5G Technology

As consumers become more technologically advanced, businesses will need to create deeply immersive experiences that capture their attention and lead to positive sales outcomes.

The rise in the popularity of Virtual Reality, Augmented Reality, IoT devices, and AI technology created a demand for faster and more reliable internet connections. With 5G rollouts happening across the globe, that need for more superior connectivity is gradually being addressed.

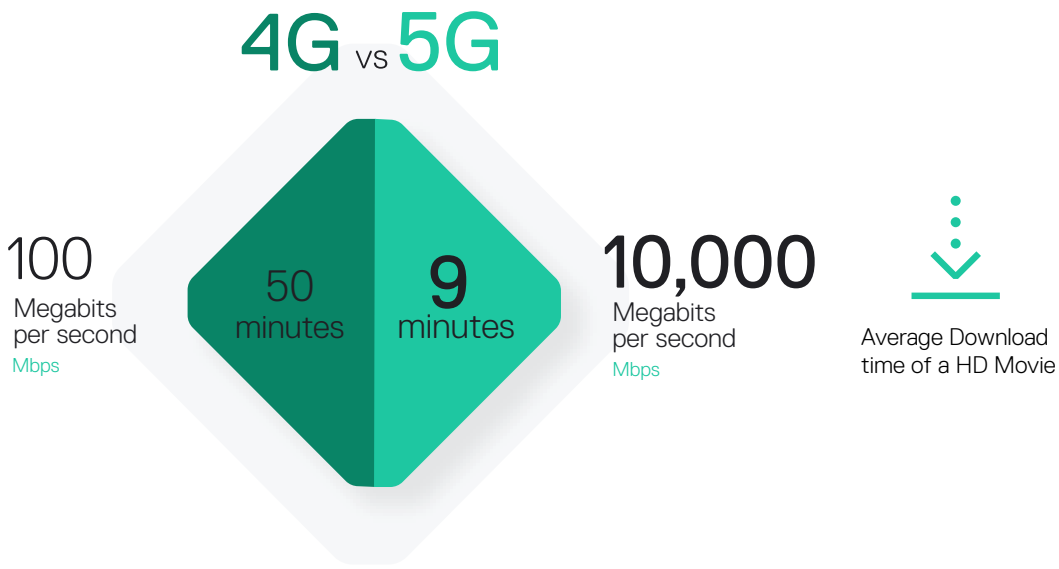
Statistics show that by 2024, there will be around **1.9 billion 5G subscriptions worldwide**. Developed Asia and North America will be the two continents leading the 5G revolution with about half of mobile connections in the two regions expected to be 5G-enabled by the year 2025.

What is 5G?

5G is the 5th generation mobile network - its predecessors include 1G, 2G, 3G, and 4G networks. With 5G, internet users can stream and download content at lightning speed.

Not only does this wireless communication technology deliver the highest data speed possible, but it also significantly reduces lag (or latency), thereby eliminating delays as devices communicate with each other in real-time.

5G has a greater network capacity which means that thousands of devices can seamlessly communicate on the network; it can accommodate up to one million connected objects per square mile. Its increased bandwidth means larger amounts of data can be transferred via the network. Additionally, it is cheaper to collect data from more sensors with 5G.



How it works

Like most wireless network systems, 5G uses radio frequencies also known as spectrum to carry information through the air. 5G operates with low, medium, and high bands. The low band is around the same frequency as 4G and is used for longer-range communication. However, 5G can handle high-frequency bands between 30GHz and 300GHz. The radio frequencies used are higher and less cluttered than 4G; partly because of the shorter range. Nevertheless, the higher frequency gives room for larger amounts of data to be transmitted at a much faster rate.

The higher bands used are known as millimeter wave (mmWave). As stated above, while higher bands are faster at distributing information, there can be problems with sending data over a long distance. To solve this problem, 5G utilizes MIMO (multiple input, multiple output) antennas to boost signals, as well as ensure that data is sent and received simultaneously. That way, more people can connect to the network, and data can be transferred rapidly and efficiently. 5G networks powered by mmWaves will need to utilize hundreds of 5G small cells that aid fast connectivity and reduce latency. Small cells can be installed on buildings, street lights, and bus station shelters.

Possible Use Case

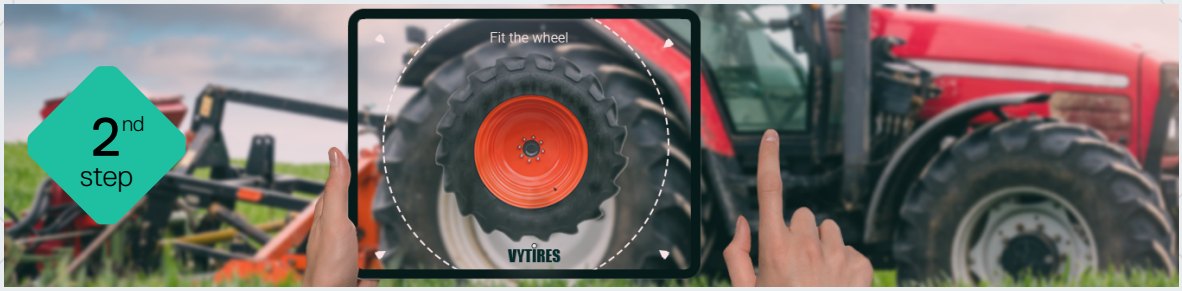
AX Tractors is on the market for new tires and wants to place an order from a supplier. The procurement manager at AX Tractors visits the online store of VY Tires (a tire manufacturing company). While shopping for new tires, she utilizes the Augmented Reality (AR) feature on VY's store. By doing so, she can confirm size specifications and get a glimpse of how each tire will look when assembled on the tractors.

When she places an order for 200 tires, a warehouse manager at VY Tires gets a notification on his Spryker-enabled back-end. Stock availability can then be determined via the warehouse manager's company account which is powered by the Spryker Cloud Commerce OS. Additionally, the warehouse manager can also receive live updates on stock levels through tracking sensors placed on pallets.

Efficient 5G connections allow for heavier use of augmented reality functionalities during the shopping process thereby limiting the chances of error and returns for such large orders. Customer satisfaction also increases significantly when the buyer journey is shortened.

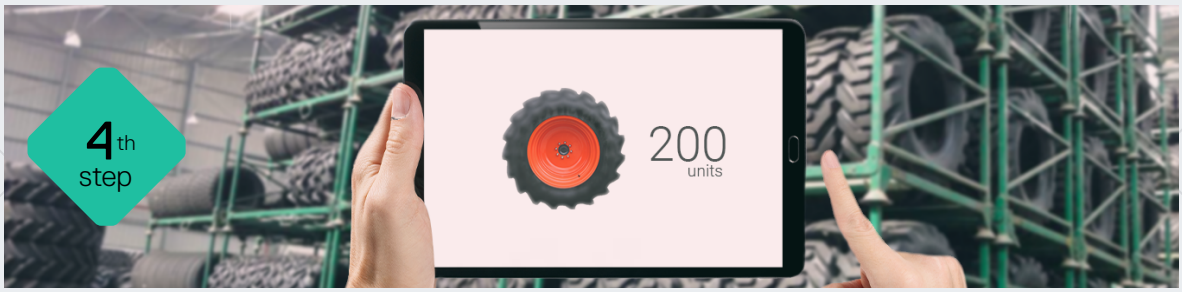
5G
Use Case

A procurement manager at AX Tractors visits vytires.com



She utilizes the AR feature to see how the tires will look when assembled on AX Tractors (thanks to 5G, the process is super fast).

She places an order for 200 tires on vytires.com



The warehouse manager at VY Tires gets a notification on his Spryker-enabled back-end

He checks stock availability and approves the order on his company account.

Opportunities with 5G

Faster content consumption & greater audience attention

Speed is the number one feature associated with 5G. Increased connectivity will optimize the viewing experience and as a result, more internet users will spend more time consuming content at a much faster pace. This is good news for streaming platforms and brands that place advertising on such platforms. 5G will significantly contribute to an increase in audience attention. Businesses will be able to create and distribute relevant messages that enable sales.

Real-time deployment of IoT technology

5G will significantly impact IoT technology in the coming years. With faster and more stable internet connections, we can expect smarter homes, smarter appliances, and increased communication or data sharing between a billion devices in real-time. 5G will show businesses the true potential of IoT devices and how beneficial they are in simplifying the lives of consumers. In retail, brands will have the opportunity to deploy highly personalized and engaging live shopping experiences. With more fully functioning headless touchpoints such as wearables, customers could gain access to more detailed product information which could help drive first-time purchase decisions.

Strengthen big data analytics

5G allows for greater data transfer and collection. Data insights received from sensors in stores, social media, or other channels could be used to provide helpful insights to businesses. These insights could enable businesses to make adequate recommendations, deliver highly personalized services, predict what kind of inventory is relevant to stock, and offer attractive deals or promotions to customers.

Time and cost savings through automation

The logistics industry will undergo its own set of 5G-led improvements. The enhanced performance of autonomous machines through 5G connections could contribute to major cost savings and a reduction in the time spent on labor-intensive tasks. High-level inventory tracking could be achieved by placing sensors on pallets both on trucks and in the warehouse. This will allow more effective inventory management and cargo distribution. For instance, sensors placed on pallets within the warehouse could give information on stock levels, while sensors placed on trucks or ships could give reports on their location or other relevant transit information. This will help monitor and improve delivery times. The less time trucks spend on the road, the greater the reduction in CO2 emissions from heavy-duty trucks.

Constant connection to customers

With 5G, the world will become a much more connected community. Internet usage will be at an all-time high, data will practically float around smart cities, and the opportunities to reach customers will be much greater than ever before. Businesses will be able to stay connected to customers any time and anywhere. 5G will support the development of smart buildings and smarter billboards that customers can interact with on their daily commute. Think about the potential of sharing digital vouchers or sending push notifications to customers who interact with your billboards regularly. Advertisers could save money through better targeted Digital Out-of-Home campaigns when they have access to real-time data. Additionally, for brands, the turnaround time for displaying topical content or ads on billboard screens could be a lot faster.