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5G as A Driver of Digital Transformation

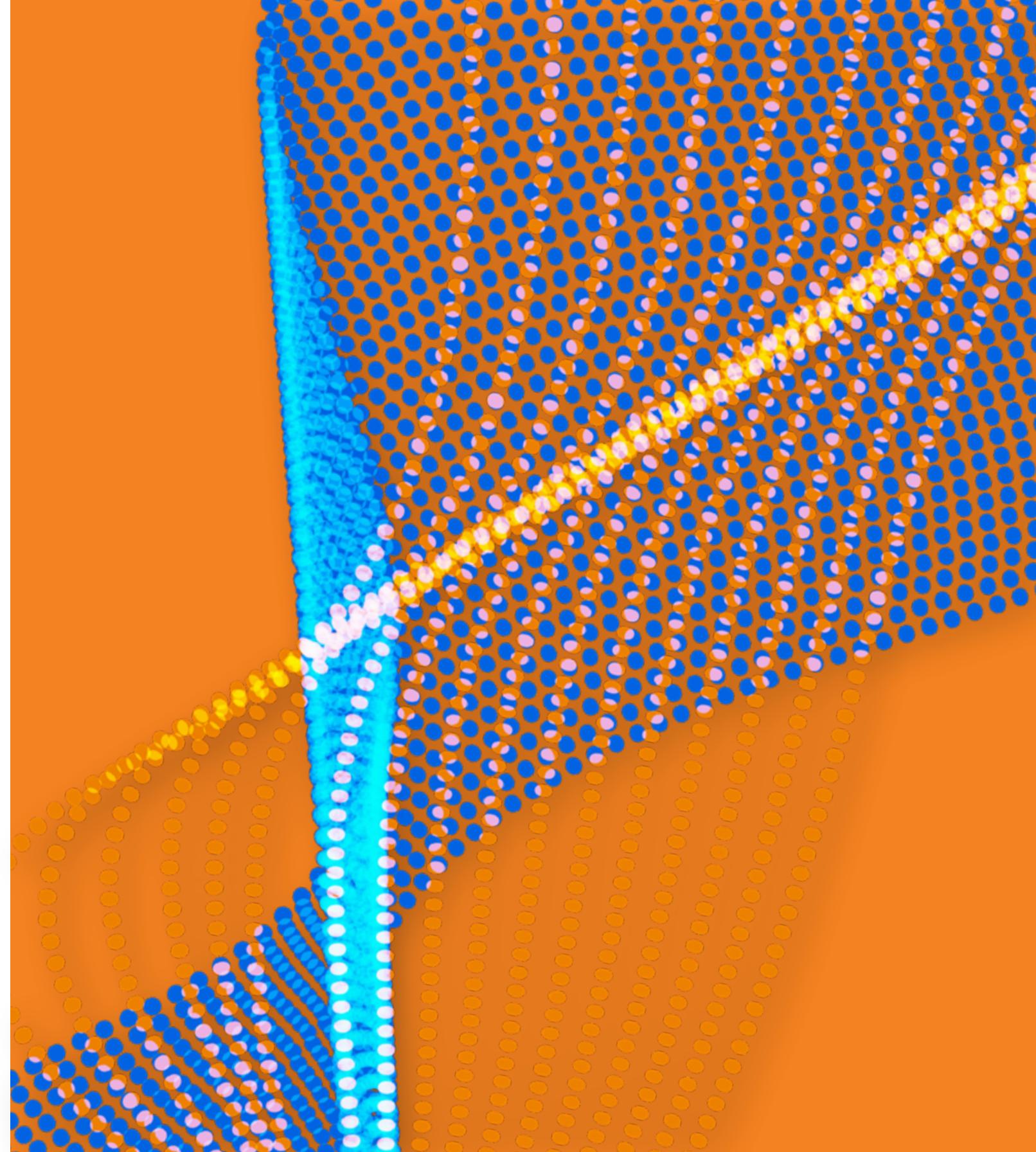
Report 4

**TMT Looking
Ahead 2022**



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Foreword

5G is driving global business opportunities due to its high speed and ultra-low latency connections that can transmit huge volumes of data and support massive machine-to-machine communications. Use cases now cross all levels of industries and infrastructure — interactive entertainment, supply chain asset tracking, smart cities (and homes) and healthtech, to name a few. For example, 5G will help metaverses stay connected and be truly mobile and immersive, enabling faster and smarter connected devices.

As we look ahead in 2022 and beyond we can expect:



Governments and regulators to continue close monitoring of the 5G sector, including the main players, use cases and supply chains



An appetite for strategic collaborations short of mergers to comply with antitrust principles, as Mobile Network Operators (MNOs) roll out 5G. National security, geopolitical issues and network security will continue to drive government approaches to the sector



Acquisitions will remain on the agenda for telcos and other sector players as a combination of rollout costs, competitive pressures and new business opportunities incentivize deal making. Telcos will continue to look to acquire technology companies. Major technology companies are also looking at acquiring Telcos



The risk of cyberattacks is increasing within telco and 5G networks, hence a need for comprehensive and robust network security requirements and that there are agreements for the provision of 5G equipment and services



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This report, the fourth in a five-part series, explores the following:

- **Section 1** reviews the evolving regulatory landscape that applies to 5G and its use cases. Topics include foreign investment review, scrutiny of mergers and collaborations and reassessment of antitrust tools.
- **Section 2** explores 5G in the supply chain and healthtech, as increasingly sophisticated sensors and trackers are being used in the wider supply chain to manage inventory and capture detailed real time health data.
- **Section 3** includes key MNO funding strategies for significant 5G investments or monetizing 5G use cases. It explores emerging trends including infrastructure sales and M&A in adjacent sectors and technology.
- **Section 4** details the key features of contractual risks and opportunities to cover in infrastructure contracts when rolling out 5G.
- **Section 5** looks at early 6G developments and focuses on the South East Asia region.

1 The Evolving 5G Regulatory Landscape — Antitrust and Patents

Authored by **Stephen Crosswell**, Partner, Hong Kong and **Mackenzie Martin**, Partner, Dallas

While 5G use cases attract considerable attention, governments and regulatory authorities are increasingly making choices on how to pursue policy interests when deploying competition, consumer, and data privacy laws. In particular, governments are scrutinizing collaboration on 5G infrastructure and spectrum pooling, spectrum concentration, patent pooling (which is evolving to avoid licensing disputes), and large data sets that will be generated by IoT.



Regulatory scrutiny of mergers and collaborations

5G deployment and access to the 5G spectrum requires significant investment. Moreover, the business use cases for 5G are still developing as the industry dramatically changes with transformational technologies, e.g., low orbit satellite networks increasing competition with terrestrial business models and regulatory frameworks. To meet these challenges, Mobile Network Operators (MNOs) are exploring mergers and collaborations to pool resources and share risk. This has the potential to deliver significant consumer benefits and to drive innovation.

However, competition regulators are increasingly prepared to challenge these efforts if not in line with competition rules — leading parties to consider whether network sharing and other collaborations short of mergers can deliver similar benefits while at the same time complying with antitrust principles.



National security and foreign investment review

5G continues to be heavily connected to national security while regulators are becoming increasingly focused on antitrust enforcement in China and the United States. While network security is an intense area of attention for governments around the world, militaries continue to deploy 5G due to its speed and capacity attributes, e.g., in surveillance and reconnaissance systems, command and control centers, logistics, troop command, drones and smart munitions. With geopolitical tensions increasing, close scrutiny of foreign ownership of 5G systems, tactical decisions on 5G network vendors, control over 5G standards, and continued focus on development and access to patented 5G technologies is expected.



Reassessment of antitrust tools

The increase in regulatory scrutiny comes at a time when there continues to be debate about whether the antitrust tools are adequate to analyze the consumer benefits involved in highly dynamic, innovation-driven markets. There are calls for increased focus on ‘ecosystems’ to avoid the alleged blind spots from static competition models.¹



Changes in market definition

As new technologies challenge old, there will be increased pressure to change established market definitions leading to reconsideration of existing perceptions of market concentration and levels of competition. New competitive pressures are also on the horizon (for example, low earth orbit satellites providing wireless internet). Telecom regulation was slow to adapt to new market challenges brought to the voice call market by VOIP, messaging apps, etc. A big question ahead is how quickly will regulators adapt to market changes in 5G.



Patent race and disputes

Recognizing the importance of 5G, governments around the world have implemented strategic plans to become leaders in 5G development and patenting. However, a recent report from the USPTO, examining overall global 5G patenting trends, filings, and value indicators in the 5G-related technologies, challenges claims that any single company or country is “winning” the 5G technology race.

It is clear that interest in 5G patenting activity is higher than ever. Disputes over Standards Essential Patents (SEP) continue to occur as 5G is implemented. SEP owners and 5G implementers unable to reach an agreement on fair, reasonable, and non-discriminatory (FRAND) terms are likely to find themselves in court — with SEP owners often seeking enforcement in patentee-friendly jurisdictions and courts, and implementers seeking to have licensing rates set by courts more favorable to their interests. Meanwhile, litigants on both sides are increasingly taking advantage of anti-suit injunctions (and anti-anti-suit injunctions) as they seek to resolve SEP disputes in their favored forum. Courts in China have been issuing anti-suit injunctions to prevent SEP owners from seeking enforcement against Chinese companies in non-Chinese courts, resulting in the EU recently filing a request for consultations with China before the WTO dispute settlement system. It remains to be seen whether and to what extent the action will have an impact on China’s use of anti-suit injunctions.

¹ See for example, David J. Teece, *5G And the Global Economy: How Static Competition Policy Frameworks Can Defeat Open Innovation*, CPI Antitrust Chronicle September 2019.

2 5G Use Cases in Supply Chains and Healthtech

Authored by **Jennifer Trock**, Partner, Washington DC and **Stephen Reynolds**, Partner, Chicago

5G promises massive gains in wireless networking capabilities. By using higher frequencies and a broader portion of the radio spectrum, 5G rollout will allow more data to be sent faster and to more devices. Its power lies in its 3 key offerings:



ultra-low latency & faster network speeds



greater connectivity



enormous data capacity

As 5G infrastructure spreads, the impact on commerce will be significant, particularly on manufacturing supply chains and in healthcare technology (healthtech).



Impact on Supply Chains

5G has the potential to enable manufacturing supply chains to realize significant efficiencies in operations by utilizing low-latency and private 5G networks capable of handling large volumes of data. The advancing rollout and integration of 5G will impact new technology incorporated throughout supply chains, including “smart” factories powered by analytics, AI, advanced robotics, and automation, all of which require the high speed, connectivity and data capacity that 5G provides.

Similarly, retailers can leverage 5G to better utilize sensors, trackers, and computer vision to manage inventory systems, improve warehouse operations, and coordinate along the supply chain.

Connectivity can support enhanced in-store experiences, by eliminating traditional checkouts and adding augmented reality for better product information.

Key consideration:

As 5G is integrated into supply chains, companies will need to become familiar with associated legal regimes in the areas of data security, privacy, infrastructure, and others.



Impact on Healthtech

5G is also creating the perfect storm to usher in a new age of healthtech.

In the United States, implementation deadlines related to the 21st Century Cures Act will open up third-party software and mobile application access to health information within major Electronic Medical Record (EMR) platforms that were completely closed off before.

Today, new technologies leveraging 5G and possible EMR integrations, once adopted, will allow individuals to send real-time metrics about their health to providers that can help create baselines and allow providers to react quickly to any deviations from them. This can help healthcare providers diagnose issues before they become major problems.

Key consideration:

Of course, new technologies and data create new legal risks. Companies that have not traditionally processed health information may now find themselves complying with new legal regimes as they pull health data from an EMR to enrich health insights in their applications.

3 Funding, Investment and Deconsolidation of 5G — What to Expect

Authored by **Janet MacKenzie**, Partner, Johannesburg and **Michael Kunstler**, Partner, Sydney

5G network rollout continues to gain momentum across the globe during 2022 as new opportunities in making immersive and connected metaverses arise. Exponential growth in data usage, new technologies, edge computing, higher densification and the availability of affordable handsets are all driving 5G rollout. Telcos are again looking at a range of ways to fund 5G investments and are pursuing M&A strategies and network sharing arrangements to gain market share and access to network equipment, radio frequency spectrum licences, towers and other key elements required for the roll-out of 5G services.

7 Key Emerging Trends:



Opportunities for consolidation and network sharing

Although a few jurisdictions' regulators appear to be more amenable to telco consolidations given the important role played by telco in the emergent post pandemic global digital economy, most competition regulators (e.g. Australia) remain focused on market concentration issues which may limit further consolidation.



Foreign Investment Review (FIR) / National security concerns

There is increasing scrutiny of deals from FIR regulators (e.g. CFIUS, FIRB), security agencies and even direct intervention by governments. Growing focus on national security concerns, geopolitical issues and cyber security risks will increasingly be a gating item in M&A transactions, particularly where assets are considered critical infrastructure in a relevant jurisdiction.



Technology-driven M&A

M&A activity is likely to continue as telcos adapt their core networks in the direction of software-managed relaying and other technology driven services.

Telcos with plans to integrate technology capabilities into their 5G roadmaps are likely to target technology companies.

Major technology companies will also look to acquire telcos to enable them to leverage the benefits of 5G for the provision of their technology services.



Increased investments in adjacent industries

Telco companies looking to diversify their product portfolios and increase the size of their customer base are behind many of the acquisitions in adjacent sectors such as streaming, IoT, software and applications, advertising platforms, analytics, cyber-security, and health care.



Open technology standards

Telcos are increasingly partnering with each other to help drive open network technologies.

In many instances, these initiatives are supported by government R&D funding, which may result in a reduction in costs and increased innovation by removing barriers to entry for smaller market players.



Infrastructure sales

There is increased M&A activity on sales of telco infrastructure to long term investors — cell towers, terrestrial and subsea fibre, data centres, etc. — to help fund 5G rollouts.



User demand-driven M&A activity

Rising demand for seamless interconnectivity between homes, offices and mobile devices are leading to the need for consolidation of multi-play and converged services, i.e. the ability to access bundled service offerings comprised of content, telecommunications and internet broadband.

4 5G Network Rollout

Authored by **Steve Holmes**, Partner, London and **Yuriria Mascott**, Legal Consultant, Mexico City

5G networks already have a long history, with R&D activities and investments having taken place for over 10 years. The first 5G networks went live in South Korea and the United States in April 2019, and deployment in many other countries has gathered pace since then. At the same time, telcos in many countries are also focussed on completing their 4G networks, enabling the sunset of 2G and 3G networks.

While 5G brings the opportunity of low latency and much needed additional capacity in cells where networks are congested, the full benefits will become clearer over time (as more widespread standalone networks become deployed and additional spectrum is utilised).



An ongoing debate

There is some debate as to the extent to which 5G will make a difference to the telcos deploying them and the consumers using them.

However, it is clear that the need for investment and complex deployment (and decommissioning) programmes continues unabated, putting further pressure on the bottom line for telcos.

This has been further complicated by the increase in foreign investment restrictions, export controls and regulation of providers, limiting the choice of suppliers and network equipment (and in some cases requiring network equipment to be removed from networks and suppliers from programmes).



The investment question

The level of investment required for these programmes has also led to greater collaboration and strategic partnerships between telcos.

This refers not only to collaboration between network operators sharing costs and network assets (where competition law permits), but also between networks and strategic business partners as they build out 5G enterprise and consumer services.

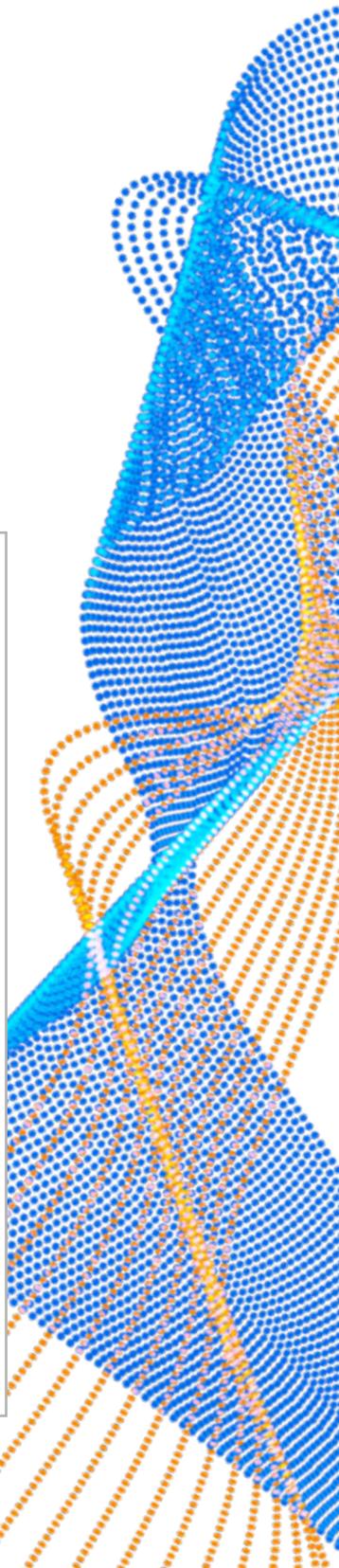
Furthermore, the ongoing cost of investment in telecoms networks will lead to further market consolidation.



Practical Tips for 5G Rollouts

Ensure that your company engages legal advice to support the range of strategic network rollout arrangements and partnerships (for 5G and beyond) and help take account of the key business drivers and risks, including the following:

- Where 5G equipment is deployed on existing sites, clear safeguards are needed to ensure that there is minimal impact on the network already available at those sites and processes to be followed if there is any impact on those sites
- It must be clear who is responsible for ensuring compliance of the 5G network with law as it develops throughout the life of the contract — this is a complex area and changes in law can lead to significant cost if programmes need to be adapted part way through or networks need to be changed
- Where 5G network deployment is being delivered across operators, the contractual arrangements need to deal specifically with the specification of sites in the different contexts and how the costs of deployment and transmission will be shared for joint and unilateral deployments
- Cybersecurity is an increasing risk on telecoms networks and 5G networks are no exception — there is evidence of custom malware specifically targeting hardware in telco networks, and seeking to compromise multiple providers by moving between networks around the world using roaming protocols — security is therefore a key element of agreements for the provision of 5G equipment and services



5 6G — Southeast Asian States Enter the Race

Authored by **Ken Chia**, Principal, Singapore and **Manh Hung Tran**, Partner, Vietnam

The proliferation and effective deployment of 4G and 5G networks are regarded as a premise for 6G, facilitating key public objectives in areas such as security, privacy, and equity, among others. The common element is AI or Connected Intelligence, which is expected to enable 6G by helping to optimize networks and designing new waveforms by taking advantage of distributed machine learning and edge intelligence, making communications more energy-efficient and sustainable.

6G Roadmap

<p> Six "Audacious" Goals</p> <p>These relate to the development of 6G set out in Next G Alliance's February 2022 white paper:</p> <ul style="list-style-type: none"> ▪ Trust, security, and resilience ▪ Digital world experience ▪ Cost efficiency ▪ Distributed cloud and communications ▪ Systems AI-Native future network ▪ Sustainability 	<p> Six New Technical Capabilities</p> <ul style="list-style-type: none"> ▪ Critical services ▪ Immersive communication ▪ Omnipresent IoT ▪ Spatio-temporal services ▪ Compute-AI services ▪ Global broadband 	<p> Six Pillars of 6G</p> <ul style="list-style-type: none"> ▪ Native AI ▪ Networked sensing ▪ Extreme connectivity ▪ Integrated NTN ▪ Trustworthiness ▪ Sustainability
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Southeast Asian Regional Deployments — A Mixed Picture

<p>Laos</p> <p>The Laotian government stated that it will leave it to the market to decide whether the country would launch 5G. Two telecoms firms in Laos have announced plans for a roll-out of 5G technology.</p>	<p>Singapore</p> <p>The IMDA (Infocomm Media Development Authority) and the National Research Foundation are investing SGD 70 million in Singapore's first national Future Communications Research and Development Programme. The programme will accelerate the next round of communications and connectivity research such as in 6G, and MOUs have been signed with Finland and Korea to deepen research and development collaboration on 6G.</p>	<p>Vietnam</p> <p>Vietnam is devising a roadmap for the research, production, and commercialization of 6G equipment. The Ministry of Information and Telecommunication has issued two pieces of legislation that set forth the orientation and a plan for a proposal for policy implementation in Vietnam, which is expected by June 2022.</p>	<p>Cambodia</p> <p>In January 2022, the Ministry of Post and Telecommunications recognized the construction of telecommunication infrastructure for 5G as one of the priority activities to build and improve digital connectivity infrastructure and set plans to expand the 4G network to prepare for the transition to 5G.</p>
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6 Conclusion

As your business considers the continued acceleration of 5G adoption, integration and expansion, here are eight key takeaways highlighting key trends and practical tips:

Accelerated Deployment of 5G

Deployment in South Korea, Mainland China and the United States and subsequent deployment in many other countries has accelerated.

5G will continue to drive significant gains in supply chain optimization, including advances in smart factories, inventory management systems, warehouse operations, and ultimately to online and in-store customer experiences.

Antitrust Regime Watch

Governments and antitrust agencies are continuing to review antitrust tools in the light of the challenges posed by new technologies (especially in establishing market definitions).

Additionally, it will be important to monitor how quickly telecom regulators adapt to new competitive challenges facing the traditional 5G telecoms sector.

M&A Scrutiny

Expect increased foreign investment review scrutiny of M&A deals in the telco sector and, in certain jurisdictions, the wider 5G technology supply chain.

This is especially true where assets are considered critical as infrastructure or there is a risk of compromising personal or otherwise sensitive data.

Varied Pace in Southeast Asia

Roll out of 5G (and 4G) networks are at different stages in the SEA region. Singapore is well advanced and currently focusing investment in 6G. Other regions are rolling out 5G and expanding 4G networks as a bridge towards 6G.

Legal Focus Points

Companies should ensure they seek legal advice supporting strategic rollout arrangements and partnerships which include oversight of key business drivers and risks.

These include clear safeguards to ensure there is minimal impact on existing services (where 5G is deployed on existing sites), precisely defining who is responsible for ensuring legal/regulatory compliance of the 5G network as it evolves.

Revolutionizing Healthtech

5G has the power to revolutionize healthtech by powering medical innovations that utilize augmented reality, AI, expanded data, and remote medical care, among others.

Companies utilizing 5G need a deep understanding of rapidly evolving legal issues in specific sectors they enter, such as healthcare.

AI is Key

AI or Connected Intelligence is central to next-generation wireless telecoms.

AI allows for network optimization and new waveform design (using ML and edge intelligence) helping make next-generation communication networks more energy-efficient and sustainable.

6G on the Rise

6G is increasingly on the agenda of industry players and telecommunications regulators worldwide. Ambitious new 6G rollout plans were for example recently published by North America's Next G Alliance. Key themes include omnipresent IoT, immersive communication, and global broadband.

7 Key Contacts



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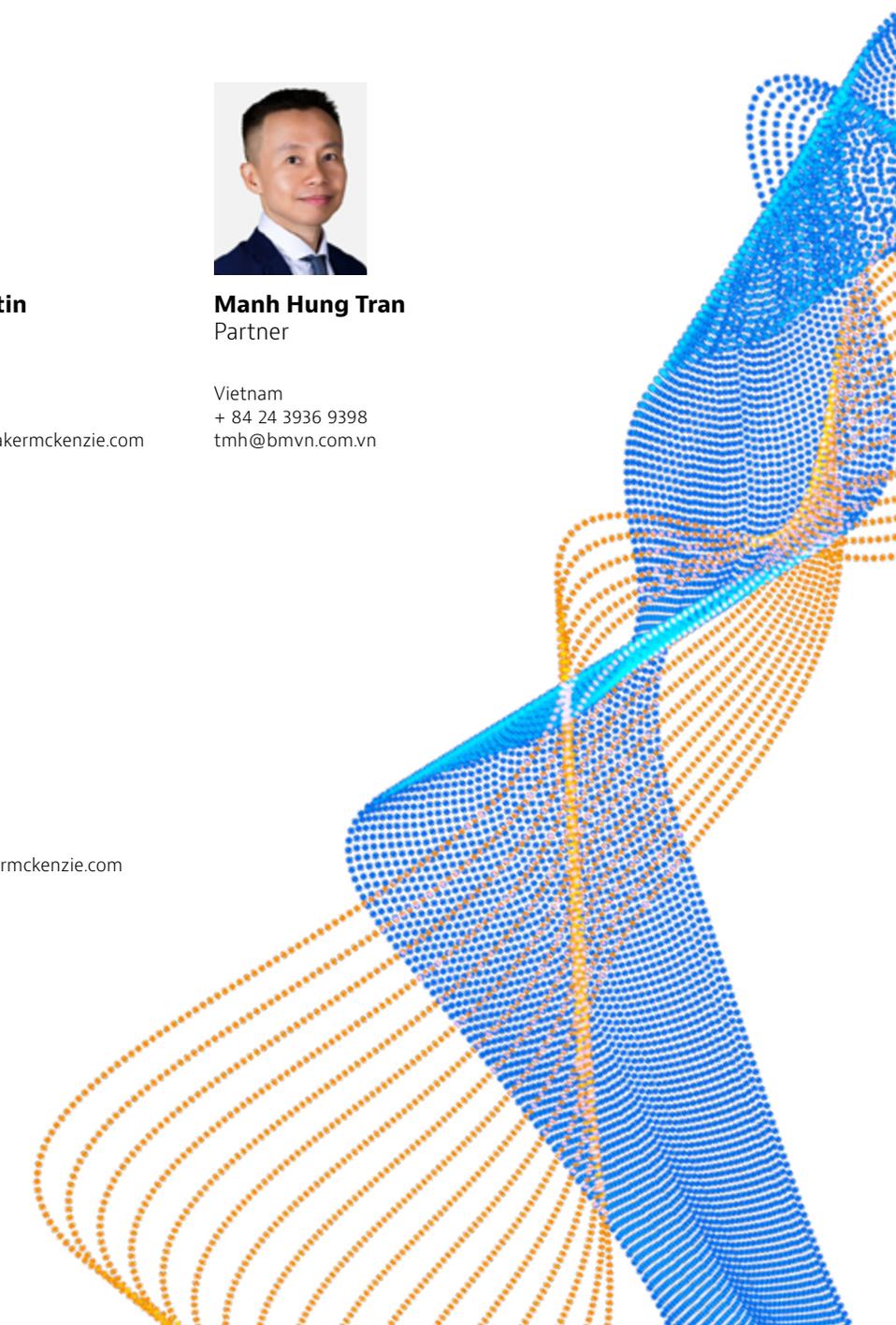
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