

5G is anticipated to be the most important technological leap in wireless history, paving the road to the next generation of technologies and giving rise to Industry 4.0 (the fourth industrial revolution). A true enabler of the connected society, 5G will help increase productivity and collaboration. Partnered with breakthroughs in artificial intelligence (AI), robotics, virtual reality (VR), augmented reality (AR) and internet of things (IoT), 5G will elevate current standards and redefine how we work.



Our knowledge and relationships with industry leaders will continue to help keep our clients stay one step ahead to ensure they are 5G Ready.

ESD can help with In-Building Wireless (IBW) and Distributed Antenna Systems (DAS) planning and implementation management in the following ways:

- Assess current building infrastructure and evaluate existing systems.
- Competitively source various solution providers and select the most appropriate and cost-effective solution to meet facility requirements.
- Evaluate tenant leases and identify property readiness in relation to needs.
- Ensure new investments in IBW/DAS technologies are not rendered obsolete.

### Key Points

- 5G will require new devices connected to new radio technology.
- Most existing IBW systems will not meet 5G requirements.
- 5G indoor implementation costs will likely be shared between the building owner and tenant.
- 5G presents monetization opportunities to owners by making buildings more desirable.
- 5G carrier baseline deployments are starting now in select cities. Commercial rollout is anticipated mid-2020. Cellular technology has a 20-year lifecycle from launch to peak penetration, and the immediate impact of new technologies is typically limited.

### What We Know

5G is not just the next generation of cellular but a unified communal data fabric, bringing rise to new market sectors such as Enhanced Mobile Broadband (eMBB) and Massive Internet of Things (MIoT). As a continuation of LTE and the existing framework established by 4G, 5G improves four aspects of wireless communication: greater speed (faster uploads/downloads), lower latency (more responsiveness), greater capacity (more devices/data) and better reliability (less downtime).

Today, 80% of cellular usage occurs within buildings, and many existing commercial real estate properties still lack reliable 4G service across all carriers. High-frequency signals, which are the planned spectrum for 5G, cannot penetrate objects as well as existing low- or mid-frequencies. Furthermore, the higher the frequency, the shorter the range of signal propagation. Another challenge is that most existing DAS systems may not be able to migrate to 5G and transmit at the required higher frequencies.

As indoor wireless connectivity and infrastructure become a foundational element of every facility, reliable indoor coverage will become even a bigger challenge for most building owners and facility managers. To prepare for these emerging technologies, they should, at a minimum, begin evaluating their properties' infrastructure and readiness to support 5G.



### **Benefits**

Preparing for 5G with the appropriate IBW deployment in a commercial real estate property will help retain current tenants, attract new tenants, increase property valuation and rents, as well as provide the tech edge and foundation for an intelligent building. Overall, the appropriate IBW solution will provide properties both the competitive advantage and elevated status that is highly sought after by both building owners and property managers.

### **Call to Action**

As indoor wireless connectivity and infrastructure become a foundational element of every facility, reliable indoor coverage will become an even a bigger challenge for most developers, building owners and facility managers. To prepare for these emerging technologies, developers should plan to incorporate the most flexible IBW solutions with a roadmap to support 5G in new developments, building owners and facility managers need to start evaluating their properties' infrastructure and readiness to support 5G and tenants must be aware of impacts to their leases and identification of property readiness in relation to needs.