



**IEEE**  
**Future**  
**NETWORKS**

**Enabling 5G and Beyond**



**International Network  
Generations Roadmap (INGR)  
Industry Forum  
Deployment WG**

15 Oct 2020

# Scope

The Deployment WG serves as a conduit for stakeholders to communicate their goals, needs, and concerns. It serves as a convening body for the telecommunications industry, equipment and semiconductor vendors, local governments, public agencies, etc. The goal is to reduce the conflicts and tensions involved in moving projects through local government and municipal agency review, permitting, and appeal processes.

Topics covered by the DWG Roadmap are:

- Local government factors and perspectives affecting deployment.
- Regulatory factors affecting deployment.
- Public/Community factors and perspectives affecting deployment.
- Technology/Vendor/Real Estate issues affecting deployment.

# Today's Landscape

- ***COVID-driven distance learning, work-from-home, and shop-from home are exposing limitations in our current telecommunications networks.***
- The first generations of cellular technologies were deployed on towers and monopoles away from population centers. While tensions with residents and governments/agencies over early sites were not unknown, in general they were located away from population centers.
- 4G densification (DAS & Small Cell) places wireless equipment close to subscribers, increasing the number of sites subject to resident objections.
- 5G, especially in the FR2 “millimeter wave” band, requires deployment near subscribers. Popular misconceptions about health effects have developed and amplified in advance of the 5G roll-out.
- Availability of fiber optic infrastructure and resilient electrical power are key enablers for both wired and wireless deployments.

# Top Needs for Long-Term Success

- Education of the public, local governments, public agencies, elected officials, and the media about the economic value and risk-vs-reward trade-offs of wired and wireless deployments.
- Semiconductor and equipment vendors must focus on building deployable products that enable telecom real estate companies and carriers to deploy within municipal codes and ordinances.
- Local governments must hire trained capable people to handle wireless telecom applications, develop application approval processes, and take wireless telecom seriously.
- IEEE must be an objective and authoritative voice dealing with the science and complexities of wireless deployments.

# Challenges and Solutions to Meet Needs

- Education of the public: Fears about negative effects (health, property valuations, aesthetics, etc.) from wireless deployments are created by false narratives in the media, by social media misinformation, and by a general trend towards anti-science in the public mindset.
- The question of “Who can you trust?” looms large in the public mind. COVID-amplified distrust of established medical/governmental institutions (CDC, WHO, etc.) leads to conspiracy theories.
- IEEE must be an objective voice of reason and gravitas in these debates. The media should leverage the IEEE as a de facto source for objective insight.

# Challenges and Solutions to Meet Needs

- Education of local governments: Permitting and planning for wired and wireless telecommunications is a relatively new area of responsibility, and there's a lack of expertise in municipal staff. Oversight of project permitting is often assigned to new hires, junior personnel, and federal/state regulations are seen as an unfunded mandate. Federally-mandated reductions in lease rates force local governments to fund staff via other income sources.
- In the long run, local governments will have to hire or train qualified staff to oversee project permitting, and will have to make it part of their core mission.
- IEEE should take an active role in providing education and training to local governments.

# Challenges and Solutions to Meet Needs

- Experience shows that the semiconductor and up-stream equipment vendors do not fully understand the complexities and challenges of deployment. e.g. Equipment used in the early days of the 4G small cell roll-out was poorly suited for deployment near human populations, leading to pushback and negative reactions that still exist today.
- Communication of municipal requirements up the value chain from deployment to semiconductors is needed to ensure that products are deployable and acceptable.
- IEEE must convene around this topic and create a multi-stakeholder dialog about technologies.

## Stakeholders

- Semiconductor vendors
- Wireless equipment
- Telecom Real Estate
- Wireless carriers
- Governments
- Public/Residents

## Contributing Working Group Members

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# Get involved!

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## QUESTIONS?