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Bridging the Digital Divide with 5G Access

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Today, innovation is constant. Across every industry, groundbreaking advancements bring about real-world change every day. And the digital industry plays a big part. Each decade brings a new era of technology, and with it, a new way of doing things.

This opportunity, however, is not the same for everyone or every business everywhere. The reality is that some areas fall behind. We see this happening before our eyes when it comes to Internet speed and connectivity. Some regions have begun to establish infrastructure that prevents a person from ever losing an Internet connection. Others face a different scenario, where communities may have access to the newest devices but find themselves in an area without the connectivity to support them.

This is what we call the digital divide—and bridging the divide is necessary to keep up with the demand for everything digital, everywhere. Bringing communities together to cohesively solve these problems also spawns innovation. As more devices become 5G-enabled, 5G infrastructure is even more essential to the future of our digital world. Without building the infrastructure needed to support 5G, technology will be unable to evolve in the way to make promises into reality. This article examines the journey from 4G to 5G and illustrates the type of innovation that makes bridging the digital divide possible.

The 4G evolution

As we embrace the 5G era, understanding our journey to 4G is crucial to navigate forward. The 4G revolution created jobs for millions, spearheaded vast economic growth, and gave birth to



new industries. Wireless speeds skyrocketed, while the cost to access them dropped, and consumers have become completely reliant on 4G network capabilities—for good reason.

It's important to explore how the 4G evolution unfolded. Unlike the chicken and the egg, it's easy to pinpoint what came first. Before 4G networks and devices even existed, United States wireless providers began building mass infrastructure, from cell sites to area networks large and small. Once this initial infrastructure was created, the ability to access and use 4G network capabilities became a reality.

A great example of a 4G byproduct is the application industry. Thousands of web-based applications (apps) were developed because 4G network capabilities could support them. If 4G infrastructure wasn't enabled, a large niche of technology that has become crucial to our everyday functioning wouldn't be supported. Without 4G, we would not have the ability to order food or rides through Uber, view sports news, play online games, conduct mobile banking, and countless other functions. The progression from the initial building blocks—a pipedream of what is possible—to reality is important to note because the 5G revolution will be similar. Our existing digital infrastructure and connectivity enable innovation to naturally progress.

And we're only on an upward trajectory. In the year 2010, Americans consumed approximately 388 billion megabytes of data. Nearly a decade later, this number has surged: it was up to 37 trillion megabytes in 2019 (as [reported by CTIA](#) in 2020). This illustrates the impact of 4G on Americans' everyday life. Considering the unprecedented development of wireless devices and their ever-increasing capability, this leap was inevitable. It's fair to expect a similar trajectory with the 5G revolution—and most of it has not even been developed or realized yet. This is why building today's 5G infrastructure is so important. Furthermore, building this infrastructure now will pave the way for the coming decades—and this vision is what we hope will be driven by the growth of smart cities in the coming decades.

The US wireless industry

In just several short years, the US wireless industry has become not just a staple, but the backbone of our economy. If it were its own country, the US wireless industry would be the 21st-largest global economy in the world. Furthermore, the wireless industry has established itself as one of the largest job creators in the national economy. Back in 2011, approximately 3.7 million jobs were connected in some way to the wireless industry, equal to 2.4 percent of the 153.1 million people employed during this time. As of early 2019, one in every six people employed in America held a job that was related to the wireless industry in some capacity, equating to over 20 million jobs.

In New York City, this has real-world implications when it comes to creating job opportunities for residents. Developing wireless infrastructure is no small undertaking: it requires a wide realm of jobs, with an even wider range of skills. Professionals in roles from construction workers to software engineers are needed for different aspects of the network builds, which only helps to grow the job market in the region. As the 5G era continues to unfold, the new wave of wireless

networks will provide unprecedented benefits and build upon a well-rounded 5G economy—one that we have yet to fully fathom.

Smart city initiatives

What does quantifiable 5G innovation look like? Many cities around the US have “smart city” ambitions. Being so densely populated, the major cities of the US have a definitive need for better, more reliable infrastructure to successfully integrate better connectivity capabilities. This is especially true in some cities that have already begun to build out 5G infrastructure. But with any widespread industry growth of this magnitude, some regions won’t adapt or develop as rapidly as others, for any number of reasons. Take New York City as an example; imagine the impact if all five boroughs of NYC were covered by a blanket of high-speed ubiquitous connectivity. This would mean that no matter what area you live in, you’ll always have access to connectivity. This should be the true mission of smart city projects, to ensure that those in currently underserved areas can soon rely on wireless anywhere.

In addition to its Wi-Fi coverage, smart city initiatives also can become a platform for social services, civic engagement, education, and a way to share important local information. A prime example would be the currently outdated public phone booth systems found in many major cities around the country. These could potentially be replaced with similar, more modern offerings that, while providing free telephone calls could also enable access to important city information, USB ports for free phone charging, along with free public WiFi. These could be used for advertising as well as public service announcements, which has shown potential to be the most vital aspect of these initiatives, especially over the past year as citizens have navigated the challenges of the COVID-19 pandemic. In a major city, being able to run real-time updates during a global health crisis in multiple languages regarding COVID-19 resources, alerts, guidelines, and vaccine availability, all at no cost to the residents, is priceless. The ability to rely on this sort of infrastructure no matter where you may live, especially during times of crisis or need, is a key aspect of what will make smart cities successful in the future, and why the development of them is already underway.

Looking forward

Most existing smart city initiatives are currently and will continue to be funded primarily through private investments and advertising. This type of public-private partnership allows these programs to expand, as well as accelerate their reach and impact throughout major cities in a minimally disruptive way. When public-private partnerships work efficiently, there’s no need to rip up city streets with construction. The goal is to ensure that all residents of major metro areas have access to the benefits of enhanced 5G connectivity and become a model for upcoming smart cities around the world. By continuing to upgrade and expand infrastructure across the country through smart city projects, further change and innovation will surely follow.

The ultimate goal is to have shared infrastructure in urban centers that everyone has fair access to, which includes both 5G broadband and Wi-Fi. If someone is walking in New York City and talking on their cell phone over Wi-Fi, they can never lose their call. If a child is on a bus doing homework, they can never lose their connection no matter where it drives in the city of New York. This is the level of connectivity we need to be striving for, in all areas, equally.