

ForumGlobal



## The 5th Annual Asia-Pacific Spectrum Management Conference

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Enabling DIGITAL futures through SMART Spectrum Management

SESSION REPORT

# Developing 5G Indoor Network - How to prepare for 5G?

FROST & SULLIVAN



This session took place as part of The 5th Annual Asia-Pacific Spectrum Management Conference 2019 organized by Forum Global, ITU and APT (details of the full event and programme can be found at [www.spectrummanagement.asia](http://www.spectrummanagement.asia))

The conference, hosted by the Malaysian Communications and Multimedia Commission (MCMC), provided a high-level meeting point for stakeholders from across Asia Pacific and beyond, to discuss topical issues relating to the management and co-ordination of spectrum policy across the region.

MCMC's Chief Officer Corporate Strategy Sector, Nur Sulyna Lim Abdullah, initiated the conference by highlighting that managing the delivery of 5G to the masses is critical to ensure trust in the application and usage of 5G.



# Developing 5G Indoor Network

The emergence of 5G technology will consequently bring a wide range of new use cases. Approximately 80% of those cases will occur indoors as an indoor network is required to support big traffic, low latency, high peak data rate, and positioning. Therefore, it is expected that indoor use cases will become a key driver for 5G networks. Traditional distributed antenna systems (DAS) will struggle to meet 5G-era service requirements and would be unable to even provide the coverage on 3.5GHz and above spectrum.

The challenge for mobile operators and tower companies is to ensure that the capabilities of 5G spectrum are fully utilised in indoor scenarios, hence may face challenges in developing unified indoor network architecture to meet the many different use cases that may exist indoors. Distinguished speakers from Malaysia and China covered their country context.

## Delivering Digital Indoor Systems in Malaysia

### Kangwei Khoo

*AGM, Business Development and Strategy, Group Strategy*  
Telekom Malaysia

As 3G and LTE are the main technology of use for mobile operators, the network is constrained to carry large data traffic. In Malaysia, indoor systems have evolved from being coverage-focused to capacity-focused. Therefore, the demand in Malaysia for indoor systems from capacity standpoint is present in the market.

It is crucial to implement DIS since the current indoor solution does not cater for future and new technologies. With the 5G technology upcoming, the use of mmWave, massive MIMO technologies and the fact that there will be more cross-industry collaboration e.g.

with real-estate, healthcare and media will only exacerbate things further.

Moreover, mobile operators are now shifting focus and putting more effort on improving customer experience. We observe that network quality as a differentiator from competitors, especially when indoors. In order to keep up, we will need to re-examine the way we have been building indoor solutions.

***To conclude, there is demand for DIS and 5G will be the trigger for technology revolution.***



## Embracing 5G, Delivering Digital Indoor Systems in China

**Ellen Yanbin Li**

*Deputy Secretary General*

TDIA

With the coming of 5G technology, indoor digital coverage solution is the direction of the industry with more than 80% of mobile services occurring indoors. In China, we observe consensus amongst regulators and even building owners creating demand for DIS on 5G.

It is critical to implement cross-over communication and cooperation between industries. Therefore, as an industry association, we have been making efforts in coordinating and communicating between different departments, making certain of the assessment benchmark, accelerating the commercial launch and meeting the need of different stakeholders. For example, we host DIS industry Roundtable twice a year, establishing a communication platform for all parties engaged.

To ensure the deployment of DIS, it is necessary to prioritize standardization of 5G indoor network solutions. Regulators in China are actively supporting the development of DIS and have done work in terms of policies and standards and China's mobile operators have established the indoor digital network construction strategy. Furthermore, as cross-industry collaboration and coordination is critical to facilitate the deployment of DIS, we are also working with other industries including real estate, healthcare and media.

***All of the applications used in these industries require that 5G provides better user experience and therefore, DIS coverage is essential.***



## Preparing for 5G – What you need to know?

- DIS will hasten the time to market 5G services and improve margins
- Industry Collaboration and building skillsets are critical success factor for DIS and 5G adoption

### **Case Study: Requirements for a 5G Indoor Network for Transportation Hubs and Systems**

#### **Fauziah Abdullah**

*Head Metro Strategic Business Unit*  
Edotco Group

Digital Indoor Systems (DIS) are used mainly in areas of high traffic, high densification, and areas where large data consumption occurs. For instance, in Malaysia, we implemented DIS in KL Sentral, a transportation hub that occupies 200,000 commuters daily. This location already has passive DAS; we overlaid it with 4G DIS using 1800MHz spectrum. We suggest the overlaying on existing DAS or implementing hybrid DIS to eliminate site acquisition challenges.

We strongly believe that DIS is a key enabler of GDP growth. DIS will target industries such

as manufacturing, transportation, education and healthcare. To facilitate DIS deployment, industry ecosystem collaboration is required so that we can jointly develop and expedite the network infrastructure roadmap as well as facilitate technical standards.

***Edotco implements end-to-end solution to support the country's digital agenda and digital economic programs that have been launched as a part of the National Broadband Program.***



## How Can We Be Ready as 5G Integrator?

**Don Yeong**  
*General Manager*  
Servcomm

For over 20 years, Servcomm has implemented DAS as mobile technology continued to progress from 2G, to 3G, and to 4G. Last year itself, we worked on hundreds of sites using DIS solutions, which has helped us build up skillsets and capabilities in 5G rollout.

Implementation of DIS requires less time, less manpower and less equipment, which translates to lower costs for mobile operators, ensuring more profit. For instance, it takes roughly 3 to 4 weeks to install one site of DIS, whereas it takes 3 to 4 months for a DAS installation. Not only does DIS benefit mobile operators, but it will also benefit the economy as a whole. It is important for local government and enterprises to address the evolving

customer needs and demand as a result of technology development.

In Singapore, IMDA strongly believes that DIS with higher spectrum efficiency can help drive digital economy more intelligently and efficiently. DIS infrastructure in Singapore will be strategically located on certain hotspots to optimize its usage, hence catering more consumers. As a part of the country's code of practice to ensure deployment of infrastructure to enhance mobile services coverage, developers and building owners are required to provide rent-free mobile deployment space.

***With all these activities converging, DIS looks set to play a vital role as key network infrastructure for now and into the future.***

# Room Wide Discussion: Issues and Challenges to Developing 5G Indoor Networks



**Yanbin Li**  
*Deputy Secretary General*  
TDIA

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"Globally, it is increasingly the case that 5G DIS is being funded by multiple types of investors i.e. not just the mobile operators but also tower companies and other neutral hosts. It is necessary to prioritize the harmonization of 5G DIS cross-vertical standards globally in order for verticals to function at its optimum and thereby ensuring success in the 5G."



**Fauziah Abdullah**  
*Head Metro Strategic Business Unit*  
Edotco Group

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"Adoption of digital indoor systems is on the rise as it helps meet rising connectivity needs. Industry collaboration is key enabler for a successful digital strategy, especially as our government heads towards getting infrastructure 5G ready."



**Don Yeong**  
*General Manager*  
Servcomm

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"Digital indoor systems will be the future of 5G rollout and systems integrators will play a key role in enabling this. 5G system integrators should strive to reach out to everyone, every home and every business to ensure that the businesses and consumers benefit from 5G."

# Session Wrap Up: Key Takeaways

## **Key Takeaway #1**

From the perspective of the tower companies and mobile operators, the need to improve on customer experience will mean that network quality will become a differentiator amongst competitors, especially when indoors. 5G ready makes sense as accelerating applications through standardization will require a better user experience, which can best be delivered through DIS.

## **Key Takeaway #2**

From the perspective of policy, DIS should be considered by governments as key enabler of government strategy to drive GDP growth. To facilitate DIS deployment, governments can enable it through the relevant laws and guidelines and help to drive industry ecosystem collaboration, in particular promote cross-industry collaboration.

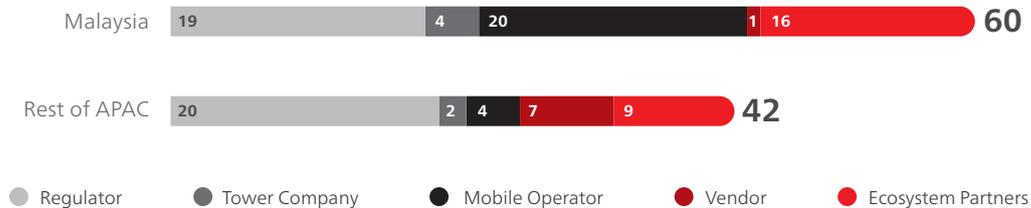
## **Key Takeaway #3**

DIS with its higher spectrum efficiency as compared to DAS, ability to operate at 5G frequency bands and approximately 75% time saving based on the Singapore experience offers a better business case justification as compared to DAS. It is certain that DIS will be the future of 5G rollout.

In conclusion, Digital Indoor System (DIS) is geared towards expediting the development of 5G and needs to be deployed as soon as possible to ensure future benefits.

# Survey Results

During the session, a survey was conducted and a total of 102 respondents participated in the survey. The demographics of the respondents are as displayed below:



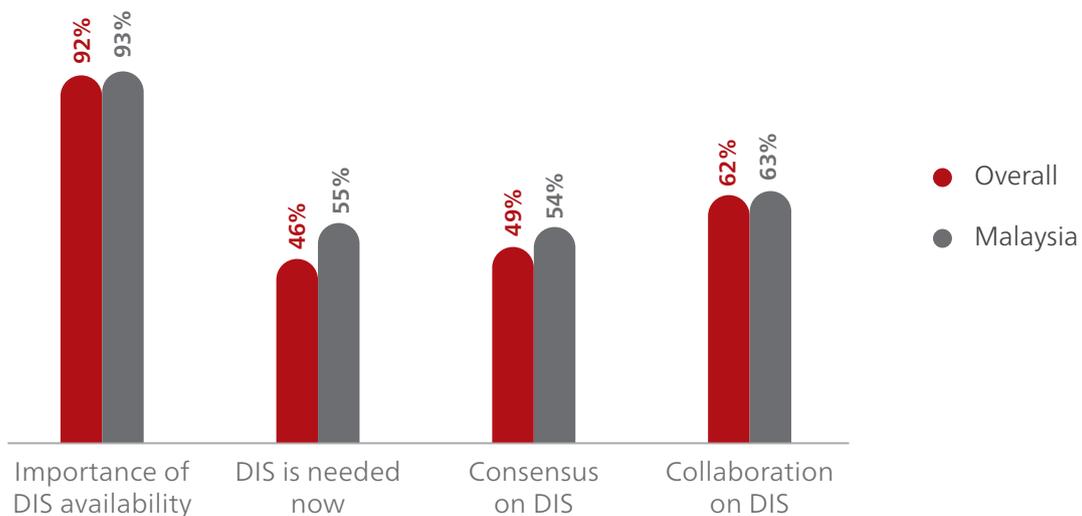
Below are the highlights from the survey results:

## 1. The context in Malaysia is supportive of DIS

The majority of respondents, i.e. 59% of respondents, were from Malaysia. Malaysians shared that they were more critical of their mobile operator when it comes to the indoor environment. 88% of Malaysian respondents said that they will rate their mobile operator according to the indoor system quality that they experience. The global perspective on this is somewhat less critical at 79% of respondents.

In terms of the importance of DIS availability, when it was needed, whether there is consensus that DIS is the way forward and the level of industry collaboration was supportive of DIS, Malaysians showed that they were more supportive of DIS than their counterparts overseas. 93% of Malaysians agreed that DIS availability was important and 55% said that it was needed now.

### *The Malaysian versus Global Context*

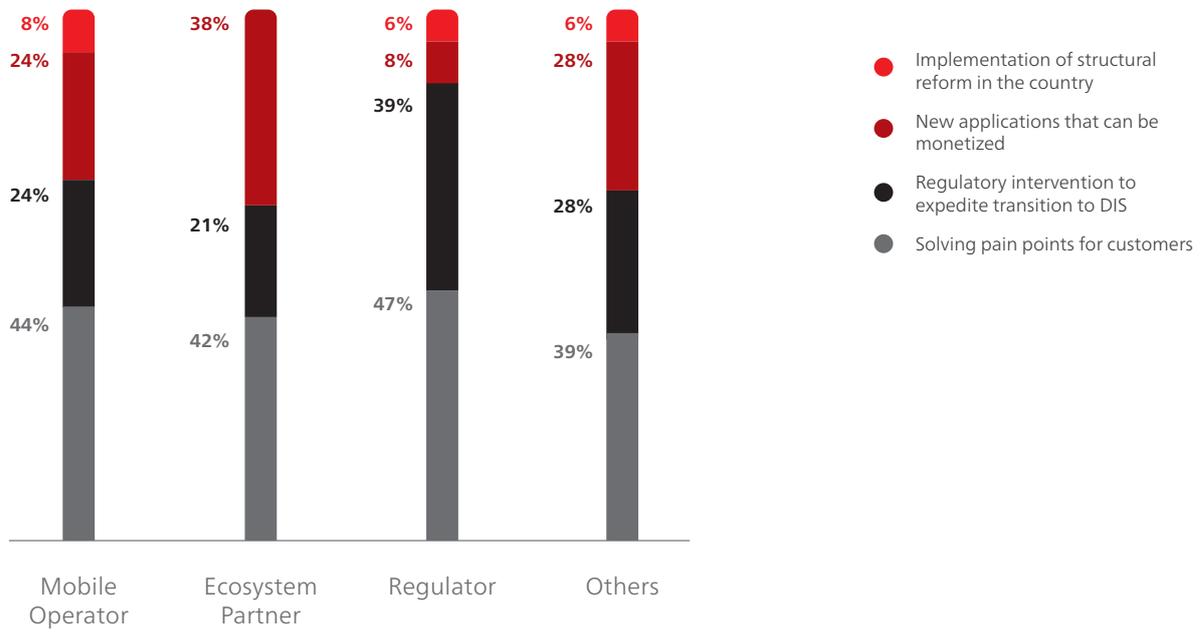


## 2. There is industry consensus on the critical enabler of DIS

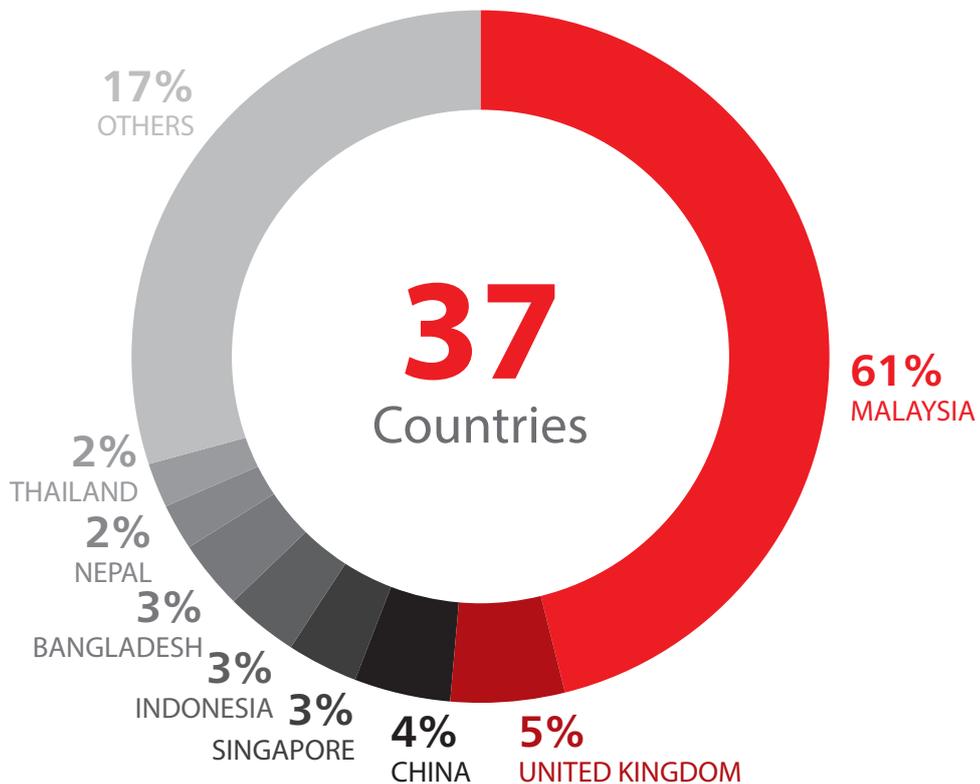
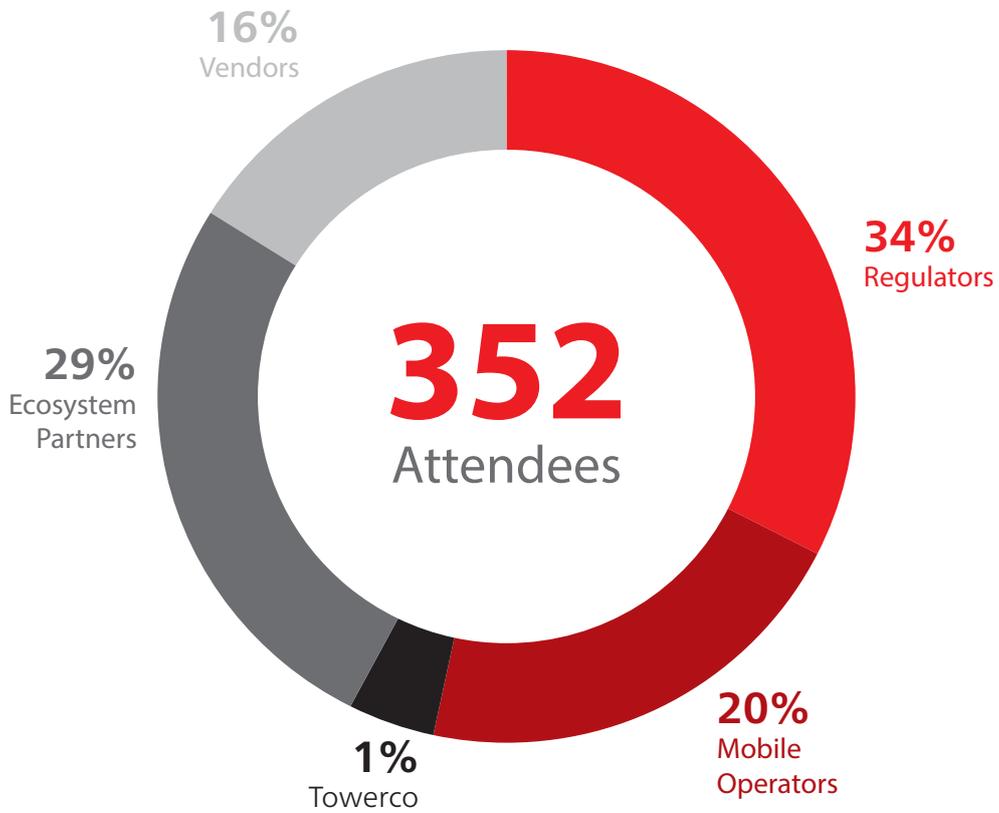
The respondents surveyed identified the solving of consumer pain points (e.g. capacity) as the most critical enabler of DIS in their country, with approximately 40% of respondents choosing that option.

This supports the trend of consumer-centricity that the telecommunications industry is experiencing. If DIS is able to successfully prove how it benefits consumers, it is likely to catalyze DIS take-up rate in that country.

*What would be the most critical enabler of DIS in your country?*



# Delegates Profile



# The Global Spectrum Series



## GLOBAL SPECTRUM SERIES 2019

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The events offer the global spectrum community a high level platform to discuss key issues, network, develop new contacts, and exchange best practices.

Seven sector-leading regional events take place annually in Europe, Latin America, The Americas, CIS & Central Eastern Europe, Sub-Saharan Africa, Middle East & North Africa and Asia-Pacific. The events provide attendees with the highest quality content and networking opportunities as well as bring together leading regional policy and business related spectrum experts with key global influencers.

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