

# **5G Telecommunication Provider's Go to Market Challenges**

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## Executive Summary

5G represents a transformative leap in telecommunications, with providers accelerating the deployment of next-generation networks that offer unparalleled speed, capacity, and connectivity. The progression of mobile network technologies has consistently driven broader technological advancement and vice versa. This ongoing evolution—from 1G through 5G—illustrates the growing capabilities and reach of cellular providers (Figure 1).

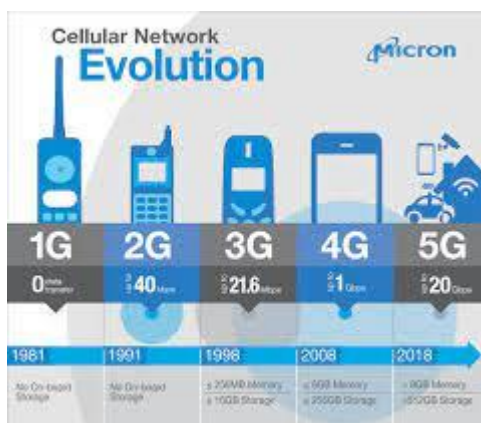


Figure 1 Evolution of cellular network

To understand the advantages of 5G you must understand the overall strategy that a telecommunication provider must execute on.

By upgrading a network to 5G provides many benefits such as

- Speed Upgrades
- Low Latency
- Enhanced Capacity
- Increased Bandwidth
- Availability and Coverage

*(Benefits of 5G Technology, Intel).*

However, the success of a 5G hinges not just on technical capabilities but on how providers position those advantages to meet market needs. Strategic gap analysis is essential to identify where demand intersects with supporting technologies—and to determine which version of 5G delivers the most value. Not all 5G networks are created equal; each variant offers a distinct user experience shaped by deployment strategy.

## Introduction

5G is the latest in a long line of mobile data technologies that have been deployed globally during the last 40 plus years. As network advances continued the capabilities to the customers its dependance became more apparent.

*Table 1 Mobile Data Technologies*

Market Name	Network Type	Data Speed
1G	This was a first-generation network that didn't have a data conversion name. This completely relied on the analog cellular network and was primarily known for its voice calling	100 Kilobytes per second
2G	GPRS (General Packet Radio Service)	270 Kilobytes per second
2.5G or 2.75G	EDGE (Also known as EGPRS Enhanced GPRS)	473 Kilobytes per second
3G	HSPA (High-Speed Packet Access)	7.2 Megabits per second
4G (this was an inaccurate name for this network)	HSPA+	21 Megabits per second
LTE (Long Term Evolution)	LTE was the name used however this was truly the 4 <sup>th</sup> Generation (4G) network.	75 Megabits per second
5G	5G	1 Gigabyte to 10 Gigabyte per second. Latency for the data is almost instant (1ms)

With each generational leap in mobile technology, carriers have responded to evolving market demands—either driving innovation or adapting to it. Emerging services such as mobile email (Blackberry), smartphones (iPhone), laptop dongles, vehicle tracking, remote access platforms, and live streaming have consistently shaped network upgrade priorities. These transitions were often guided by a blend of current consumer behavior and anticipated future applications.

## Network Evolution & Market Dynamics

The introduction of mobile data echoed the rollout of broadband: slow to start yet accelerating dramatically as technology matured and demand intensified. Initial cellular networks offered limited speeds and high latency, but each generation brought noticeable improvements for end users—from 1G's analog voice service to 5G's ultra-fast, low-latency connectivity.

As shown in Table 1, 1G provided roughly 100 Kbps, while 2G and 3G expanded capability to 270–389 Kbps. By 4G, speeds approached 250 Mbps, unlocking mobile streaming and app-driven ecosystems. Now, 5G technologies promise speeds exceeding 10 Gbps (Yarali, A.), enabling real-time applications across diverse sectors.

These enhancements drove exponential data usage and pushed carriers to expand infrastructure rapidly, often exceeding device readiness. Increasingly, networks outperformed consumer hardware, anticipating that user adoption would follow technological availability.

This evolution was not just a technical milestone but a strategic opportunity. Faster speeds and improved latency created new markets—from high-definition streaming to connected vehicles and smart cities. Yet with each upgrade, providers were challenged to justify investment through a 3–5-year ROI framework, driven by key factors:

- Increased traffic and data consumption
- Lower operating costs per bit
- Expanded customer base
- Greater market reach

By aligning network capabilities with emerging market needs, providers could sunset legacy platforms and shift resources to scalable, next-generation infrastructure.

## New Findings

With telecommunications companies investing in the upgrading of their current telecommunication networks what can be done now? There are new needs such as new technological advancements called the Internet of Things (IoT), autonomous automobile, and

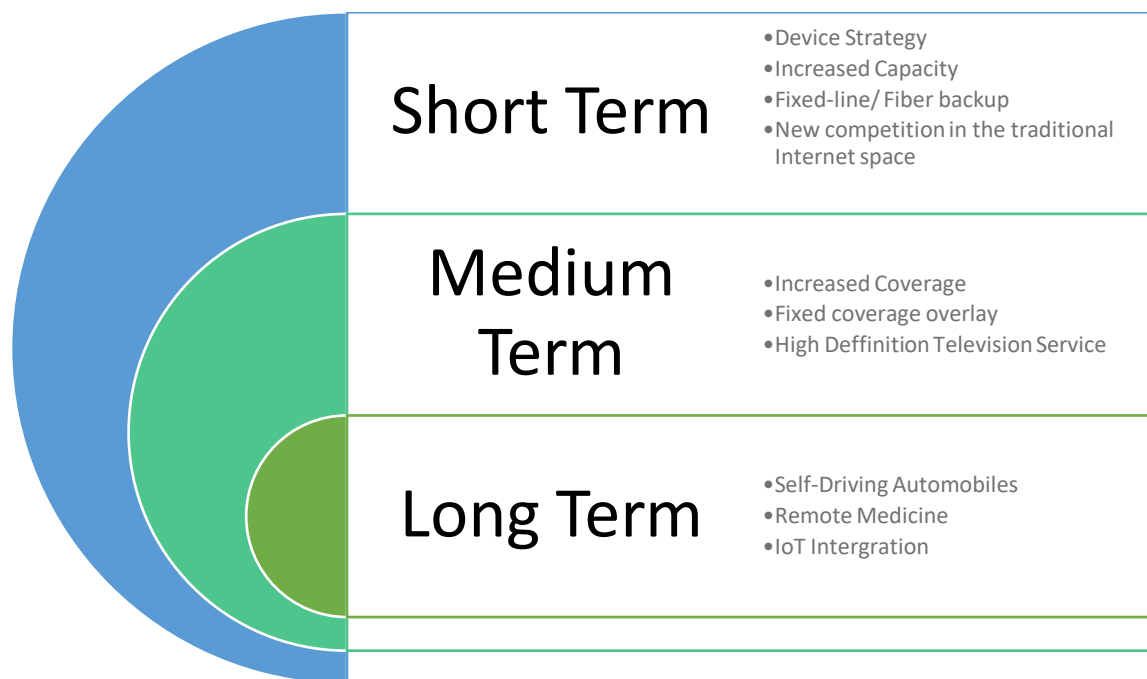


*Figure 2 IoT Connectivity Ecosystem*

other IoT devices as shown in Figure 2, what 5G can give is well beyond what any fixed-line fiber network can. As stated in the article by Alan Burkitt-Gray “Adding service layers and applications to end-user offerings as well as packaging data for third parties means putting information together in efficient and unique ways that allow it to be acted upon in real-time” (Burkitt-Gray, A.,2016)

Some of the planning providers need to complete before launching 5G is to look at the short-term, mid-term, and long-term views as in Table 2 of the product launch. This would mean is understanding where the advantages and functions, and possibly look at external partners to help with the business case return on investment.

Table 2 Term Planning for 5G



## Device

Driving user adoption remains one of the most complex challenges in launching a new mobile network. According to Strategy Analytics, only 1% of mobile devices sold in 2019 supported 5G, with forecasts climbing to 10% by 2020—underscoring price sensitivity and limited network availability as key barriers to entry (Strategy Analytics, 2019).

Providers must balance deployment strategies with consumer readiness, recognizing that many users are hesitant to upgrade without compelling applications or broad coverage. As OEMs like Apple and Samsung continue ramping up production, availability remains uneven and application-driven value is still emerging.

To support adoption and reduce strain from underutilized legacy networks, providers should plan for subsidy acquisition costs (SAC) that lower device pricing and broaden accessibility. Strategic communication—developed jointly with smartphone manufacturers—is essential to illustrate the benefits of 5G-enabled devices and drive user upgrades.

Prioritizing 5G rollouts over traditional fiber can also disrupt entrenched market monopolies, enabling broader access through mobile-based solutions such as 5G home internet offerings. With its superior bandwidth and capacity, 5G allows for dynamic resource management, optimizing traffic flow and enhancing the end-user experience.

## Partner Strategy

Telecommunication providers should anticipate that user migration to 5G will be more gradual than projected, and the operational demands of maintaining legacy networks alongside new infrastructure will be an inherent part of the transition. To alleviate these pressures, providers must actively explore partnerships within both government and private sectors—an approach consistently leveraged during previous network evolutions.

Medium- and long-term partnerships, particularly those structured as exclusive service agreements, can play a pivotal role in justifying investment and accelerating 5G deployment. Collaborations with technology leaders such as Google, Tesla, and Amazon have the potential to offset capital expenditures by linking network expansion directly to strategic service outcomes. Use cases like autonomous vehicle data offloading, smart city infrastructure, and IoT ecosystems represent high-value opportunities where targeted 5G rollouts can deliver measurable performance and adoption gains.

By integrating these partnerships into broader business case planning, providers can align 5G investments with tangible returns, streamline implementation timelines, and enhance long-term service viability.

## Conclusion

The successful deployment of a mobile 5G network requires more than technical infrastructure—it demands a deep understanding of market dynamics, user behavior, and application-driven demand. Providers must assign a dedicated cross-functional team, to conduct a comprehensive assessment of market size, adoption readiness, and competitive landscape.

A segmented planning approach—short, medium, and long term—ensures alignment between rollout strategy and evolving consumer needs. For instance, deploying millimeter wave (mmWave) variants of 5G may be ideal for high-capacity urban zones, while sub-6 GHz bands offer broader coverage for suburban and rural markets. Supporting technologies such as IoT devices, autonomous systems, and high-definition media streaming where low latency are required can drive adoption when paired with the right 5G variant and tailored messaging.

Ultimately, success hinges on matching the capabilities of 5G—speed, latency, capacity—with the right value proposition for each target segment. By carefully aligning business objectives with technology strategy, service providers can ensure scalable growth, improved ROI, and a seamless customer experience.

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