missed. George Malim explores the reasons behind failures and examines how they can be avoided

“The failure of an IoT strategy is really about the failure of the digital strategy of the company”

The excitement of new Internet of Things (IoT) applications hitting the market is starting to be tempered by the recognition that moving from a successful, yet constrained, initial deployment or trial to a full-scale enterprise wide deployment is no easy task. In fact, the risks are substantial and there are numerous ways in which organisations can adopt the wrong strategy.

“The failure of an IoT strategy is really about the failure of the digital strategy of the company,” says Tim Stone, a venture partner director at IoT investor **Breed Reply**. “The key to success is the link between the business unit and technology. This often comes down to clarity and leadership. In terms of clarity, it’s about how well defined were the objectives and was the organisation joined up to make it succeed.”

“Often corporates take on too much too soon, rather than starting on a focused programme with clear measurements of success. The other problem is leadership,” adds Stone. “Success can depend on how involved in the strategy of the business is the chief technology officer or how committed is the board. Do they see it as a way to develop their business model, or is it just about IT. IoT strategies succeed when companies are committed and clear in what they want to achieve.”

IoT therefore can’t be looked upon as an opportunity to achieve quick wins, although there is strong potential for it to enable those. “There is a huge risk that initial deployments will fail and that’s why businesses should consider IoT a long-term strategy, and not a quick-fire tactic,” says Andrew Till, the vice president for technology partnerships and new

solutions at **HARMAN Connected Services**. “We’ve seen companies fall flat on their faces and replace entire initial deployments simply because they haven’t done their due diligence. This could be down to anything from not thoroughly considering the scaling potential for IoT to underestimating the importance of having a foolproof information security plan in place to thwart any cyber and distributed denial of service (DDoS) attacks.”

Theresa Bui, the director of IoT strategy at **Cisco**, also sees the need to plan for growth from the outset. “As more companies build their businesses around the delivery of valuable services enabled through IoT, they need an IoT data control platform that is flexible and scalable,” she says. “Businesses should be careful to choose one that can grow with your business to support your expansion into global markets. There are options for IoT platforms that provide the global scale – as well as decades of experience and proven use cases – to help ensure that regardless of your evolving business needs, the platform will be able to evolve and scale with you.”

The old saying that a minute spent planning is worth five in the battle is certainly apt in IoT. “Enterprises should, as they would when executing other business strategies, partake in a discovery phase before actively deploying IoT technologies in order to consider and test the real long-term objectives and potential barriers they might face along the way,” says Till. “The companies that are going to succeed are the ones that can extract strong value from IoT and bring in more functions and departments to understand the wider implications and make the most of the benefits across the entire company. Having access to ▶



Andrew Till, HARMAN
Connected Services



Theresa Bui, Cisco



Jason Kay, IMS Evolve

“The greater the investment the greater the risk that initial deployments will be unable to support future business opportunities, irrespective of their capabilities or capacity to do so”

real-time data is key here. Not only can it improve business performance if deployed effectively, but it could completely transform how a company operates from top-to-bottom by helping to uncover and empower new revenue streams and create more efficient and cost-effective business models.”

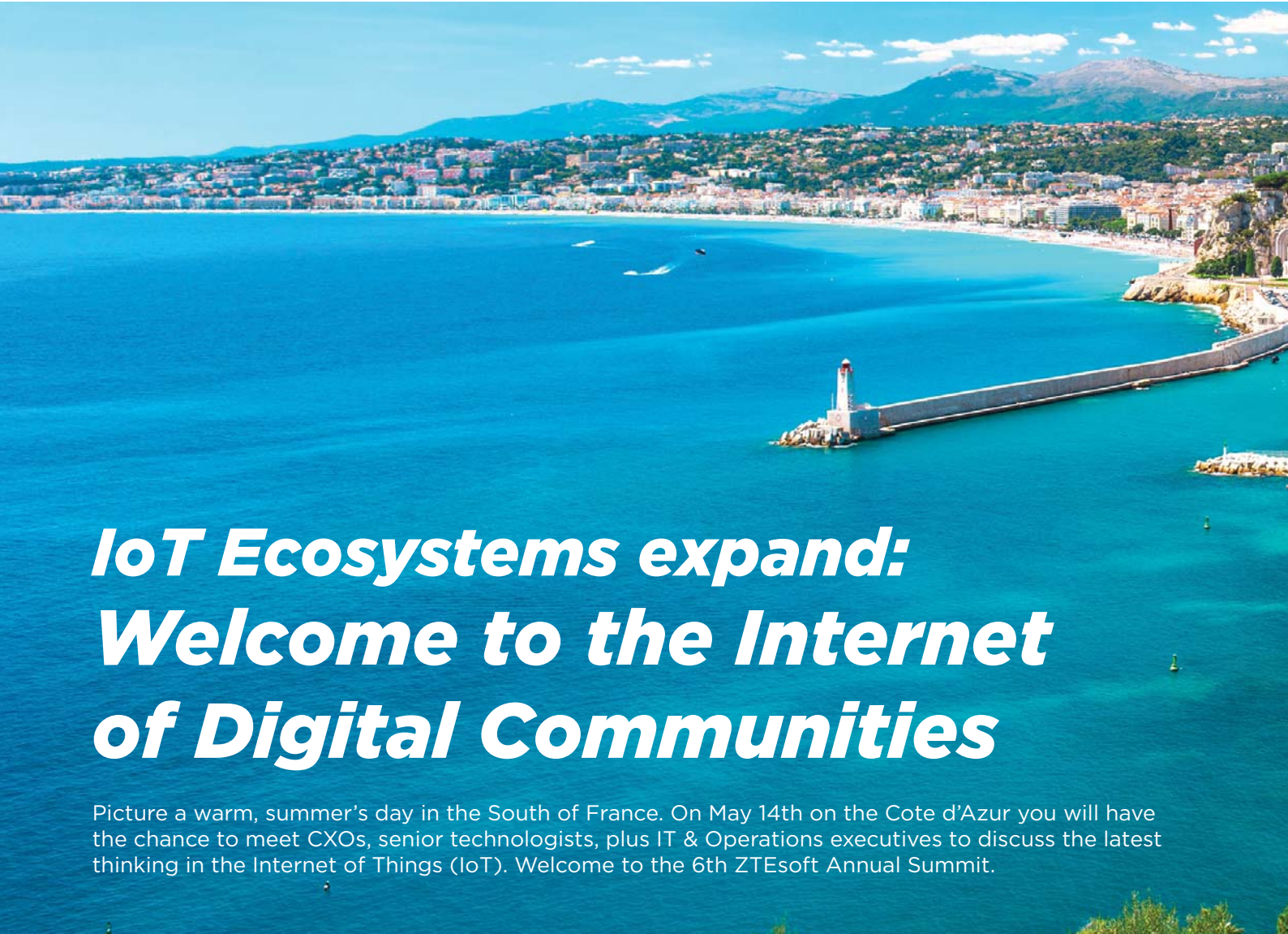
Another way in which organisations can manage and contain the risks is to look to servitise the enabling tools and platforms for their own IoT efforts. It’s a neat concept to apply the same model to deploying IoT as the deployment is aiming to enable for the enterprise. “This is one of the areas where using a consumption-based or as-a- service type model can help to reduce this risk in that companies can add capacity as they grow,” says Chris Meering, the worldwide go-to-market lead for IoT & Global Connectivity Platform at **Hewlett Packard Enterprise (HPE)**. “IoT is an evolving market and companies need to be able to evolve their IoT solutions to meet changes in the market new capabilities as they become available.”

Jason Kay, the chief commercial officer at **IMS Evolve**, advocates relying on existing infrastructure as far as possible, citing organisational familiarity as a benefit. “Rather than brand new equipment, harnessing the infrastructure that organisations already have in place is a much surer starting point for building upon and encouraging a noticeable difference,” he says. “It is by considering the core business requirements of a company and then layering IoT over the existing control infrastructure that real gains can be made, while improving the customer offering and opening the door to addressing wider economic and environmental challenges.”

Certainly rushing to deploy new technologies in support of IoT initiatives looks to be a high risk move. “Adopting a proprietary, bespoke or siloed solution increases this risk as it may limit the company’s ability to add new capabilities to address new possibilities as they arise,” adds Meering. “Adopting open standards like **oneM2M** and a horizontal approach also helps as it avoids vendor lock-in and enables new devices, applications and connectivity options to be added to the same platform and using the same data model, meaning that rather than risking the development of multiple vertical siloes companies are able to adopt a horizontal approach, sharing data across vertical applications and providing a single holistic view of their IoT estate.”

For Kay, a key aspect is to keep investment in proportion to the likely outcome. “The greater the investment the greater the risk that initial deployments will be unable to support future business opportunities, irrespective of their capabilities or capacity to do so,” he says. “By having the business’s core purpose at the heart of deployments, there should be ample scalability, however the likelihood of this being pursued is increased if utilisation of the technology is flexible. Most would agree that IoT is fantastic in principle, but how many are willing to explore its ongoing potential if there’s a huge initial investment attached to it?”

“Deployments that rely on a rip and replace approach could therefore limit the appeal to organisations in the short to medium term,” he says. “For example, replacing every in-store fridge, freezer or food delivery van is unlikely to appeal to a multiple retailer whose core business focus is selling produce, as the cost will far outweigh the immediate benefits.” ■



IoT Ecosystems expand: Welcome to the Internet of Digital Communities

Picture a warm, summer's day in the South of France. On May 14th on the Cote d'Azur you will have the chance to meet CXOs, senior technologists, plus IT & Operations executives to discuss the latest thinking in the Internet of Things (IoT). Welcome to the 6th ZTEsoft Annual Summit.

It's time to set aside May 14th, a day that could shape your thinking for the rest of the year, on digital transformations for Telecom Network Operators' and on new revenues in the Internet of Things.

- DISCOVER** how to overcome business challenges by building an IoT ecosystem in the digital economy.
- EXPLORE** the technology and business advantages brought by the joint force of ZTEsoft and Alibaba Cloud.
- DISCUSS** the benefits of platform economy and how we can achieve the Internet of Digital Communities.
- ASK THE EXPERTS** in our Panel Debates how to Monetise your IoT business and data.

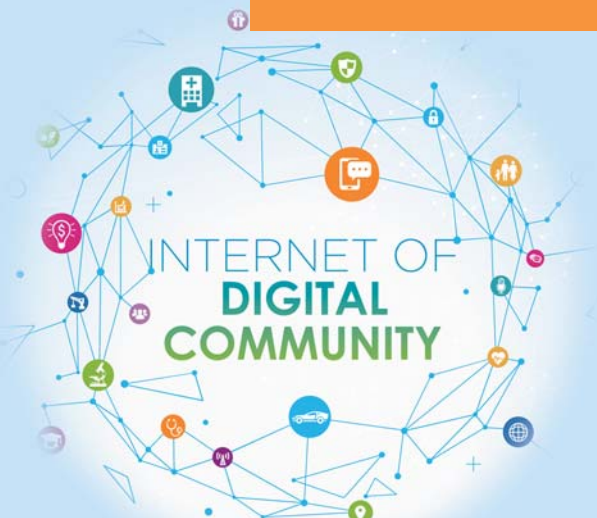
Topics covered at ZTEsoft Together Summit will include:

New Business Models

IoT Ecosystems are evolving into Communities between Companies and the whole of Society, all with shared aims. Hear success stories in ZTEsoft's customer Case Studies. Find the value of an Open Platform approach. Learn about Alibaba's new IoT Connectivity Alliance (ICA).

New Technologies

Learn how businesses are gaining efficiency through cutting-edge Technologies. Find out how ZTEsoft and Alibaba Cloud harness new technologies to enable the far wider-reaching digital revolution for all industries. ▶





ZTEsoft Together

Annual Summit 2018

New Business Sectors

On-site Demos will show products and services evolving to generate new revenues from Smart Cities, Smart Homes, Industry 4.0, and IoT-enabled Enterprises like Marineland Park, the largest Aqua park in Europe.

New Skills

Find out how Service Providers are now deploying Artificial Intelligence, Data Analytics and Machine Learning to deliver Omni-Channel services with Real-time customer insights. ■

Speakers

ZTEsoft  Alibaba Cloud

The keynote Speakers will include the CXO of ZTEsoft and Alibaba Cloud



The Summit will be Moderated by **Jeremy Cowan**, Editorial Director & Publisher of IoT Now and VanillaPlus.

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MOBILE™ WORLD CONGRESS

BARCELONA 26 FEB-1 MAR 2018

New Congress themes usher in a new form of mobile networking for 2018

Mobile World Congress 2018, to be held in Barcelona, Spain on 26 February – 1 March, 2018, is looking less like a telecoms industry event and more like one that covers all aspects of the mobile connected world. Here, IoT Now dodges the connected cars, ducks under the drones and applies some artificial intelligence to augment your show-attending reality

Mobile World Congress (MWC), which welcomed more than 100,000 visitors to the 2017 event, continues to cover new technologies and the ongoing digital transformation enabled by the mobile telecoms industry. While, as usual, there will

be lots of relevant mobile networking technology and software present, especially as 2018 is the year that 5G mobile networks will roll-out commercially, this year will see even more emphasis on Internet of Things (IoT) and associated technologies. ▶



SPONSORED PREVIEW



2018 event themes

This year for Mobile World Congress, organisers GSMA have developed eight core event themes to assist visitors in finding the content that is most relevant to their industries, interests and future visions. The themes include:

The Fourth Industrial Revolution

The growth in IoT has meant that every type of industry is now looking at connected technologies to ensure it is ready for the move from automated production and IT, to an automated society. The Fourth Industrial Revolution, as it has been titled, is one of the most complex, inclusive and automated revolutions our society has seen and at its heart, lies mobile. From transportation to how we communicate, automation is creating smarter services and a new way to live life. This theme unravels the complex web of technology trends, partnerships, business concerns and opportunities that enterprises of all kinds need to address to survive and thrive in a digital automated world, and the demands this places on city and national governments.

Future services provider

Operators will need to address the fundamental strategic question of where and how they want to compete going forward. What will that look like, what are the strategic options, do they have to invest in content and fixed line, how will they make money and how do mobile network operators (MNOs) transform themselves, to ensure a bright future? What will the impact of 5G, analytics, machine learning and digitisation be on their cost structures, customer engagement and strategic options?

The network

Networks include everything from 5G and LTE, to network functions virtualisation (NFV), software defined networking (SDN), radio spectrum, core network infrastructure, backhaul infrastructure, billing, customer care, mobile device radio frequency (RF) components and much more. We are seeing rapid developments in network technology,

offering immense opportunities for lower costs and new business creation. Meanwhile the capex and growth in complexity is daunting. This theme examines what are the opportunities, the technical challenges and what is the real return on investment (ROI) of 5G, NFV, SDN and many more.

The digital consumer

The battle is on to engage the consumer, and the stakes are high. The way consumers interact and transact with companies through digital channels is rapidly evolving, driven by constant and rich connectivity, and data creating new services and interfaces. By employing analytics throughout the customer lifecycle, delivering rewarding customer experiences from pre-purchase through product or service end of life, and empowering digital trust, companies will build digital brands that retain customers and rise above the rest.

MWC will explore what's happening and what that means for visitors, personally and as a business, as the data driven, automated, intelligent and personalised customer relationship evolves.

Tech in society

Connected technologies have the potential to offer huge benefits for society; better government, security, transport, health, education, arts, emergency response and the environment. But a tool without guidance, ethics and craft is useless or even dangerous. What will it take to make a better future and how can we avoid taking wrong turns on the way?

Content and media

As online services become the primary means of media consumption, the relationships between content creators, distributors and consumers continue to evolve to something richer, more direct, immersive and personal, more complex and tougher to manage, but the rewards are significant for those who succeed. MWC will examine the world of virtual reality (VR), content rights, production, acquisitions, partnerships, business models, delivery networks and more. ▶



Applied AI

Machine learning, cognitive computing and artificial intelligence (AI) are being hyped, and with good reason: many of the solutions already enabled today seem to be drawn straight from science fiction and the potential for disruption and innovation seems almost boundless. AI is the key to managing, using and scaling the rich data sets enabled by connected technologies. As a technology and business tool still in its infancy, however, it brings along a complex web of issues and this theme aims to cut through that complexity

Innovation

The innovation theme will feature anything that falls outside of the themes above, the most innovative solutions, are after all, often the most unexpected and therefore hard to classify.

These themes will run across all aspects of MWC, taking in the conference streams and the exhibition floor. "We have an amazing show lined up for 2018, across the conference, the exhibition and the many programmes and events that comprise Mobile World Congress," said Michael O'Hara, the chief marketing officer of GSMA. "Attendees will have the opportunity to experience many new elements this year, most notably the hospitality and networking areas in the new South Village at Fira Gran Via. We're looking forward to showcasing how mobile is creating a better future for all."

Keynote speakers confirmed

The GSMA has announced nearly a dozen new keynote speakers for the Mobile World Congress conference programme, representing organisations spanning the broad mobile ecosystem, as well as government and the development community. Recently confirmed keynote speakers include:

- **Brigitte Baumann**, founder and chief investment officer, Go Beyond Early Stage Investing
- **Brian Behlendorf**, executive director, Hyperledger
- **Ricardo Antonio Rosselló Nevares**, governor, Puerto Rico
- **Marie Ehrling**, chair of the board, Telia Company and chairwoman, Securitas
- **Alastair MacLeod**, CEO, Teralytics
- **Kathy Calvin**, president and CEO, United Nations Foundation
- **Ajit Pai**, chairman, United States Federal Communications Commission
- **Dr. Jim Yong Kim**, president, World Bank

New for the 2018 programme, the Women4Tech keynote will be held on Thursday, 1 March, featuring speakers including Emma McGuigan, the group technology officer at **Accenture**, Berit Svendsen, the CEO of **Telenor Norway** and Susana Balbo, congresswoman and chair of the **W20 Group Argentina**. The session will put a spotlight on the importance of diversity and inclusion in the communications industry and more broadly in society. Other Mobile World Congress keynote sessions will explore topics including content and media, the digital economy, the Fourth Industrial Revolution, mobile operator strategies, smart services, and sustainability, among others. For more information on the Mobile World Congress conference, visit:

www.mobileworldcongress.com/conference-programmes/agenda/

Additional exhibitors, sponsors and partners for 2018

The GSMA has also announced several new exhibitors, sponsors and partners for Mobile World Congress. In the automotive sector, **BMW Group** will showcase its BMW i brand in a driverless car demonstration, while **Byton** will highlight its new connected car, joining other automakers including **Mercedes-Benz**, **SEAT** and **Toyota** on the show floor.

Kazakh Telecom and **Salesforce** are also among the latest companies confirmed to exhibit at Mobile World Congress, joining previously announced exhibitors including **Alibaba**, **AT&T**, **China Mobile**, **Cisco Systems**, **Deutsche Telekom**, **Ericsson**, **Essential**, **Facebook**, **Google**, **HTC**, **Huawei**, **Intel**, **Lenovo**, **LG**, **Microsoft**, **NTT DOCOMO**, **Nokia**, **Orange**, **Qualcomm Incorporated**, **SK Telecom**, **Telefónica**, **Verizon**, **Vivo**, **Vodafone**, **Xiaomi** and **ZTE**, among others. ▶



The new South Village

New for 2018, the GSMA has expanded the footprint of Mobile World Congress to include the South Village, located at the South Entrance of Fira Gran Via. This new outdoor hospitality and networking area serves as a vibrant welcoming point for Mobile World Congress, while offering additional meeting facilities for exhibitors and casual seating for attendees.

Innovation City 2018 to showcase 5G, AI, drones, IoT

In the GSMA Innovation City, visitors will experience how mobile-connected products and services are creating a better future for citizens and businesses around the world, in diverse areas such as home, automotive, health, agriculture, utilities, industrial and more. The City will feature leading-edge demonstrations of technologies including 5G, artificial intelligence, drones and the Internet of Things, among many others. Innovation City partners including **Cisco IoT, Huawei, KT Corporation, Sierra Wireless** and **Turkcell**, alongside GSMA programmes including Future Networks, Identity, Industry Purpose and Internet of Things, will showcase how mobile is positively impacting the lives of billions of people around the world. For more information, visit www.mobileworldcongress.com/exhibition/gsm-innovation-city/

4YFN 2018: keynote speakers and mentoring sessions

The first confirmed keynote speakers for 4YFN include Kathrin Buvac, chief strategy officer at **Nokia**; Andrew Bolwell, vice president and global head at **HP Tech Ventures**; Naveen Jain, founder and CEO of **Viome** and founder of **Moon Express**; and many others. A key element of the 2018 4YFN programme are the mentoring sessions, which are designed to help accelerate start-ups' international growth and improve their relations with clients and the entrepreneurial ecosystem. Over four days, 4YFN will provide an opportunity to connect international startups, investors and large corporations in several different meetings, pitching competitions, "pitch the press" sessions and networking activities, as well as exhibition areas. For more information, visit: www.mobileworldcongress.com/experiences/4yfn/

New developments in Women4Tech

In addition to the Women4Tech Keynote, the Women4Tech Summit taking place on Thursday, 1 March will examine a range of topics, from equality and career

development to mentoring and education, from entrepreneurship to communication. The Women4Tech Summit will feature speakers from leading companies including **AT&T, Cisco, Deloitte Digital, EY, Facebook, Qualcomm, Syniverse, Telefónica, Verizon** and many others. At 4YFN, Women4Tech will host a diversity panel on Tuesday, 27 February and an interactive workshop focusing on female leadership for start-ups on Wednesday, 28 February. For more information on Women4Tech, visit www.mobileworldcongress.com/experiences/gsm-women4tech/

More than 30 partner programmes

With the addition of several new Partner Programmes and Power Hour Sessions in the Hall 8.0 NEXTech Theatres, attendees now have access to more than 30 programmes developed by leading players from across the mobile ecosystem. New full-day events include the CMO Summit, **GameLab Mobile, GTI, Huawei, Samsung** and the Sports & Entertainment Summit 2018, while half-day sessions feature the **SGAA Automotive Association, Alibaba and Shanghai Gotell Communication Technology Holdings**. New Power Hour sessions include **ACI Worldwide, AppDirect, Equinix, Software AG** and **Xilinx**. For more information on Partner Programmes, visit www.mobileworldcongress.com/conference-programmes/partner-programmes/

Get involved at Mobile World Congress 2018

For more information on Mobile World Congress 2018, including how to attend, exhibit or sponsor, visit: www.mobileworldcongress.com

Follow developments and updates on Mobile World Congress on Twitter @GSMA using #MWC18, on our LinkedIn Mobile World Congress page www.linkedin.com/company/gsm-mobile-world-congress or on Facebook at www.facebook.com/mobileworldcongress/

The Mobile World Congress is the cornerstone of the Mobile World Capital, which will be hosted in Barcelona through to 2023. The Mobile World Capital encompasses programmes and activities that span the entire year and will benefit not only the citizens of Barcelona, Catalonia and Spain, but also the worldwide mobile industry. For more information on the Mobile World Capital, visit www.mobileworldcapital.com

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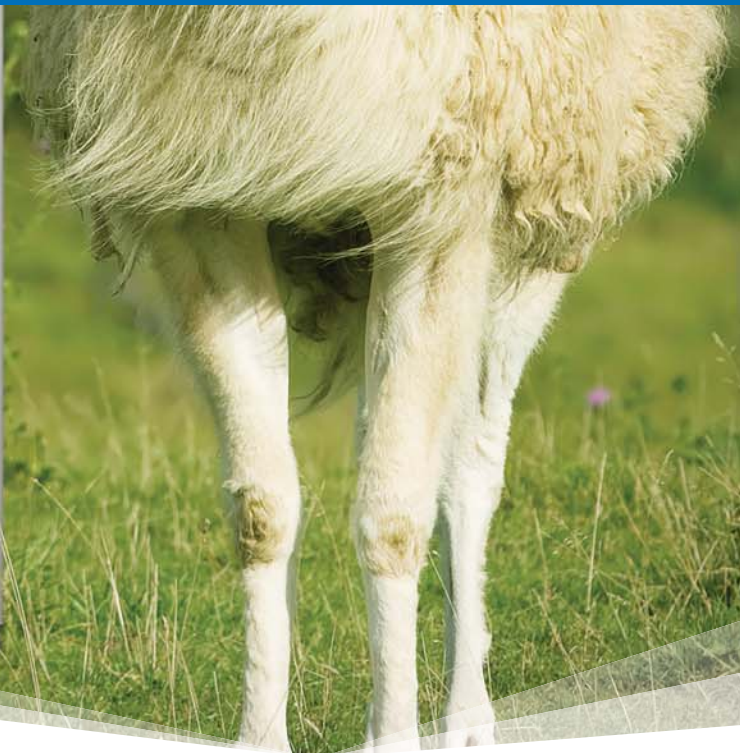
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