

5G will transform how business gets done. Are you ready?

A guide to powering your business with 5G

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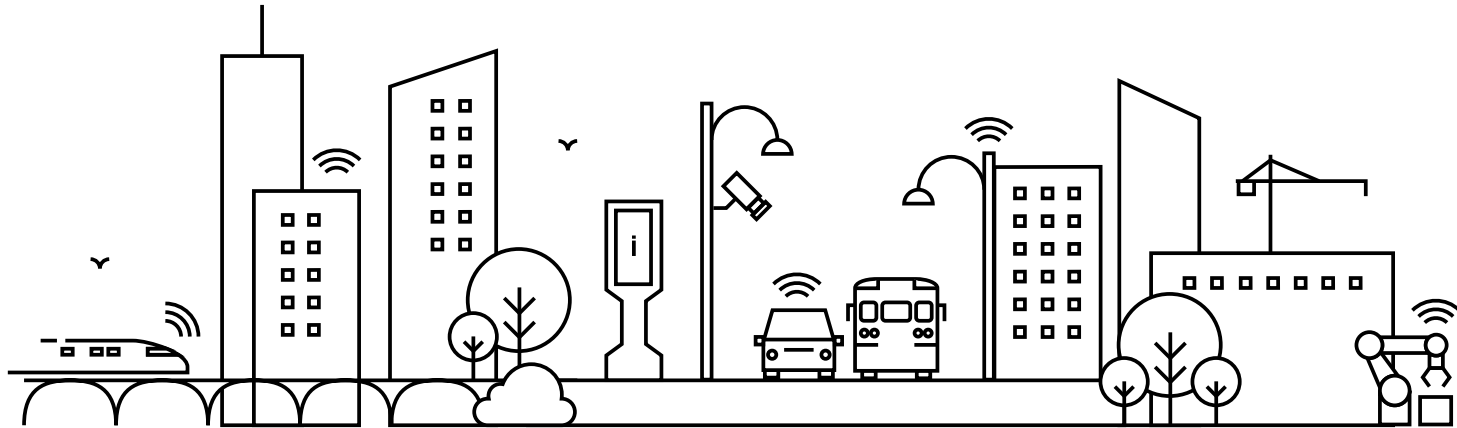
verizon✓



What will you do with more?

There's no doubt that 5G is fast. We're talking really, really fast. But it can bring much more to the table than just speed. Like more capacity. More bandwidth. More opportunities for your innovation thanks to the enhanced attributes of 5G.

This guide takes you on a deep dive into 5G. We'll explain what 5G is, how it works, where it may be headed – and what it could mean for your business.



What is 5G?

Simply put, 5G is the fifth generation of cellular communications. But to really understand where 5G is going, you need to know where it comes from. So here's a brief history of the cellular evolution:



1G

The technology that started it all, 1G gave us mobile voice and opened up the door for new communication technologies.



2G

Recognizing that people needed more than one avenue for communication, 2G introduced a short-messaging layer, which is the foundation of today's texting features.



3G

Communications really started picking up speed here as 3G offered even faster speeds and higher standards for reliability.



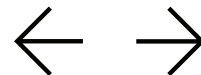
4G

With super-fast data transfer rates, 4G was a huge leap forward in terms of enabling things like connected devices and high-quality streaming, and it's the foundation 5G is built on.



5G

Building on previous iterations to offer even faster speeds, lower latency and more bandwidth, 5G will eventually be able to help reduce energy requirements for network operations when compared to 4G.



01: What is 5G? >

Technically speaking

The reason 5G will be able to do more than all the networks that came before it is because it's built on an entirely new technology – 5G New Radio (NR). 5G NR is radio access technology with frequency bands that are separated into two different ranges: above 6 GHz and below 6 GHz. The higher the band or frequency, the faster the speed. Having two different ranges allows for greater flexibility for both mobile and fixed 5G offerings.

There are different tools, technologies and frequencies that carriers can use to offer advanced 5G capabilities. At Verizon, we've been investing in the higher millimeter-wave (mmWave) spectrum for the past several years. mmWave spectrum can carry massive amounts of data at very high speeds with very minimal latency, which we believe will best accommodate a wide variety of data demands.



01: What is 5G? >

5G: It's a big deal.

Because it will provide data transfer rates faster than the blink of an eye and accommodate massive bandwidth, businesses can execute large-scale digital efforts practically in real time. For example, 5G can make it possible to deploy Internet of Things (IoT) technologies on a vastly larger scale, evolving into Massive IoT. We told you it's big.

It's important to note that 5G isn't meant to replace 4G – it's meant to supplement it. But for businesses that really want to do more, 5G could be essential.



Business in the 5G age

Why 5G is the future of business

We know 5G could change everything about how modern business gets done. Among other benefits, 5G has been designed to help businesses:



Drive enhanced productivity through virtualization.



Create new revenue streams with next-generation applications.



Harness massive amounts of data and make it actionable.



Improve operations by leveraging near real-time analytics.



Respond more quickly to changing business dynamics.

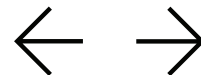


Deliver better customer experiences through omnichannel marketing integration.



Provide secure, lightning-fast access to mission-critical data.

But your business can only reach its full 5G potential if you choose a network that captures the full potential of 5G. To help you determine if you're making the right choice, we've outlined eight currencies – or attributes – that you should look for when selecting a 5G network for your business.



The Eight Currencies of 5G

Throughput: 5G could reach up to 10 gigabits per second of data, so look for a network that can demonstrate it's working toward reaching that threshold.

Service deployment: Networks with a virtualized network that can execute updates through software instead of hardware can stay secure and remain responsive to business needs.

Mobility: Being able to maintain reliable connections at high speed in a static situation is one thing, but if mobile is part of your business strategy, you need a network that delivers the power of 5G even on the go.

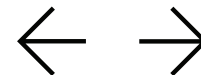
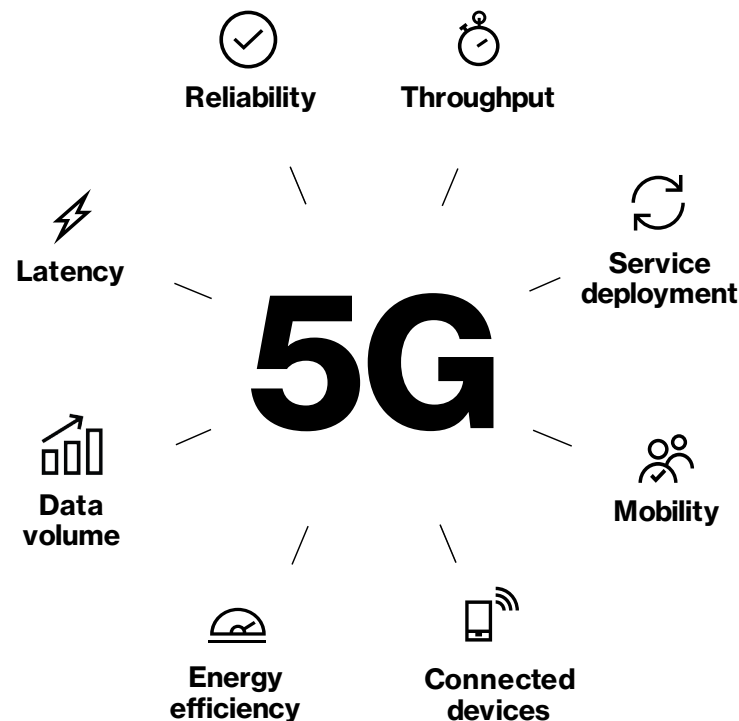
Connected devices: A true 5G network has the potential to support many more supported devices than 4G – up to 1 million connected devices in a square kilometer.

Energy efficiency: If you are concerned about sustainability, good news: A properly built 5G network will have lower requirements for network operations, meaning the end user's device will not need as much processing capability and will consume less energy, saving you money.

Data volume: Don't settle for less: Your 5G network should have the capacity to deliver larger amounts of data to more users simultaneously.

Latency: True 5G has the potential to reduce data send-and-response times from 50 milliseconds to less than 10 milliseconds, making applications more responsive.

Reliability: It was true with 4G – and all the generations that came before – and it remains a critical quality for 5G: To deliver the performance that businesses demand takes a network with proven reliability.



The future is now.

Don't wait to start developing a 5G strategy.

5G is new technology and is likely to evolve over the next few years. But there are steps you can take today that can help transform your operating environment to be ready to take advantage of the benefits of 5G. By making the move from a traditional network structure to a software-defined network infrastructure, you can be ready to leverage technology advances as they happen and can better leverage the data generated from your distributed assets. Early adopters of 5G could not only see benefits to their business sooner, but could be better positioned to adopt the exciting 5G innovations as they happen.

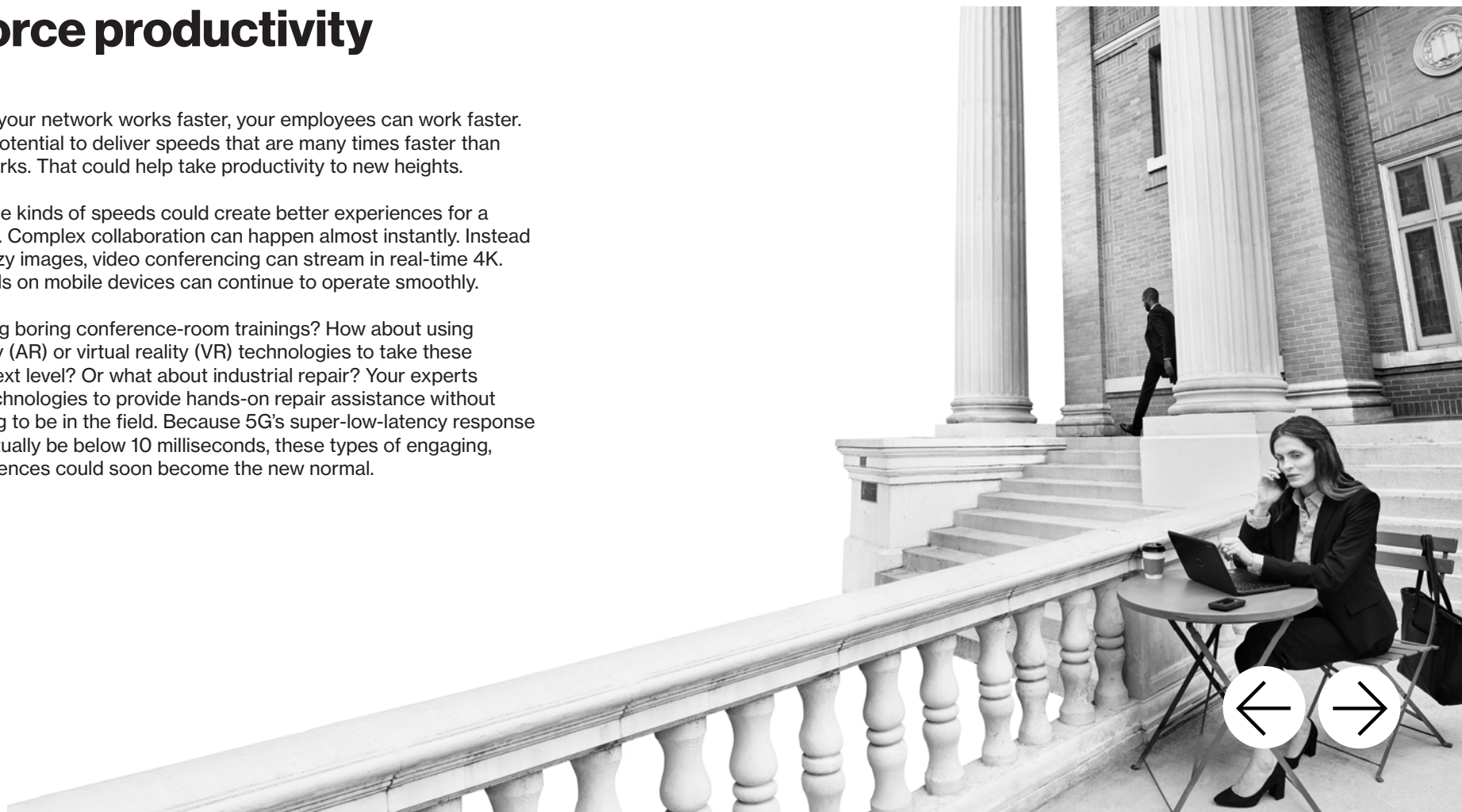


Workforce productivity

It's simple: When your network works faster, your employees can work faster. And 5G has the potential to deliver speeds that are many times faster than today's 4G networks. That could help take productivity to new heights.

Imagine how those kinds of speeds could create better experiences for a mobile workforce. Complex collaboration can happen almost instantly. Instead of delays and fuzzy images, video conferencing can stream in real-time 4K. Collaboration tools on mobile devices can continue to operate smoothly.

Sick of conducting boring conference-room trainings? How about using augmented reality (AR) or virtual reality (VR) technologies to take these trainings to the next level? Or what about industrial repair? Your experts can use these technologies to provide hands-on repair assistance without physically needing to be in the field. Because 5G's super-low-latency response times might eventually be below 10 milliseconds, these types of engaging, interactive experiences could soon become the new normal.



Business intelligence

If you think we live in a hyperconnected world now, just wait. 5G should be capable of supporting up to 1,000 times more connected devices than 4G. With more intelligent devices, you should be able to capture more data faster and essentially make as-it-happens decisions that could give your business the competitive edge it needs. Making informed decisions faster? Now that's just smart business.

And not only could 5G make your business smarter, it could make it safer. All the intelligence and speed that comes from 5G-powered edge computing could help reduce potential dangers. Take, for instance, a construction site. 5G and machine learning, combined with live video feeds and other sensors, can help almost immediately identify when an unauthorized person enters a site, or send alerts when conditions become hazardous. And smart communities can leverage solutions like intelligent video to help find a missing child or a fugitive.



Customer experience

Let's not forget about customers, the lifeblood of any business. 5G can help businesses create an even better customer experience by potentially providing more and faster ways to connect and engage. The potential here is virtually limitless. For instance, think real-time, location-based (omnichannel) offer targeting and AR-enabled product information delivery. Think highly personalized, data-driven experiences every time a customer interacts with a business, either in person or online. Think leveraged video surveillance to gain a better understanding of foot traffic patterns, linger and customer wins in stores, in near real time. Basically, if you have an idea for improving your business, 5G can probably help make it happen.



04: This is only the beginning >

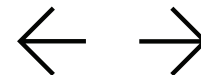
This is only the beginning.

Today's 5G implementations can lead to tomorrow's 5G innovations.

We know what 5G is, we know what it can do and we know how it fits into the current business landscape. We know it can facilitate huge new innovations thanks to its ultralow latency, high speed and high throughput. We know that combining 5G with your business' creativity could help take your business to new heights.

That's what we know now, but what's so exciting about 5G is everything we don't know yet. We don't know the extent to which it could transform the way we do business. We don't know its limits. We don't know what new discoveries or innovations the 5G future holds.

But we do have a few ideas.



04: This is only the beginning >

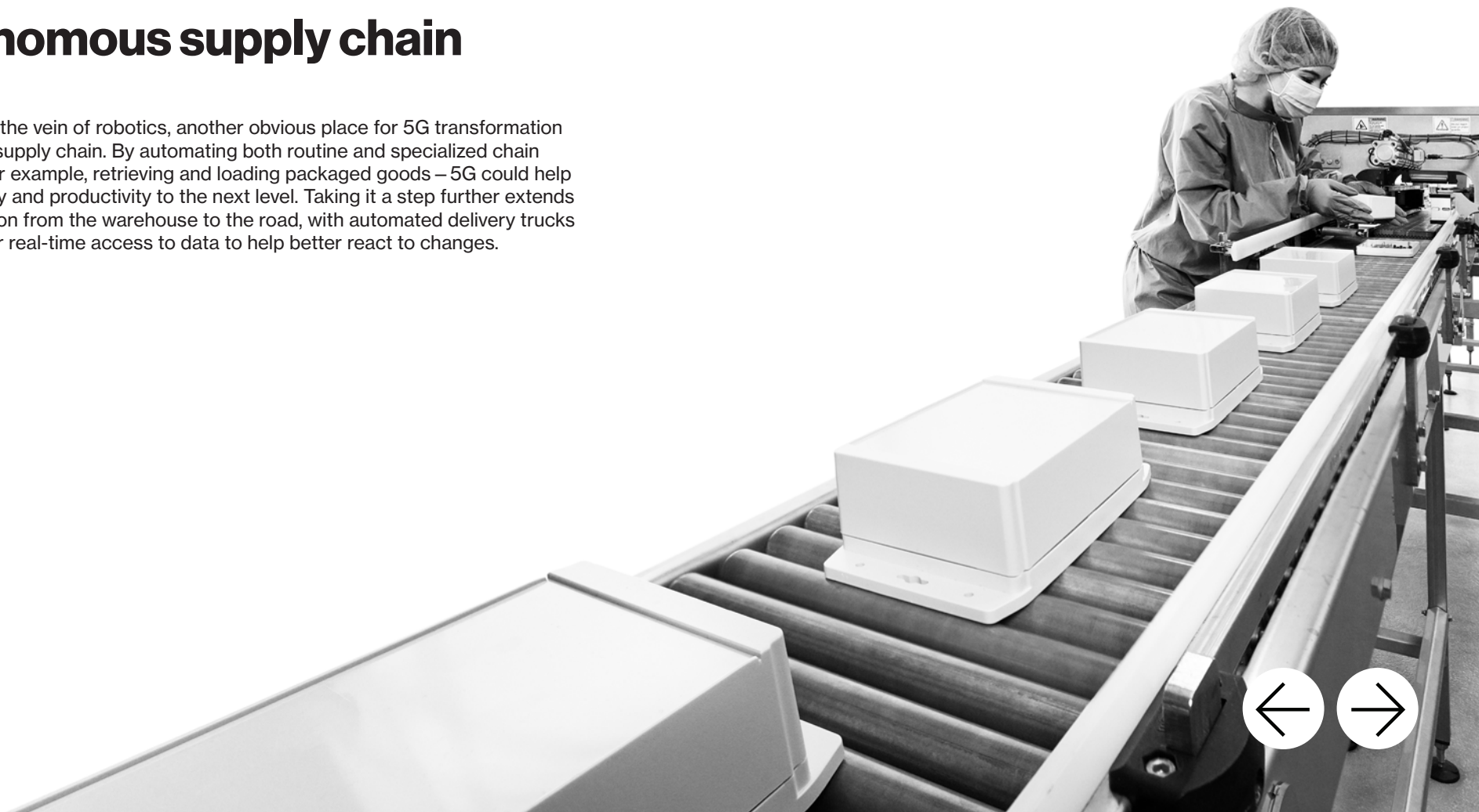
Precision manufacturing

Because of its speed, low latency and high bandwidth, 5G is poised to enable advanced remote industrial robotics. That's a big deal for manufacturing, because it means factory operations could be controlled remotely, with more precision and less energy consumption. 5G could also help with creating near real-time digital "twins," which could allow plant management to identify capacity, track production and optimize operations with greater floorplan layout flexibility.



Autonomous supply chain

Continuing in the vein of robotics, another obvious place for 5G transformation could be the supply chain. By automating both routine and specialized chain functions – for example, retrieving and loading packaged goods – 5G could help take efficiency and productivity to the next level. Taking it a step further extends that automation from the warehouse to the road, with automated delivery trucks receiving near real-time access to data to help better react to changes.



Augmented reality (AR) and virtual reality (VR)

5G could alter the reality of doing business by literally changing the way we perceive reality. The applications for AR and VR technologies are virtually endless, but some practical applications we can see being deployed in the near future – largely because efforts are already underway – are in the healthcare arena. Medivis is a technology company founded by surgeons, radiologists and engineers with the mission of leveraging AR and artificial intelligence (AI) to advance surgical visualization. These professionals are designing things like AR body scanning, 3D MRI holographic images and more, with the hope of improving diagnoses, treatments and surgical precision. And at the heart of it all is 5G.



Innovation shouldn't wait.

Putting 5G on your technology roadmap

As with any big change, the more you prepare ahead of time, the smoother the transition can go. To take full advantage of near-term 5G use cases – and ensure that you are setting yourself up for success with future use cases – you need to add 5G to your technology roadmap as soon as possible and start investing in the software, technology and internal systems that will get you there. So we've put together some tips to help you consider 5G from different angles when integrating it into your short- and long-term plans.



Your 5G planning checklist



Use our 5G assessment tool to see if your business is ready for the next wave of innovation: <https://info.verizonwireless.com/b2b-5g-assessment-tool.html>.



Identify your business processes and applications that you think would benefit most from near real-time responsiveness or lower latency.



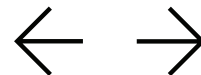
Create a list of current technologies and systems that support these processes and applications.



Identify pilot projects where you can explore the potential of 5G.



Select the right network partner to make your 5G plans a reality.



Making the best choice

Your 5G strategy is only as strong as your 5G partner.

Just as a 5G strategy will look different from business to business, 5G networks are different from carrier to carrier. We're building our 5G network to help businesses like yours make the most of this new technology. To make sure your business can reach its full 5G potential, you need to make sure to choose a network partner that delivers the full power of 5G. And we're confident we have what it takes to be your ideal 5G partner.

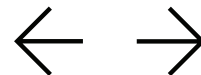
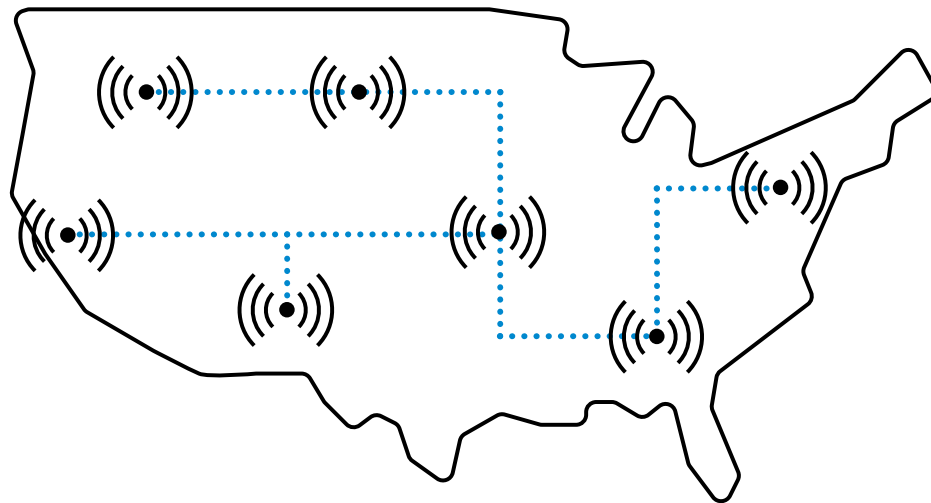


We understand 5G because we got to it first.

Just as we led the way with the creation of 4G – building the nation's largest and most reliable 4G LTE network in the process – Verizon has been driving 5G as a strategic initiative since the creation of the 5G Technical Forum (5GTF) in 2015. As a leader in this committee, we've helped accelerate the development, testing and delivery of 5G to make this transformative technology a reality sooner than thought possible.

We know that when we are first to 5G, we can better help your business be first to innovation. So when the industry adopted a different standard – 5G NR – we quickly incorporated it into our 5G mobility rollout plans. We've already introduced 5G NR to a number of cities in 2019, and will continue to use that standard as we rapidly expand availability into even more areas throughout the nation.

[See our full list of 5G cities](#)



Our 5G is built right for business.

The Verizon 5G Ultra Wideband network has the core elements needed to power your business today and tomorrow. These elements include:



Fiber

5G can support a lot of data, which means it will need an infrastructure in place that can handle the load. We already have an enormous fiber footprint across the nation and are planning an additional \$1.05 billion in new fiber expansion.



Millimeter-wave spectrum

Years ago, Verizon began securing large quantities of millimeter-wave spectrum. The ultrawide millimeter spectrum's massive bandwidth could move huge amounts of data at super-fast speeds.



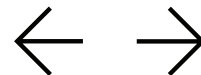
Small-cell deployment

This is key to improving the cellular experience because it will help strengthen coverage in locations where devices compete for bandwidth, such as dense, populated areas. We've spent years densifying our 4G LTE network, and many of those 4G node locations will be leveraged for 5G use.



Edge computing

This technology enables cloud servers to run closer to endpoints, reducing latency and moving processing from the device to the edge. And we already have network locations nationwide that are ideally suited to house edge computing resources.



Putting it all together

The 5G you need. The partner you deserve.

Now that 5G is a reality, you're going to have to make choices. You'll need to choose how to best incorporate 5G into your business. You'll need to choose how to lay a 5G foundation today so you'll be ready for what the future brings. You'll need to choose new innovation opportunities to explore. There are a lot of decisions that go into transformation this big.

But perhaps the easiest choice you can make is choosing Verizon as your 5G partner. Our 5G Ultra Wideband network is designed to help you unleash the full potential of 5G. And we have a proven track record of evolving, elevating and

pushing the performance limits of our network. With our 4G LTE and 5G Ultra Wideband networks operating seamlessly together, you should have what you need to be ready for innovation and transformation.

Begin your 5G journey today by contacting your Verizon Wireless business specialist or visit [verizonwireless.com/biz/5g](https://www.verizonwireless.com/biz/5g) for more information about 5G Ultra Wideband.

Learn more about 5G

