THE FIVE MYTHS OF 5G

Misconceptions Holding Back The 5G Market, And The Facts You Need To Know.



5G Is Here. Now What?

The first 5G commercial services have now been launched in several major regions across the world, including the United States, Europe, South Korea, and Japan, with large-scale deployments to follow in 2020 and 2021. These early 5G deployments are specifically designed for either Enhanced Mobile Broadband (eMBB) or Fixed-Wireless Access (FWA), essentially targeting consumer applications. In commercial terms, the first-generation 5G networks are designed to provide a business continuity to existing LTE networks, with the sole value proposition being to extend the network capacity and performance through higher bandwidth and low latency.

However, this seems to contradict the early vision framed by the International Telecommunications Union (ITU) in its IMT2020 recommendations, which promote 5G as a high-performance, ultra-reliable, and future-proof network capable of accommodating the needs of multiple use cases across various industries, not just addressing business opportunities presented by the consumer market.

Today, the telecommunications industry is struggling to translate this vision into real commercial opportunities, partly because of the realization that 5G is a much bigger animal than anticipated. In fact, deploying a single 5G network that can address all requirements and pain points in several industry verticals is a very difficult mission to achieve. This goal is even more difficult to realize given the fact that the foundation of this network is based on infrastructure initially designed to service the consumer market.

This situation has created huge confusion around the way 5G should be implemented and positioned, how the standards bodies should work with key industry verticals to address their requirements, and what role Mobile Service Providers (MSPs) and their technology suppliers will play in spurring a new Business-to-Business (B2B) developer ecosystem focused on enterprise use cases.

This whitepaper highlights five key myths surrounding 5G's value proposition and business opportunities. It will help you distinguish between myths and it will elaborate on the value propositions that are necessary to unlock business opportunities in the enterprise verticals.



Myth #1: 5G Is All About Bandwidth And Latency

Many industry players and observers are portraying 5G as a superior technology solely because it can provide abundant network capacity, much higher bandwidth, and lower latency compared to previous generation technologies, including Long-Term Evolution (LTE) and its evolution paths. Technology suppliers and MSPs are currently obsessed with tracking and benchmarking the performance of their early 5G networks against their competitors, with "My network is better than yours" becoming the marketing norm supporting the launch of early 5G networks.

Yes, these networks can indeed deliver a peak bandwidth around 3X better than previous generation networks and a latency up to 2X lower, but this is true only when they are deployed over mmWave spectrum, large carrier channels, or in outdoor conditions. Although this is promising, bear in mind that the average performance delivered to the end user is, by no means, close to the peak performance of the 5G network.

The average performance depends on many other parameters, including the network channel conditions, outdoor/indoor operations, or the user density per cell. So, if 5G is just about performance enhancement, why not focus on upgrading LTE technology, which still has a lot to offer in term of performance compared to exiting commercial LTE networks? Would that not provide MSPs with a better option for business continuity and an easier network migration path than deploying 5G? Would the LTE upgrade path not allow for more optimized capital expenditures spending, similar support to higher bandwidth applications, and easier upgrade of subscribers to premium service/data plans?

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Reality: The industry has not even scratched the surface of 5G's capabilities. The technology has a lot more to offer than just network performance enhancement, and 5G is more than just an access technology. Instead, it should be seen as a transformation tool capable of supporting flexible implementation scenarios across licensed and unlicensed spectrum and across public and private networks.

5G networks are highly scalable and can solve various existing pain points across multiple industries, as well as address completely new use cases and applications otherwise not possible with existing networks. 5G is about reacting to the market demand in a timely fashion by enabling new services to be launched in a matter of days, not months or even years, as is the case with today's existing networks. 5G is about extending the capabilities of macrocells and small cells beyond connectivity, and transforming them into intelligent computing hubs capable of bringing smart services close to the end user. 5G is about accelerating many other technologies and business models, helping them achieve their full potential and capturing brand new business opportunities. These are the assets the industry should focus on to unlock new business opportunities across the entire value chain.

Takeaway: Any successful 5G deployment strategy should center around business processes that 5G could support, pain points it could solve, and new business opportunities it could unlock for technology implementers. It should not center uniquely around higher bandwidth and lower latency of the network. To take full advantage of the potential of 5G, strategies and marketing rhetoric must extend beyond pigeonholing the technology as a pure connectivity play.







Myth #2: Consumer Revenues Will Be Enough To Justify 5G Rollouts

Driven by the interest of MSPs and some of their technology suppliers, early 5G implementations were designed to fit the needs of the consumer market. The idea was to harvest the low-hanging fruit provided by the consumer market and then gradually extend the network capabilities to tap into new business opportunities, notably in the enterprise market. MSPs have every hope that 5G will help them reduce the cost per Gigabyte (GB) of bandwidth and improve the Average Revenue per User (ARPU) compared to existing access technologies.

However, 5G is expected to be much more expensive compared to its predecessors. This is due to the network densification it requires and the addition of a great number of new functions, both at the core and the access sides of the network. As a result, the implementation and democratization of 5G will come at very high costs, notably Operational Expenditures (OPEX), which are already increasing at a very alarming pace. The question now is what incremental consumer ARPU 5G will create and whether this will be enough to produce 5G Return on Investment (ROI).

Reality: Early estimates from ABI Research indicate that if MSPs rely on consumers only to justify their investments in 5G rollouts, it could take up to 15 years to realize any ROI. It becomes self-evident that industrial telcos could potentially become the new cash cow for securing 5G ROI. Indeed, 5G is positioned to be a major component of enterprise digital transformation and a reliable wireless communication platform that could create trillions in economic value across many enterprise verticals. However, as things stand and how they are planned by MSPs, 5G commercial implementations for enterprise applications are far from optimized, unable to accelerate the enterprise digital transformation and unlock new business opportunities in this environment. Network architecture flexibility, interoperability with legacy operation processes, cost effectiveness, network determinism, security, and reliability will be equally important for the enterprise as providing bigger pipes—a value proposition that resonates well within the consumer market, but is unlikely to attract industrial verticals.

Takeaway: The telco industry should be more realistic when it comes to the goals of 5G. It is wishful thinking that the implementation they have initially designed for the consumer market could also serve the enterprise verticals. Building a "Swiss Army knife" 5G network capable of accommodating the needs of multiple markets and industries is a big fantasy of MSPs, which is unlikely to materialize mainly because it is based on a "build it and they will come" approach.



Myth #3: 5G Is The Only Connectivity Technology Needed For Enterprise Verticals

5G is being positioned as a "network of networks" that will encompass public and private components, licensed and unlicensed spectrum, and even expand beyond cellular, to satellite communications. The telco industry has somewhat designed 5G as a technology that will complement, or even replace, several other competing communication technologies.

This is, in fact, built into the standard: 5G includes eMBB, Ultra-Reliable Low-Latency Communication (URLLC), and Massive Machine Type Communication (mMTC) use cases. The first use case on this list, eMBB, builds on previous cellular generations, while URLLC can enable Time Sensitive Networks (TSNs), and can replace proprietary protocols and even Industrial Ethernet. mMTC is positioned to unify cellular IoT technologies into one system and introduce connectivity for millions of different types of IoT devices. In theory and according to its specification, 5G will enable connectivity that ranges from low power, low data rates, to ultra-high bandwidth and low latency, all under one system.



Reality: From a pragmatic viewpoint, 5G will be another component in a patchwork of communication technologies and will certainly add unique value. However, it will not be the "network of networks" the telco industry is currently discussing. Enterprise verticals—just like the telco industry—have their own established supply chains and families of communication technologies. Enterprise vertical end users prefer "function over form," focusing on practical requirements, rather than insisting on standardized technologies. It is true that 5G can introduce a more cost-effective base (especially for chipsets and devices), but this will only materialize when enterprise verticals establish a critical mass for 5G and, in turn, economies of scale. This may not happen, especially in the first 5 years of 5G, when the telco supply chain adapts to the requirements of enterprise verticals. This may also mean that 5G will miss the enterprise digitization wave that is currently sweeping many markets, especially if the telco community does not act immediately. Telco operators and the infrastructure supply chain must build enterprise vertical expertise and partner with specialists when it is not necessary to organically grow this expertise internally.

Takeaway: 5G will only be one component of the enterprise vertical technology stack, and larger than connectivity only if the telco value chain builds expertise for each vertical separately.



Myth #4: The 5G Supply Chain Will Remain Linear And Controlled By Established Players

The 5G supply chain is proceeding on a linear development curve, where established vendors are currently expanding their existing products and services with 5G functionality and are starting to define enterprise vertical use cases and applications.

The very same companies that developed and deployed 2G, 3G, and 4G are now cooperating in standardization bodies and through enterprise vertical partnerships to create new functionality in 5G that will address enterprise vertical requirements. The *modus operandi* in the telecoms supply chain remains unchanged; infrastructure vendors will likely deploy and manage the infrastructure, while either they, or the telco operator community will create enterprise vertical services and monetize them.

At the same time, the telco supply chain remains a global market where telco operators, and in the future, enterprise vertical end users, will be able to choose best of breed from a plethora of technology suppliers.

Reality: Current development of 5G is focusing on consumer use cases, while the 3rd Generation Partnership Project (3GPP), is just starting to understand enterprise vertical use cases, define specifications, and, consequently, determine what will be needed from the telco network. However, the B2B opportunity will require a much broader development effort and it will not be possible for vendors or operators to be directly involved in all activities. What the 5G industry needs is a platform economy, where network effects will create exponential value, but there is no significant effort or capital being spent on evolving 5G to an application platform, rather than a connectivity technology.

Moreover, geopolitical issues are restricting vendor footprints, which will create a smaller value chain and restrict development value within individual regions. This will likely fragment the application development ecosystem and restrict value for developers who will aim for a global B2B footprint.

Takeaway: The supply chain will need to evolve to include third party B2B application developers. At the same time, telco service providers will need to become platform enablers rather than just connectivity providers.



Myth #5: Telco Standardization Can Extend Its Reach To Enterprise Vertical Use Cases

The mobile telecommunications ecosystem, including the standardization bodies supporting it, have largely focused their efforts on building specification frameworks to support MSPs' interests in the consumer market. Contrary to previous generation networks that have targeted the consumer market, 5G is unique in the sense that it will be the first "G" to widen the scope to address the needs of many industry verticals.

The very same standardization and regulatory bodies that have played a central role in specifying and designing the framework of previous generation networks are currently attempting to address the enterprise vertical opportunity. They are liaising with new industry consortia and associations to define requirements on one enterprise vertical at a time, and in time, these requirements will translate to telco-specific technical specifications.

Reality:

There are many questions when it comes to how 5G should be standardized and under what governance model it should evolve, provided the scope and the objectives of a 5G network for enterprise verticals are incredibly large and complex. The key questions that need to be addressed to make sure 5G is standardized in a way that could address the needs of all industry verticals are:

- Can existing standardization frameworks, initially designed for the consumer market, be extended to also address enterprise verticals?
- Do existing standardization body structures and organizations need to change the way they are organized and operate to address new and heterogeneous requirements from the fast-evolving enterprise markets?
- How likely are these new changes to impact the cadence of telco standards release specifications?
- What new players with interest in various industry verticals should influence the existing standardization bodies?
- Who will be the winners and losers throughout this transformation?

Takeaway: The standardization and regulatory bodies of 5G need to take a fresh look at the way 5G should be standardized and handled if the industry wants to take advantage of the multi-trillion-dollar business opportunities promised by the enterprise. These organizations need to go back to the drawing board and redesign appropriate strategies for industry verticals, rather than relying on progressive extensions to legacy standards. These changes need to factor in the imminent heterogeneity of 5G implementations, combining public and private networks, licensed and unlicensed spectrums, or various slices addressing multiple use-case requirements.

Takeaways & Recommendations

Fundamental network architectural changes need to occur in order to capitalize on the trillions of dollars of economic value promised by 5G. Cooperation between key stakeholders, including technology implementers, governments, and regulatory bodies across various industries, needs to be part of the 5G governance model. This governance should move away from the current "build it and they will come" approach MSPs and their technology suppliers are promoting today and should instead be driven by enterprise requirements, with the end goal of designing a network flexible and agile enough to solve current and future pain points across various industries.

MSPs and their technology partners need to move their business and operation processes away from just expanding network capacity, with increased performance being the sole value proposition. This value proposition may be enough to offer augmented experiences to consumers. However, this is far from enough to attract new audiences, notably the enterprise verticals that are generally more pragmatic. This audience is looking for technologies that could help them effectively optimize their business processes and increase their productivity, efficiency, security, and safety. They are looking to deploy networks agile enough to dynamically fit their current and future requirements, simple enough to integrate with their existing legacy technologies, and reliable enough to enable them to guarantee deterministic and consistent operations.

5G standardization bodies need to deeply integrate industrial verticals as essential contributors to their processes and allow them to influence the roadmap of 5G specifications. If they continue to rely on antiquated notions to protect their current interests and legacy businesses, they will be at serious risk of missing the enterprise digitization wave currently in progress across many verticals and will remain pure connectivity providers with no new business opportunities.

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5G Coverage, From Every Angle



There are many misconceptions about 5G, both within the market itself and within the companies that will need to make use of the technology.

At ABI Research, we provide technology suppliers, MSPs, enterprises, and other partners with a 360-degree view of 5G technologies and markets, with end-toend and in-depth technology, business, and opportunity analysis for 5G implementations across various verticals. Through our 5G Solution, we help enterprise verticals identify the optimal 5G implementation that can help them automate, mobilize, and digitize their operations cost effectively, while enabling them to enhance their efficiency and productivity, resulting in better competitive positioning. We also provide the technology supply chain with unbiased analysis of end-market requirements to help them identify and grasp the real opportunities across various industries.

To learn more about ABI Research's 5G Solution and how we can help you, contact us today.



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