# Insights from Industry Experts and Visionaries at Keysight World: Innovate

Rapidly evolving technologies, including quantum computing, digital twins, artificial intelligence, electrified and autonomous vehicles, as well as 5G and 6G, are powering endless imagination and innovation across all industries. At this year's Keysight World: Innovate vision conference, industry experts and visionaries revealed key insights relating to these evolving technologies:

**The Automotive Revolution:** The automotive revolution is reshaping our world, with innovations in both electric vehicles (EVs) and autonomous vehicles (AVs) continuing at a feverish pace.

But challenges remain in large-scale charging, charging infrastructure, and battery technology advances needed to drive range and cost improvements.

- Electric vehicle range anxiety will remain until 300+ miles is standard on a single charge and high-speed charging in under 10 minutes is readily available. Until this happens, commercial vehicles will remain gas guzzlers.
- Electric vehicles will require the adoption of common standards by the entire ecosystem to be mainstream across the globe.
- Battery innovation such as silicon anodes and solid-state batteries will be needed to overcome many of the barriers to adoption.

**Product Development with Digital Twins and Artificial Intelligence (AI):** Digital twins and AI are transformative technologies promising to dramatically alter the world. While the technologies are not new, real-world use cases will emerge to show just how transformative these technologies can be.

- Digital twins will take on the role of virtual caregivers/companions, allowing seniors to seek help and services when required and live in their homes autonomously longer.
- Digital twins will provide insights that enable humans to understand how decisions impact the world from a sustainability perspective. By modeling the planned change, they will be able to see how the entire ecosystem can be impacted and adjust, as needed.
- Digital twins will transform the treatment of diseases by providing doctors forensic insights to make data-driven decisions, from modeling how diseases spread to radically changing how illnesses, spanning the mundane to the life-threatening, are treated and managed.

**The Next Tier of Deployment, Evolving to 6G:** Global 5G deployments will continue to accelerate, moving digital transformation across a variety of sectors. 5G private networks will be optimized to meet specific needs for applications where latency and complete network control are critical, such as industrial and medical. 6G is next on the horizon.

- Widespread deployment of private 5G networks will provide companies with ammunition to combat IoT threats, with improved identity protection, edge computing and encryption, among the key security benefits.
- As a result of the recent pandemic, Zoom has become a popular avenue for everything ranging from internal meetings to global events and conferences. If 6G maintains its current trajectory, teleconferencing will be replaced by hologram technology–further blending the physical and the virtual, enabling companies to deliver highly personalized interactions, irrespective of location.

**Building the Foundation for Quantum:** After decades-long hype around quantum computing and quantum systems, the industry will start to realize its potential for creating new opportunities in fields spanning cybersecurity, materials creation, financial analysis, and military receivers.

- Proactive companies will start investing in quantum, fostering quantum talent within the next generation of workers through university partnerships, hackathons, and other projects. This will create an ancillary boost to DEI initiatives resulting in much-needed diversity in the tech workforce.
- Recent research revealed that 74% of companies believe they will fall behind if they fail to adopt quantum. As a result, organizations will begin to shift their thinking that quantum is a futuristic technology and begin addressing key challenges, including financial resources and operations, and developing real enterprise applications of quantum by 2026, if not sooner.