

## Low-Code Development: Gateway to the 5G Future



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Low-code and 5G: on the cutting edge.

#### Introduction.

As a pragmatic business leader, it's easy to roll your eyes at 5G marketing hype. But with <u>89%</u> of global workers and more than half of the US workforce preferring to work from home, 5G mobility is poised to be the linchpin of hyperconnectivity in the post-COVID world. (5G is shorthand for fifth generation cellular network, which means exponentially faster download speeds and higher bandwidth connectivity.) And the stakes for businesses are as high as they could possibly be.

Here's how the math works out: 5G will account for <u>15%</u> of the global mobile industry by 2025. Subscriptions will surpass <u>600 million</u> by the end of 2021 and hit <u>3.3 billion</u> by the end of 2026, according to researchers at Ericsson. But more than that, pairing 5G hyper-connectivity with low-code agility could potentially speed a new generation of mobile development and pave the way for breakthrough business use cases that do the following:

- Expand the reach of cloud computing applications.
- Accelerate the evolution of the internet of things (IoT).
- Scale digital transformation more than ever before.
- Mainstream edge computing by moving data and processing capabilities closer to the devices and applications users interact with.

Pairing 5G hyper-connectivity with low-code agility could potentially speed a new generation of mobile development and pave the way for breakthrough business use cases. Today, the best low-code platforms allow us to write and deploy mobile applications in weeks, not months, without any extra work. It's also worth noting that any application built on the most advanced low-code platforms is instantly mobile-ready on all devices, without needing the additional hourly cost of developer resources. (For a deeper dive into this topic, check out this <u>blog</u> on the evolution of Appian mobile.)

This means already overburdened developers can better focus on automating critical business processes, such as onboarding customers, processing loans, completing field inspections, and the like. Additionally, the best of the best low-code platforms offer offline availability, which allows mobile application users to access their mobile applications and complete tasks in real time, with or without an internet connection.

This sets the stage for the forthcoming generation of smaller, faster, 5G mobile devices powered by augmented reality, machine learning, and predictive analytics. Which includes everything from AI-powered wearables and smart yoga pants to smart utility grids, oil rig monitors, crop management technology, and technology capable of capturing, processing, and sharing data where it's produced. The question is, will your software development platform allow your organization to keep up with the evolution of 5G mobility? Will it allow you to speed deployment of 5G mobile applications that can be quickly and securely integrated with legacy systems and future microservices on and offline? Finally, will your platform allow you to reap the benefits of the best 5G use cases in healthcare, mobility, manufacturing, and retail that are expected to boost global GDP by a staggering \$2 trillion by 2030 according to a recent study by <u>McKinsey</u>.

The thing is, only the most agile, hyperconnected businesses will be able to take advantage of this immense revenue opportunity. In fact, a fierce battle is already underway for early 5G adopters, according to Peter Linder, notable 5G evangelist and Head of 5G Marketing for Ericsson in North America.

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Early adopters are getting on board right now. About 54 million Americans will purchase a 5G phone by the end of 2021. It's not like 'build the network and they will come.' They've already come and bought the devices.

Peter Linder, 5G Evangelist and Head of 5G Marketing for Ericsson in North America.

As global 5G network infrastructure revenue grows 39% to \$19.1 billion in 2021—up from \$13.7 billion in 2020 according to <u>Gartner</u> and as US consumers continue to embrace 5G devices, there will be more than 195 million 5G subscriptions by 2026 in the US alone.

But every new technology trend has its doubters. The same is true of 5G. Skeptics claim the technology has been "overhyped." But trend lines indicate 5G mobility is moving from fringe to mainstream at a rapid rate. So, if you want to get ahead of the hyperconnectivity curve, if you want to boost productivity by giving your remote workers mobile applications with machine learning or augmented reality functionality, if you want to empower your developers to write 5G functionality into any application once and deploy it everywhere to take advantage of forthcoming 5G revenue opportunities, low-code development could be your best option.

In retrospect, low-code gave us the capability to build mobile applications once for the desktop or web and bundle them up for iOS or Android devices. Today, major network operators are betting low-code will also give them a competitive advantage in deploying 5G functionality where mobile customers want it.

#### Where 5G Technology Has Been Deployed

Countries where 5G networks/technology have been deployed and where 5G investments have been made



#### Major carriers leverage low-code to deploy 5G.

For example, a major carrier is rolling out a 5G network across North America, covering people in hundreds of urban and remote communities. The infrastructure transformation was expected to generate a 10x increase in work which prompted the carrier to turn to the Appian Low-code Automation Platform to take advantage of its 10x efficiency in resources, time, and costs.

Before deploying 5G functionality to their 10 million subscribers, the carrier ran a legacy system audit to see if their systems could sustain the transformation based on three critical success factors: scalability, efficiency, and connectivity. A systems analyst at the company said they used Appian to develop an end-to-end workflow management tool for the automation and maintenance of all the activities related to building out the carrier's 5G mobile network.

The analyst said that approximately 10,000 business activities flow through the company's workflow management platform. But when the 5G deployment is completed, eleven legacy and external systems will have been integrated into a single cohesive platform. Which means developers and business users will be able to develop mobile applications 10x faster than before.

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I was impressed with the mobile capabilities of the Appian platform.

Having the capability to build an application on a single platform that automatically renders on a tablet, or any other mobile device, was a big advantage of the Appian platform. It meant our developers could spend less time on 5G mobile development because Appian apps automatically work on mobile devices.

You can build an interface and let your employees know they can download the application. Then boom! As soon as it's in production, you can see it on your desktop, phone, or tablet.

Product and Technology Manager, major network operator.

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The COVID-19 pandemic highlighted more than ever that having access to telecommunications services is essential. It's no longer just a nice-to-have. Our entire society relies on the internet at home and on the road. So, at the beginning of the pandemic, we faced two big hurdles. First, we had to ensure reliability and stability of the network for emergency services such as hospitals and police and the rest. And then, we had to manage shifting services from city centers to residential areas, and low-code automation made it easier to do all of that.

Many people think 5G is just a faster network. But it's more than that. We're basically building the backbone infrastructure to help industries innovate in areas such as selfdriving cars, augmented reality, and IoT. And that's just scratching the surface.

Company Analyst, Major Wireless Carrier.



But as the 5G revolution kicks into high gear, some network operators are pumping the brakes on traditional investments in enterprise connectivity. So, revenue from basic network connectivity will grow at less than 1% annually through 2030, according to researchers at Ericsson and Arthur D. Little. Compare that to the skyward trajectory of 5G mobility, and the likely double-digit growth of value-added digital services over the next decade.

In other words, the market opportunity is too big to ignore:

- In 2026, 5G will carry <u>more than half</u> the world's smartphone traffic.
- Subscriptions will <u>surpass the 3 billion</u> mark by the end of 2026.
- The 5G trend will pump a staggering <u>\$12 trillion dollars</u> into the global economy by 2035 and add 22 million new jobs in the U.S. alone.

Industry-leading carriers are betting on low-code automation to deploy and manage the gnarly site-selection process for 5G mini towers, to get regulatory approvals, and to install and maintain the complex infrastructure behind the rollout of 5G connectivity to mobile customers.

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So, first and foremost, we've changed how we do business because our main focus is always on how we treat our customers.

Our care operations had to be completely reworked from a care-call-center model to people working remotely in a care environment. And so, we made significant changes in our internal corporate networks as well as in ensuring that our care employees can work from home.

Product and Technology Manager, Major Carrier.

But the big question is what does the pairing of low-code and 5G mobile development mean for the telecom industry in the age of hyperconnectivity?

For starters, it gives carriers a pathway to delivering on the promise of edge computing and getting ever closer to the customer. Low-code automation offers a faster, better way for carriers to densify 5G network coverage, drive process alignment, and integrate legacy operations and business support systems.

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Just over a year ago, we acquired another carrier. Then the pandemic happened, and we had to adapt. So, we've used low-code as the mechanism to move our entire customer base from the other carrier's legacy network to our new network. We also had to move radio antennas on some [cell] towers. In some cases, we even had to collapse towers or move an antenna within a tower.

Orchestrating all of these changes was a highly complex process. And doing all of that during a pandemic was enormous. But using low-code accelerated our 5G network rollout.

5G Expert, Major Network Operator.



#### Low-code development: gateway to the 5G future.

With the rise of 5G, and the fact that globally, 72% of corporate leaders plan to offer a hybrid work model, companies everywhere are facing the challenge of orchestrating disconnected tools, siloed datasets, and large volumes of work, all compounded by a growing urgency to quickly pull it all together. The same is true for the North American carrier previously mentioned. To prepare for the huge volume of work generated by its transition to 5G, the company explored several software development platforms. But Appian came out on top because it offered a flexible platform-as-a-service solution instead of a specific application to meet just one need.

Beyond that, Appian offered the speed and flexibility to build critical business applications when and where the carrier needed them. The company was also able to use low-code to quickly integrate and scale applications by connecting them through application programming interfaces (APIs) and robotic process automation (RPA), pivot to intelligent document processing, and explore augmented reality use cases beyond that.

Practically speaking, one of the analysts we interviewed offered some pragmatic tips on getting ready for 5G mobility, noting that setting up a center of excellence (COE) is a good place to start. This may be the best way to share platform capabilities across the organization: educate stakeholders on what it can do and what it shouldn't do for end users. The COE is a good way to get business users involved in the process as well.



Source: Ericsson Mobility Report

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We had to retire over 20 applications and rebuild them. In the old systems, there were a lot of human–machine interactions but few clean handoffs. And so, we were able to use Appian to reorchestrate those business processes. We were able to get off of those processes in less than a year, recoup all of our savings and demonstrate the value of the Appian platform.

We've been able to get more systems talking to each other, which enables humans to see the value of the information in front of them and not to have to swivel from one system to another or worry about backend systems because we have a frontend that orchestrates it all for them.

5G Network Specialist, Major Wireless Carrier.



Remember when you could buy a book from Amazon in Seattle and it would arrive four days later? Today, you can essentially order anything from a smartphone, and it will show up within two hours—as long as it's in the warehouse.

We're pretty close to that same kind of network transformation now with 5G, according to Ericsson's Peter Linder. In fact, says Linder, with 5G hyperconnectivity, applications are moving a lot closer to subscribers. Which means hyperconnectivity will be a critical success factor in the decade ahead.

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One of the biggest misperceptions about 5G is that it's like 4G but a little bit faster. But that's like saying a car is a little bit faster than a horse.

Peter Linder, 5G Evangelist and Head of 5G Marketing for Ericsson in North America. To learn more about how major carriers are accelerating their 5G journeys, and to get more information on how Appian is helping to innovate across the Telecom sector, visit our resource center.

#### Low-code and 5G: on the cutting edge.

By 2022, <u>50%</u> of business-generated data will be created and processed outside the traditional cloud, up from less than 10% in 2019. In other words, data and applications are moving closer to the devices that use them.

Other trends worth noting:

- Nearly <u>50%</u> of organizations are already using or planning to use edge computing in the next 18 months, according to a 2020 survey by Turbonomic.
- By 2023 more than <u>50%</u> of new enterprise IT infrastructure deployed will be at the edge rather than in corporate data centers, up from less than 10% in 2020, according to IDC.
- By 2024, the number of apps at the edge will increase 800%, according to IDC.

For developers, low-code could accelerate the mobile application development process to meet growing demand for 5G connectivity to support wearables and IoT devices across industries. Which could make the pairing of low-code development and 5G mobility that much more essential to the evolution of edge computing.

# Top 5G Industries in the Next Five Years

Projected contribution for 5G to U.S. GDP from 2021-2025, by industry (in billion U.S. dollars)



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