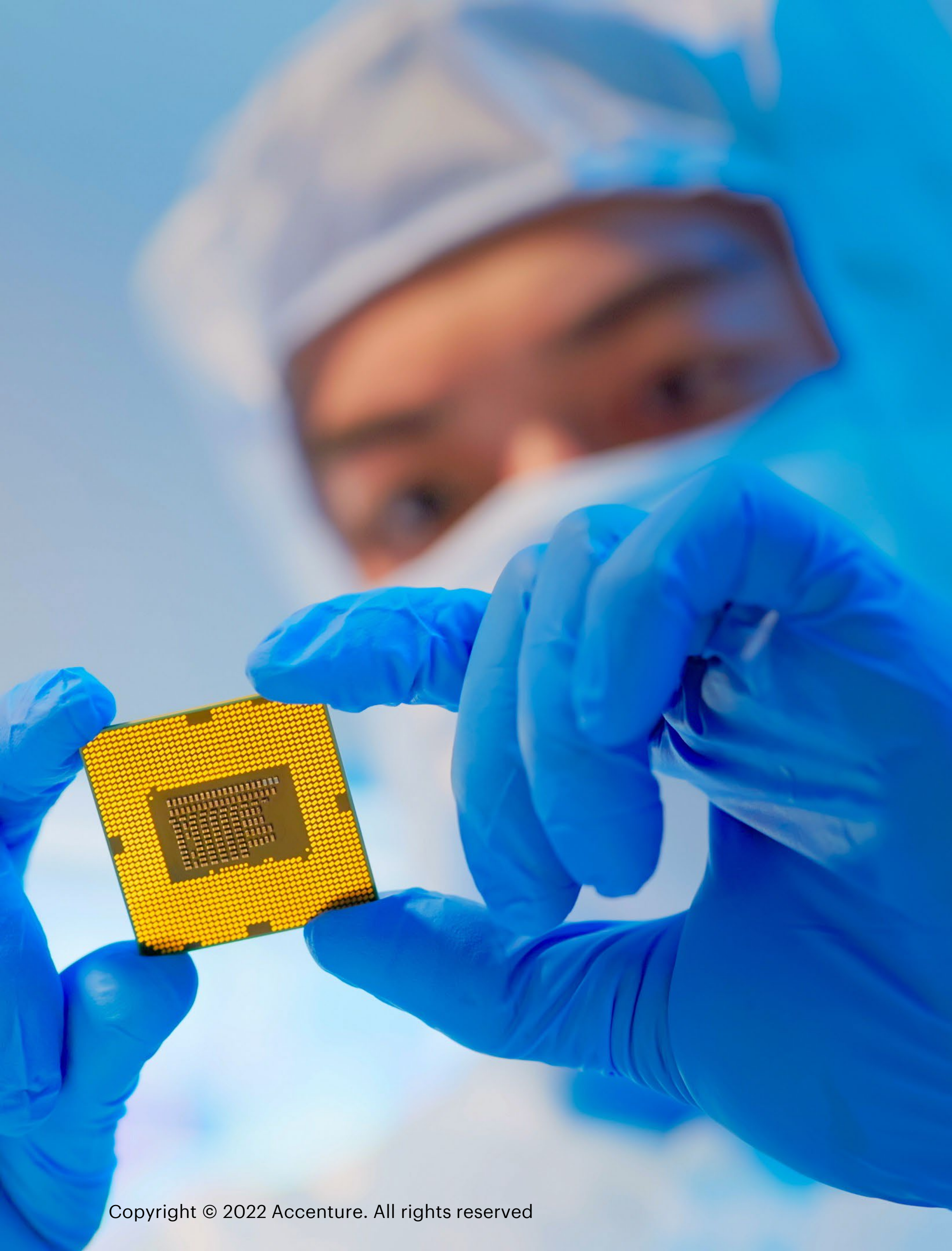


Routing to supply chain resilience

The power of proactive
risk management





Call for change

Supercharging supply and profits

Few of us stop to think about the brains beneath our smart devices, cars and appliances. This microchip technology comes from third-party suppliers and is essential to manufacturing today's products—from pacemakers to PCs. For this reason, when faced with an unexpected microchip shortage, technology suppliers moved to make supply chain risk management and resiliency a priority.

This was especially true for one global technology supplier. The abrupt stop-and-go for vehicle demand caused by the pandemic led the company to discover that, like many others in the industry, its supply chain lacked the muscle to meet the moment.

In 2020, the pandemic understandably put the brakes on global automotive production. At the same time, the demand for electronic at-home entertainment (TVs, gaming consoles, computers, etc.) grew—and microchip suppliers shifted their supply to electronics. As a result, when vehicle demand rebounded, a microchip shortage effectively stalled the global auto industry, costing it an estimated \$210 billion in lost revenue.¹

Without the chips, the technology company struggled to meet renewed vehicle demand, putting both its profit margin and market valuation at risk. Given the magnitude of this problem, company leaders were determined to find a solution and brought in Accenture to help.

¹ [Shortages Related to Semiconductors to Cost the Auto Industry \\$210 Billion In Revenues This Year, Says New Alixpartners Forecast, "AlixPartners," 2021](#)

When tech meets human ingenuity

The muscle to mitigate risk

The joint team first performed a maturity assessment, examining current supply chain risk management practices and capabilities. It identified an opportunity to move from the company's basic, reactive capabilities to more proactive risk management using advanced technologies and analytics. This would allow the company to build the muscle needed for long-term resilience across its entire value chain—not just for microchip supply.

The team developed an advanced "heat map" to identify high risk suppliers and components and recommend mitigating

actions. The heat map analyzed over one thousand parts—including the smallest components—that could delay a final product and put the company's revenue at risk if they suddenly became unavailable. The heat map looked at 15 different risk dimensions, such as risk contribution, supplier relationships, delivery performance and availability of alternative sources of supply. To perform the analysis and understand revenue impacts, the team leveraged company data and created a "supply chain digital twin."



When tech meets human ingenuity

The digital twin is a virtual replica of the company's global supply chain built using the Accenture Intelligent Supply Chain Platform and hosted on Microsoft Azure. It's highly detailed, providing a virtual map of every factory, warehouse, material and component supplier—from Tier 1 to Tier 5—in the supply chain, along with visibility into interdependencies. The digital twin allows the company to visualize, understand and analyze various supply chain challenges, such as physical flow complexity, supplier concentrations, supply bottlenecks and revenue at risk. For example, when Germany suffered catastrophic flooding in 2021, the digital twin was able to identify the impact on the company's supply chain within an hour.

Finally, Accenture performed the innovative supply chain resilience stress test, leveraging joint research with the Massachusetts

Institute of Technology. The stress test subjects the digital twin to pre-defined, disruptive scenarios—such as an environmental disaster, port congestion or a supply shortage—and calculates a Time to Survive (TTS) and Time to Recover (TTR). Each scenario receives a resiliency score. For example, if you lose 40% of your normal revenue, your resiliency score is 60%. At the end of the stress test, scenario resiliency scores are combined to identify the overall resilience of the supply chain.

The success of the stress test proved the efficacy of the digital twin methodology. From there, Accenture worked with the company to transfer the knowledge to its internal Supply Chain Resilience team. This laid the groundwork for subsequent strategic and operational actions to reduce supply chain vulnerabilities.

A valuable difference

From reactive to resilient

In just six months, Accenture and the company turned a significant global challenge into an opportunity, building the muscle and creating a foundation for a more resilient, relevant and sustainable supply chain.

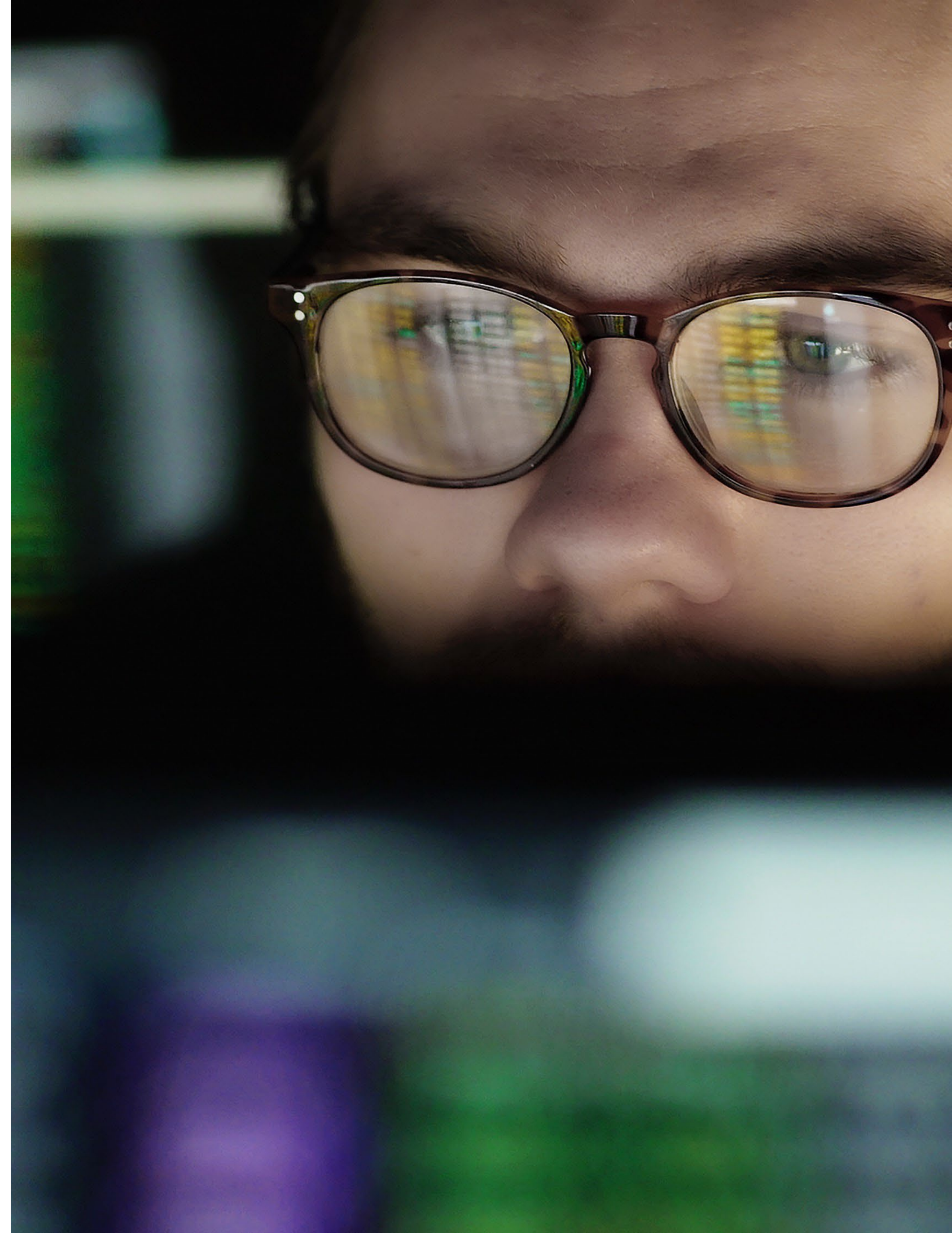
The advanced supply chain capabilities will help the company focus on proactive supply chain management. In combination, the maturity assessment, heat map, digital twin and stress test were able to produce several targeted risk mitigation actions—sometimes down to the component or part number—across business functions. The team was able to model the impact of these actions by adding them to the digital twin and performing another stress test.

The company will also be able to efficiently mitigate ongoing supply chain challenges. With

the digital twin and its visualization and analytics tools, the company can respond in hours rather than weeks to disruptions. This has contributed to reducing the company's revenue at risk by several hundred million dollars.

These advanced capabilities also position the company for increased commercial success. Its ongoing efforts to build supply chain resilience will help prove to its global customers that it is well prepared to navigate future disruptions.

With Accenture's help, the company can now identify and start responding in "almost real time" to supply chain changes and support growth. Even better, it has the technology, talent and capabilities to continue building an advanced supply chain with the muscle to withstand disruptions from many angles.



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