

Advanced Collaborative Automation: The Antidote to Market Uncertainty



Advanced Collaborative Automation: The Antidote to Market Uncertainty

Uncertainty and volatility are constants. The interruption of business-as-usual caused by sudden, unexpected events affects every aspect of manufacturing and warehouse operations – from supply availability and production capacity to labor, costs, workplace safety and consumer demand.

You don't have to look far back to recognize that sudden changes are simply part of business. Consider the major global events – economic, natural, geo-political – that have affected manufacturing and warehouse operations over the past decade:

2010

EuroZone Market crash

2011

Tsunami in Japan

2012

US credit rating downgrade

2015

US stock market flash crash

2016

UK votes to leave the EU

2020

COVID-19 Pandemic

In the face of unexpected business conditions, maintaining and improving resiliency becomes priority number one for manufacturing and warehouse leaders.

Business Resiliency Requires a Future Forward Focus

Many of the events above were well out of the control of manufacturers. Most manufacturers are very aware of the transformative changes facing their business.

More importantly, they know what they can do to prepare, even while they do not know how or when an event out of their control might affect their business. And many of the actions they are taking now, provide long-ranging protection against all types of volatility and uncertainty.

There are several proven strategies that global leaders are embracing to improve operational flexibility, resilience and responsiveness during turbulent times, including:

- Increasing investments in automation
- Building data-driven models for better supply and demand management
- Leveraging emerging technologies such as AI, machine learning, advanced sensors, vision systems and IoT
- Designing distributed manufacturing models to move final assembly and distribution closer to end markets

The common element across all these approaches: increased flexibility and performance.

Like many other macro-economic and catastrophic risk events, the COVID-19 pandemic has substantially changed business and life as we know it. Today, however, industry leaders have access to several advanced and emerging technologies and strategies to aid their response – stronger data and analytics, IoT, AI, collaborative automation solutions, and more. These solutions are far from a cure-all, but when deployed properly, they enable fast and agile response when business is interrupted.

In 2020, Deloitte identified five disruptive factors with the potential to change production and logistics operations fundamentally in the next decade:

- Economic patterns
- Trade dynamism
- Digitization
- Talent/Future of Work
- Electrification (green energy)



Collaborative Automation Boosts Flexibility, Performance and Safety Amidst Uncertainty

Manufacturers and warehouse leaders looking to increase flexibility and mitigate uncertainty are rapidly turning to advanced collaborative automation – specifically autonomous mobile robots (AMRs) and collaborative robots (cobots).

In times of uncertainty, collaborative automation enables organizations to:

- Scale operations up and down to respond to short-term spikes and gaps in demand
- Free people up to do strategic work and get the training they need
- Maintain and improve safety, performance and quality

Many industrial leaders are also leveraging collaborative automation to help navigate the new workforce dynamics ushered in by the pandemic. Specifically, cobots and AMRs are being deployed across factories and warehouses globally to:

- Enhance social distancing by integrating humans with machines in production environments
- Increase workforce scheduling flexibility without reducing employment hours by filling labor gaps and maximizing production across shifts
- Automate the disinfection of shared workspaces and common areas

In fact, driven by increased demand and adoption, the AMR market is projected to reach a value of \$58.9 billion by 2026 ([Research Markets](#)), and the global collaborative robot market is projected to grow from \$981 million in 2019 to \$7.1 billion by 2025 ([Market Data Forecast](#))



(continued)

The ability to deploy cobots quickly and effectively was one reason that Texas-based All Axis Machining, a metal fabricator, turned to Universal Robots (UR) several years ago. The company put several UR cobots to work on machine tending, sanding, deburring and wire electrical discharge machining as part of a strategy to increase productivity and put employees to work on more value-added and fulfilling work.

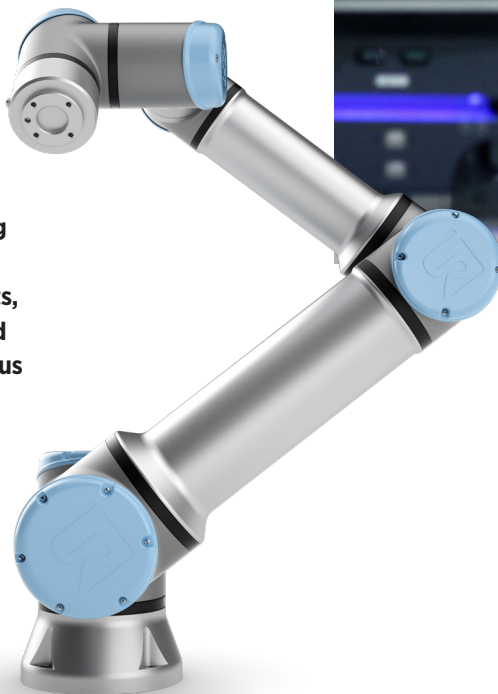
When the pandemic forced the business to implement physical distancing, All Axis added two more UR cobots. The additional automation allowed All Axis to add a weekend shift to disperse staff density, keeping operations at maximum capacity and the shop's workforce safe.

Likewise, demand and use cases for AMRs continue to surge. Mobile robots are being deployed to improve performance, increase safety and promote social distancing by delivering parts and managing material handling in production and warehouse environments across the world.

While inner-logistics efficiency has always been a core driver of AMR adoption, today's applications cast an even wider net.



For example, robots from MiR are actively being used to automate the disinfection process in a wide variety of sectors – including supermarkets, airports, hospitals, schools and universities, and more – to reduce humans' exposure to dangerous contagions and further protect their health.



Building Sustainable Agility and Resilience

Today's uncertainty will end. New opportunities will emerge. And soon after, uncertainty will return. While it may seem counter-intuitive, investment in technology during challenging times has shown to be smart and prudent.

A 2020 Deloitte study found that industrial manufacturers who invested more in innovative technology in the five years leading to the Great Recession (2004–2008) (\$14.80 for every \$100 of revenue compared with other manufacturers, who invested just \$3.40) observed much higher revenue growth during the recovery phases. Additionally, according to research from [McKinsey & Company](#), businesses that invested in innovation during the 2008 recession not only outperformed their competitors by 10%, but they also outperformed the market upward of 30% in the years post-crisis.

Manufacturing and warehouse operations executives who invest to improve performance, agility and resilience in the middle of volatility will find themselves better positioned for both the short- and long-term.

A Bain and Company report recommends that business leaders look beyond traditional goals and put strategies in place to adapt to the evolving and volatile macroeconomic environment. "Adaptability requires agility and speed. But equally important will be the strength to absorb sudden shocks and resilience to missteps and unforeseeable challenges along the way. Leadership teams that start thinking now about shifting resources to build resilience will be better able to navigate the broad arc of the coming transformation and cope with increased volatility."

Increased volatility means core businesses may shift more frequently. Companies that increase their resilience will have a better chance of surviving unexpected change.

— **Bain and Company Report**



Teradyne: Collaborative Automation Beats Uncertainty

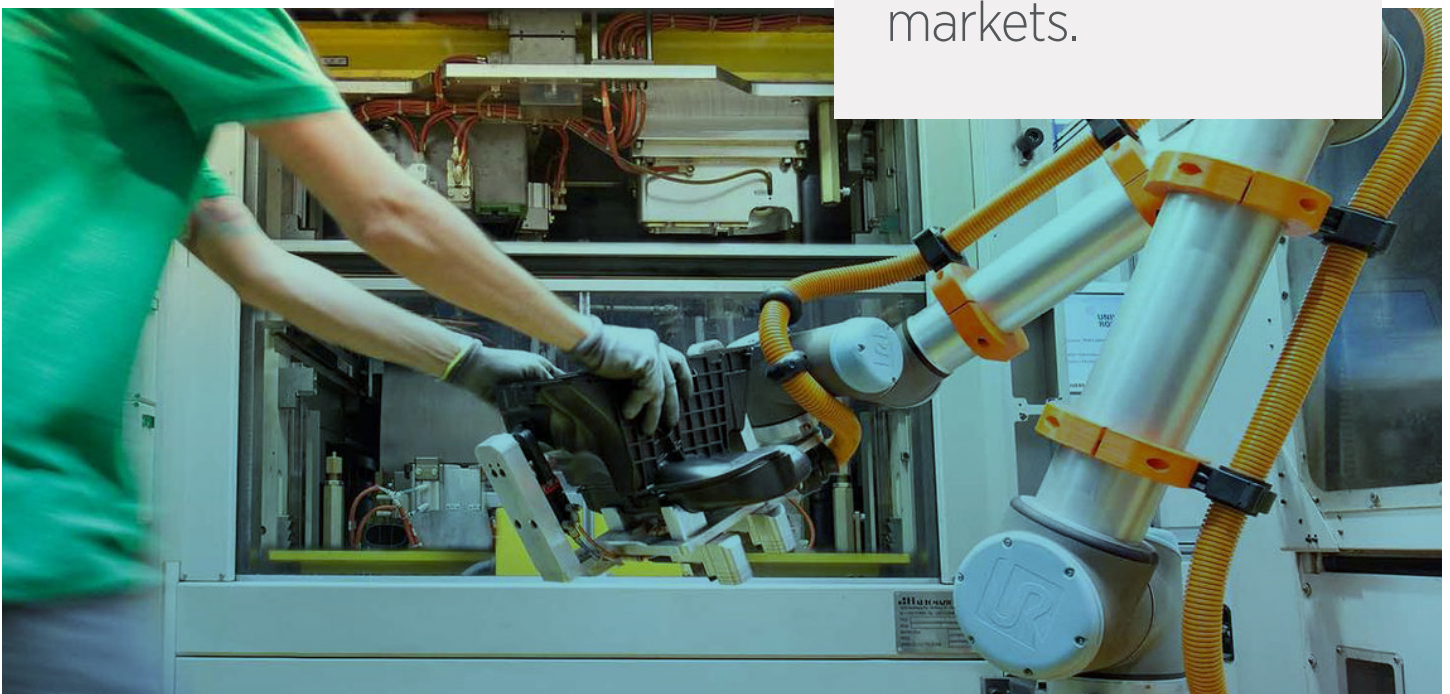
Change is constant. The ability to navigate changes – unexpected or otherwise – and turn them into opportunities is essential in highly competitive markets.

Adding flexible automation increases the resiliency needed to pivot when change happens – whether it's anticipated or not. A [2019 study out of the Universities of Göttingen, Duisburg-Essen and Trier](#) found that teams of people and robots working together outperform both robot- and human-only teams. Working with robots frees workers up to be more innovative and productive.

Affordable, easy-to-deploy and safe enough to work side-by-side with people, Teradyne's portfolio of solutions delivers immediate and long-term value in any economic cycle:

- In periods of economic growth, advanced automation positions organizations to productively scale, improve quality, and overcome labor shortages.
- In down and uncertain markets, advanced automation enables organizations to weather difficult times by maintaining safety, performance and quality and by providing the flexibility to respond to short-term demand spikes.

Proven to improve performance and safety, advanced collaborative automation from Teradyne delivers the flexibility needed to thrive in unpredictable markets.



About Teradyne

It's a good bet that every device you use has been touched, and enhanced, by Teradyne during its assembly or test. We automate two of manufacturing's most critical elements: repetitive manual tasks and electronic test.

Task Automation - industrial automation solutions, including collaborative robotics, automate tasks, deliver fast ROI and free people to reach their potential

Electronic Test - automated test equipment (ATE) speeds time-to-market for new electronics, in markets where reliability and performance are critical

Everything we create and invest in is oriented to helping organizations deliver their highest quality products and bring them to market quickly, with the most-profitable economics. Our team's relentless curiosity fosters collaboration that solves problems to improve your competitiveness.

Our customers are companies of all sizes in diverse markets, and they depend on us to make certain their products perform as they were designed, every single time. Teradyne's enduring commitment to advanced test and automation means that with our customers, we're improving how the world lives, works and innovates.

Learn more about Teradyne's Industrial Automation Portfolio



What's Next

Go deeper to explore the benefits
of collaborative automation.

[Achieving the Perfect Equilibrium: Elevating Manufacturing Safety
and Performance](#) 

[The Automation Economy: Human and Machine Collaboration](#) 

[Learn more about how Teradyne helps transform industrial automation
with collaborative and advanced robotic innovations](#) 

See AMRs in action.

[Watch the Video](#) 

TERADYNE

Teradyne and the Teradyne logo are trademarks of Teradyne, Inc. All other brand and product names are trademarks or registered trademarks of their respective owners. Information contained in this document is summary in nature and subject to change without notice. © Teradyne 2021. All rights reserved.