



Want to Build a Smart City?

Communication Holds the Key.

As the Internet of Things (IoT) and big data drive opportunities to create a more connected future, the promise of smart cities is turning into reality more each day.

Thanks to innovation in smart infrastructure, utilities are finding new ways to leverage smart technology across lighting, electricity, water and gas to make their cities safer, more convenient and more livable.

Yet many cities continue to struggle with adopting smart city infrastructure. Some are uncertain about how to begin the transition. Others have achieved some connectivity, but are unsure of how to realize all the benefits connected infrastructure can offer. The answer to these challenges is communication:

- Choosing the right network for the smart city infrastructure
- Starting a dialogue between utilities and the municipalities about how to best use technology to serve the greatest number of citizens

Though these may seem like disparate issues, each must be addressed before the promise of smart cities can be fully realized.

Choosing the Right Communication Network

The right communication network is critical to the success of a smart city implementation. Communication technology has come a long way in recent years, and municipalities and utilities are faced with many choices in determining which network will lay the foundation for their IoT initiatives and applications. Making the right choice is essential, but it isn't always easy.

Public mesh networks are sometimes considered the answer but they come with several drawbacks that can leave many residents underserved. This includes difficulty connecting end points in more rural areas or locations with diverse terrain, such as mountains or coastlines. Additionally, public mesh networks frequently carry latency and device battery life issues due to the high number of device-to-device transmissions.

As an alternative, many utilities and municipalities have deployed private networks that offer two-way communication over a licensed spectrum that uses a STAR network design. This type of two-way network can offer point-to-multipoint connectivity for faster data transmission and more flexibility for deploying various IoT applications. When combined with smart meters and sensors, it can leverage existing assets like street lights to transform current infrastructure into smart



infrastructure. Further, these networks offer the ability to transmit to and from hard-to-reach areas that mesh systems struggle with. Finally, the flexible deployment options provide better scalability than mesh, opening the door for the ability to quickly integrate new applications and connectivity options to meet a city's growth and future needs.

Taken together, the benefits offered by point-to-multipoint, licensed communication networks make them worth consideration for any municipality or utility struggling with how to deploy smart infrastructure. And while choosing the right communication network is one central challenge that must be addressed, it's not the only one.

Opening the Lines of Municipality-Utility Communication

When deploying smart applications, the goals of municipalities and utilities often overlap. Both seek to offer innovative smart capabilities to as many citizens as possible and to use these capabilities to meet the unique needs of those they serve. These entities should be in continuous communication about how to best meet those needs, yet this is where smart city initiatives frequently break down.

Utilities and municipalities need to understand the diverse needs of the populations they serve so they can make certain applications are deployed in areas where they will do the most good. The instinct may be to direct applications to areas where they reach the most people, i.e., population-dense locations. Yet these might not be the areas that will be best served by those applications.

Think, for example, of a rural area with a high crime rate. Smart lighting applications including enhanced dimming and flashing capabilities could help lower crime and improve community safety. Without officials beating the drum about the need for the applications to be installed in their municipality, the likelihood is that smart lighting and other smart applications will be installed in more urban or population-dense areas.

Make no mistake: municipalities and utilities need to talk to each other to determine the best route for smart city implementation. Municipalities of all sizes should be contacting their utilities to make their voices heard. Likewise, utilities should make sure to incorporate the feedback of all those they serve, not just the areas with the greatest population density. Regular communication between these entities will help ensure that smart city implementations are reaching those customers best positioned to benefit from them.

Conclusion

Whether you're just beginning to explore smart city applications or have already deployed them, remember that communication is the hallmark of smart city innovation. Make communication the foundation of your efforts both in identifying the needs your smart city applications will serve and in choosing the network that forms the bedrock of your initiatives. Addressing these issues will position you to capitalize on the benefits smart city technology can offer your citizens and customers now and in the future.