

Zevin Asset Management, LLC

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Trends: 5G Rising

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This piece is the second in a series of occasional memos to inform our clients of transformative, long-term (secular) themes that we examine as part of our investment process. A secular theme typically starts as a subtle change within a market that gradually gains momentum and plays out over an extended period of time, perhaps decades (think ecommerce, mobile computing, and clean energy). We study these trends and the companies that have specific exposure to these themes for potential investment opportunities.



At this point, you have likely heard the term “5G” thrown around in similar fashion to AI (artificial intelligence), autonomous driving, and IoT (internet of things). The evolution of fifth-generation (hence, 5G) cellular/mobile networks will provide a host of opportunities for businesses, consumers, public entities, and investors alike in the years ahead as the new mobile communication superhighway will facilitate the faster transmission of increasingly large data volumes. While increased data flow brings with it incremental cybersecurity and personal information sharing challenges, if managed responsibly the benefits of 5G stand to outweigh the risks.

More Data Faster

What 5G really means is that the newest version of the ubiquitous wireless network—when fully implemented—will operate on a super-charged scale; data transfer speed will increase dramatically, network responsiveness (also known as latency) will operate without discernible lags, and connectivity will allow more devices to communicate simultaneously. Consumers will benefit largely through improved data speeds (10–20x faster than current 4G networks according to different estimates), thus making cumbersome downloads of data-intensive applications (such as videos) more seamless on mobile devices. Industrial and enterprise customers, especially those that are reliant upon high-speed data transmission and low latency, are the real beneficiaries of 5G, however. With 5G, near-instantaneous wireless data transmission will pave the way for dramatically safer and more accurate applications of technology. The autonomous car ecosystem, for example, will take a giant step toward full autonomy under 5G as vehicles will be able to respond immediately to sudden changes in their operating environment (such as a truck swerving into its path or an icy road beneath) thanks to the increased speed and low latency of the network. Another application will be in healthcare/telemedicine, as 5G will allow doctors to remotely diagnose, treat and/or monitor higher-risk patients in real time from a distance; it will also support the transmission of large time-critical image files, such as MRIs, without delays that are common today due to the lack of network bandwidth. In industrial settings the new technology will allow “smart factories” to develop wherein machines will be able to communicate with one another, connecting disparate devices together in real time to produce information that can be used to improve safety, efficiency, and product quality.

A Long Runway

The marketplace has yet to develop, but network service providers across the globe such as AT&T, China Mobile, Verizon, and Vodafone are currently deploying limited 5G-related offerings as they continue to build out these enhanced networks by spending tens of billions of dollars each year. The real impact, financial and otherwise, will not be seen for another 3–4 years. At first, the fifth-generation network will be rolled out in earnest to consumers in network-ready locations and, even then, only to those with 5G-ready smartphones—which will hit the market later in 2019 with Apple likely waiting to offer a compatible iPhone in 2020. True scalable proliferation of 5G capable devices is a few years away. Geographically, the US and China are both leading the development of robust fifth-generation networks in order to gain competitive advantage in the development of new technologies, but over 60 other countries have 5G projects underway. The GSM Association, a mobile communication trade group, notes that “by 2025 ... 5G networks are likely to cover one-third of the world’s population.” A typical network cycle (as seen in predecessors 2G, 3G, and 4G) lasts well in excess of a decade, so it is fair to assume that 5G has many years of impact ahead.

Finding Investment Opportunities

As we consider investable opportunities relating to super-fast wireless networks, we are looking beyond the obvious initial winners. The architects of the new networks, largely the incumbent telecommunications services providers, are favorably positioned as 5G begins to roll out. But the network's development and ultimate success is dependent upon a broad array of product suppliers and service providers. We believe that significant opportunities lie outside of the network providers in the burgeoning 5G supply chain. Wireless network equipment makers, fiber optic cable providers, cell tower companies, specialized semiconductor producers, and mobile handset manufacturers are among the likely beneficiaries resulting from the ascendance of the 5G network. Aside from the direct suppliers, 5G will create other opportunities via indirect supply chain beneficiaries such as data center owners and cloud services providers. Companies that compete in areas of AI, virtual/artificial reality, autonomous driving, and e-commerce—where business models are dependent on time-sensitive flows of data—all represent 5G subscribers for whom the enhanced network will provide a strong tailwind to operations. We currently maintain exposure to the nascent, broad 5G theme through multiple portfolio holdings, but continue prudently to research additional opportunities.

ESG Considerations and 5G

A 5G data explosion would present a range of social opportunities and risks. Autonomous technologies enabled by 5G, such as self-driving cars and delivery drones, will make many areas of life easier. For instance, these futuristic technologies could improve access and mobility for elders and people who are homebound. Those technologies are impressive; however, they may be vulnerable to cyberattacks, malfunction, and other kinds of failure. As we analyze companies involved in 5G, we will assess the credibility of their cybersecurity strategies and management systems. We will also encourage companies deploying advanced robotic and autonomous technologies to adopt best practices for operator and customer safety.

Telecommunications companies working to provide 5G networks face data security and privacy issues. As super-fast connections lead to more real-time data sharing, such as high-definition video and the locations of autonomous cars, providers will be charged with handling more and more sensitive personal information. We will continue to probe the security and privacy policies of these companies.

Some investment opportunities associated with 5G will rise anew, some will persist, while others will stumble as they are overtaken by the effects of competition and innovation. We believe that the magnitude of the changes will mean that all sectors across the investment landscape will be impacted, some more directly than others. As we carefully consider ongoing secular trends and the social ramifications as part of our investment process, we will continue to look closely at 5G-related developments for investable opportunities.

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