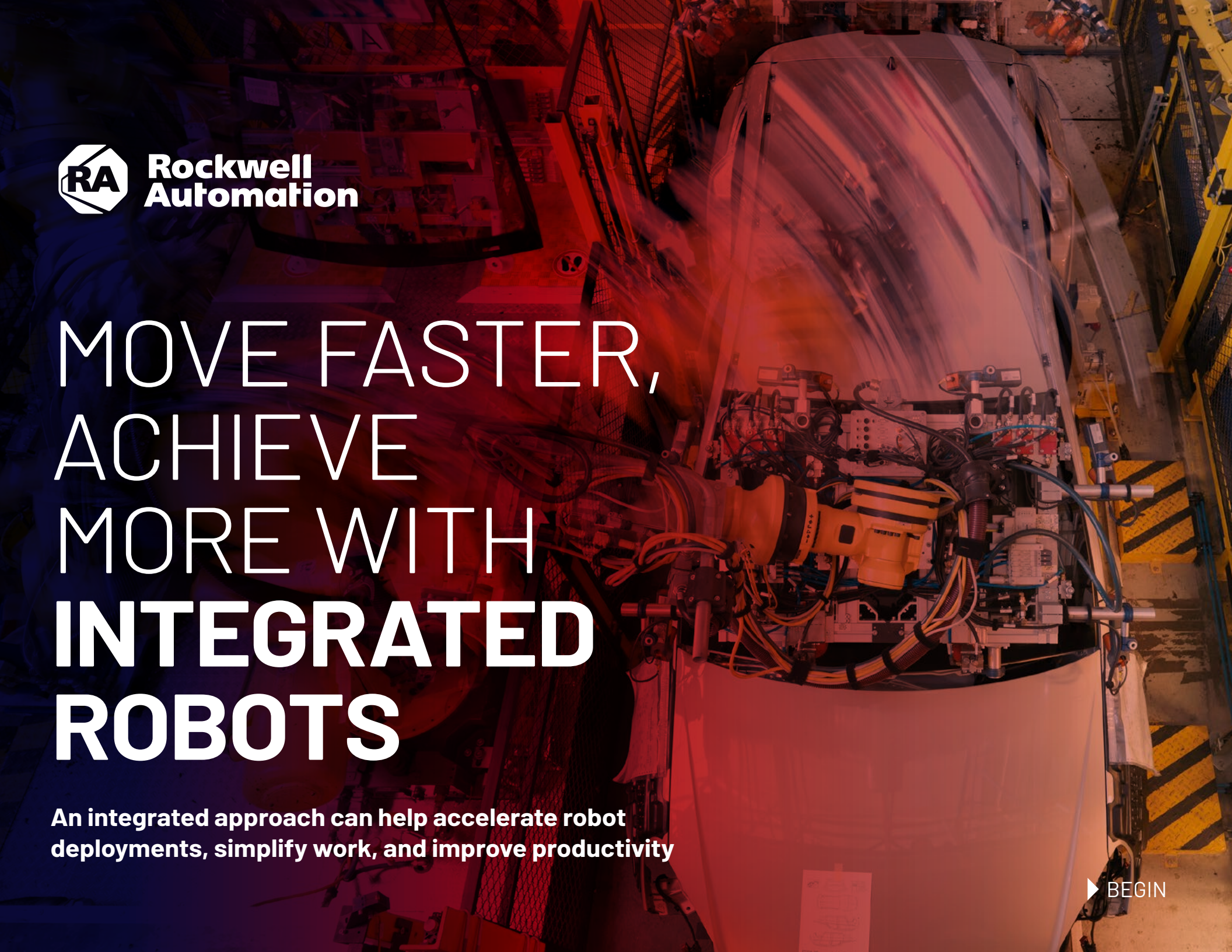


Rockwell Automation

MOVE FASTER, ACHIEVE MORE WITH **INTEGRATED ROBOTS**

An integrated approach can help accelerate robot deployments, simplify work, and improve productivity

BEGIN

A **bigger role** for robots

Realizing the full potential of robots is more important than ever.

Production teams are expected to do more, whether it's achieving higher output, shorter lead times, or more product customization. But pushing operations to the next level is a tall order when robots – a key part of the process – are on the periphery.

To stay competitive, you need robots that are fully integrated as a core piece of the control system. And you need this integration to be as simple as possible.

In today's more intelligent production operations, integrated robots can help you:

- **Speed up deployment** with a simplified control system.
- **Build and validate programs more efficiently** using digital engineering tools and a single, integrated design environment.
- **Create faster, more flexible production** with better integration of robots and motion devices.
- **Help protect workers** by taking over aspects of dull and dangerous jobs.

There are two approaches to achieving integrated robotics. You can connect your robot and control systems via EtherNet/IP, or you can combine them into a single, unified system. The approach you use will depend on your specific needs.

BETTER OUTCOMES THROUGH CONNECTIVITY:

Better coordination between robots and other equipment can make operations more responsive to demands. And connecting robots with information solutions like analytics can help optimize processes and reduce downtime.

Connectivity can transform more than just how robots operate. Centralizing control in a single design environment and using the latest digital tools can improve how robots are programmed, deployed, and supported.

Rockwell Automation

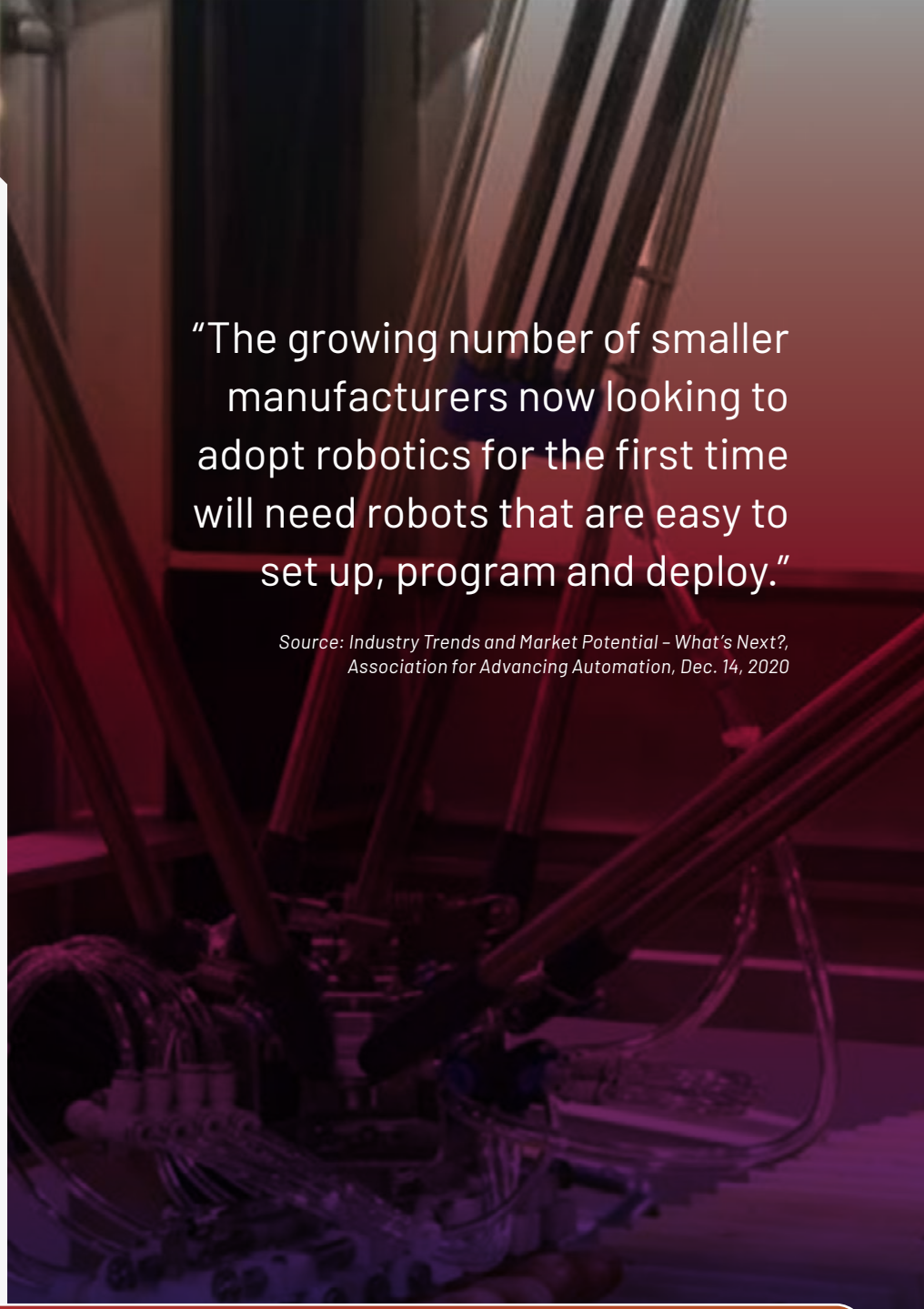
ACCELERATED AND SIMPLIFIED ROBOT DEPLOYMENT

It's easy to feel like your team is always racing against the clock when you're trying to get a robot project up and running.

Coordinating separate robot and machine control systems is often a significant portion of the effort. Both systems need to be programmed individually. And trying to align their performance can be cumbersome and involve a lot of trial and error.

By better connecting the controllers or unifying them into one system, you can create robot applications with less time and effort.

- **Speed up work.** Reduce engineering time and costs by programming the robot and machine together in one place.
- **Reduce complexity.** Simplify your systems and ease support with a centralized control architecture.
- **Keep up with demands.** Deliver high-speed, high-precision operations more easily with better synchronization of the devices on the machine network.
- **Create resilient, repeatable projects.** Reduce work in projects by replicating and reapplying code for different applications.



"The growing number of smaller manufacturers now looking to adopt robotics for the first time will need robots that are easy to set up, program and deploy."

Source: Industry Trends and Market Potential – What's Next?, Association for Advancing Automation, Dec. 14, 2020

WORKFORCE ENABLEMENT: HELP TEAMS ACHIEVE MORE

Integrating robots into the control system can save engineering time and effort by bringing robot configuration, programming, and maintenance into the Studio 5000® design environment. By developing all elements of your robot application in one place, staff has full system control at their fingertips.

Skip the costly and time-consuming robot training and create a more dynamic, effective manufacturing team.

Integrated robots help people across job functions do more with robots:

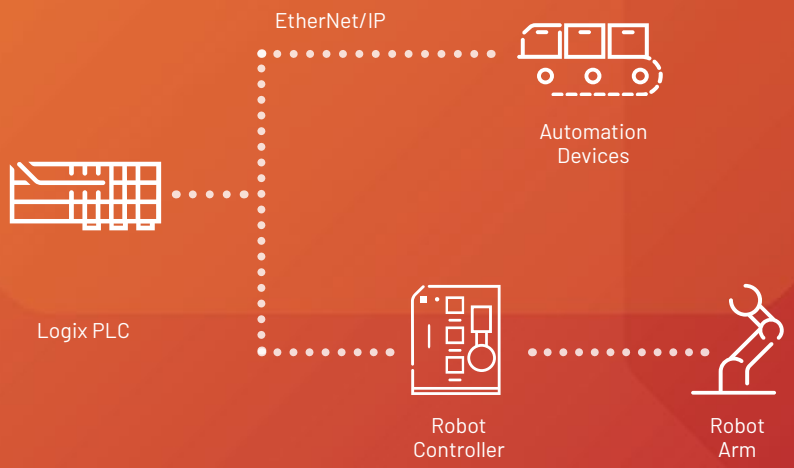
- Greatly reduce effort for programmers by writing, testing, and refining in the Studio 5000 environment.
- Leverage skilled engineers who are already proficient with Studio 5000 software to bring systems up to speed faster — no need to train or wait for availability of a specialized robot programmer.
- Empower operators with system control directly from one human-machine interface (HMI).
- Simplify maintenance with one point of control for troubleshooting and support.

MAXIMIZE VALUE

Industrial robots can no longer function as disparate systems. There are two paths you can take to achieve integrated robots:

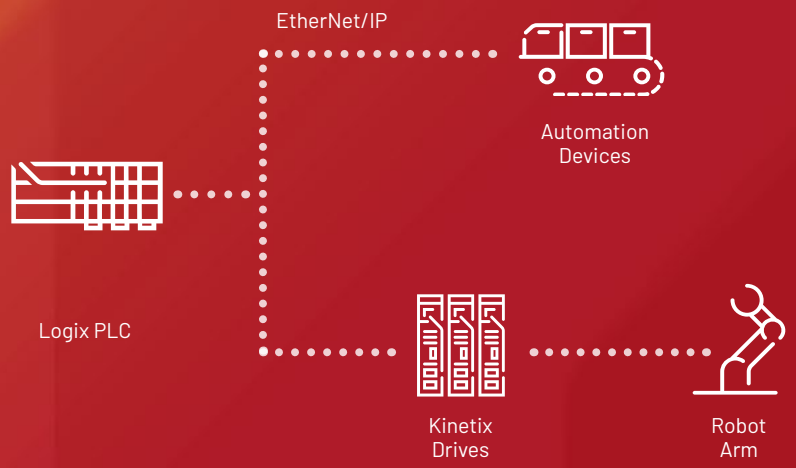
EtherNet/IP connected: Connecting a dedicated robot controller to a Logix PLC via the standard, unmodified Ethernet protocol.

Robot programs are written in either the robot vendor's programming environment or via Studio 5000 robot integration features.



Unified robot control: Use of a Logix controller and Kinetix® drives to directly control a robot arm.

The Logix controller hosts the robot kinematics and the full program is made in Studio 5000 to direct all robot movement without the use of a dedicated robot controller.



ETHERNET/IP CONNECTED ROBOTS

Effortlessly bring robots into your control network with a simple, single cable connection.

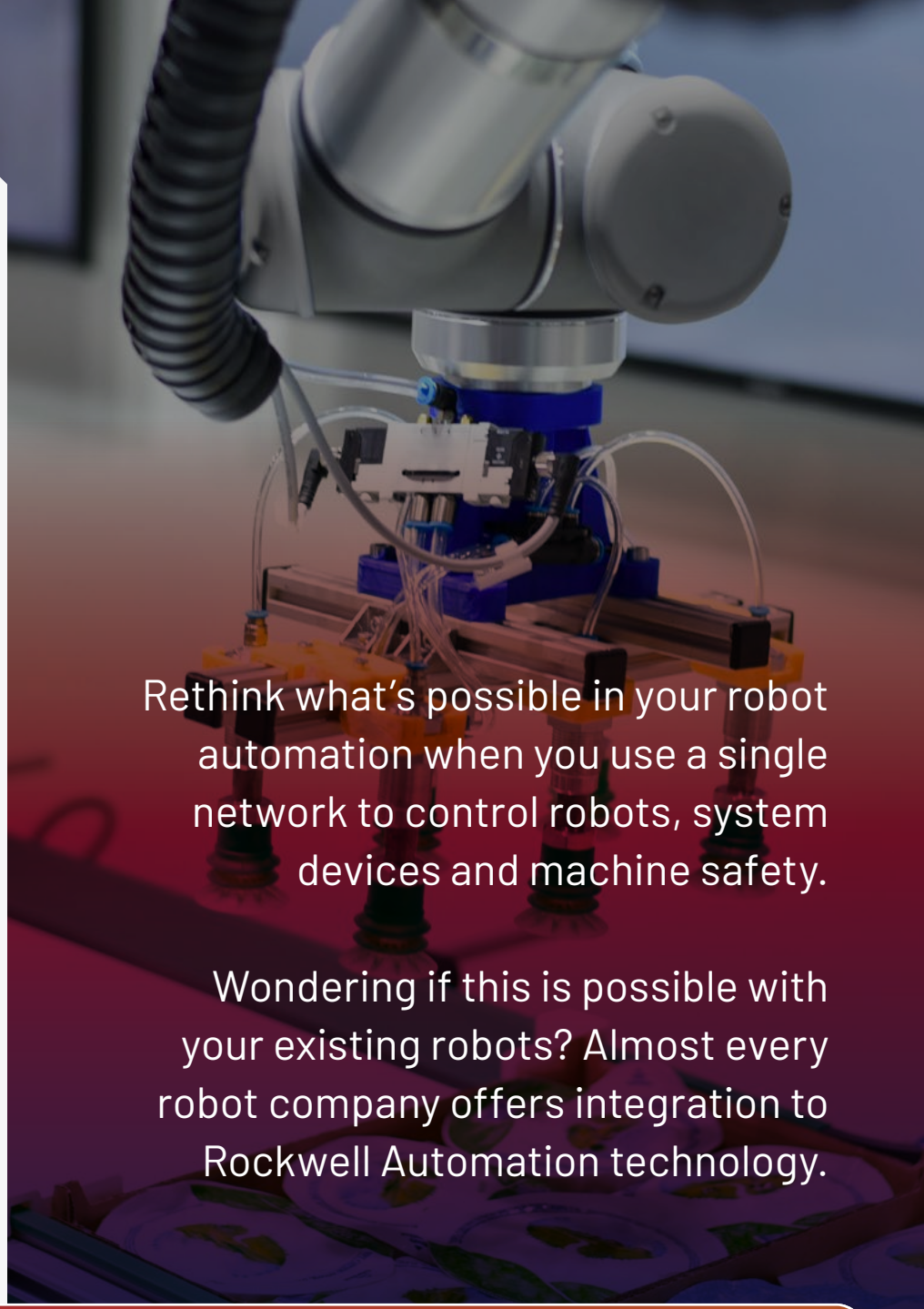
EtherNet/IP communication is widely used in industrial robots. This makes it easy for you to meet different application requirements while still providing access to the Logix platform.

Expand your robot control capabilities with Add-On Instructions:

- **Achieve more centralized control** by sending commands that initiate robot movement, obtain status, change recipes, and modify configurations.
- **Operate with more clarity and control** by performing important functions from an HMI without the need for a robot pendant.

Deploy faster and streamline safety:

- **Speed up identity configuration** as well as communications and I/O data transfer using EtherNet/IP Add-on Profiles.
- **Create a simplified, more easily managed safety network** using CIP Safety. The robot appears and is handled as any other safety device on the EtherNet/IP network.



Rethink what's possible in your robot automation when you use a single network to control robots, system devices and machine safety.

Wondering if this is possible with your existing robots? Almost every robot company offers integration to Rockwell Automation technology.

UNIFIED ROBOT CONTROL

To meet the needs of the smart factory, you need to quickly deploy robots that are flexible and easily integrated into your plant. However, this is difficult when staff must master multiple systems.

Unified robot control provides a simpler approach. It eliminates the need for dedicated robot controllers and programming environments. Instead, unified control makes seamless communication and synchronization possible across all devices in your automation system.

Create more capable and intelligent production with unified robot control:

- **Increase precision** with better, faster synchronization between robot and coordinated motion.
- **Save vital floorspace** by removing dedicated robot controllers and using a Logix controller to operate one or multiple robots.
- **Better respond to manufacturing needs** by easily exchanging important data between machines.
- **Join your entire safety network together** with CIP Safety and CIP Security to maintain compliance and help protect what matters most.

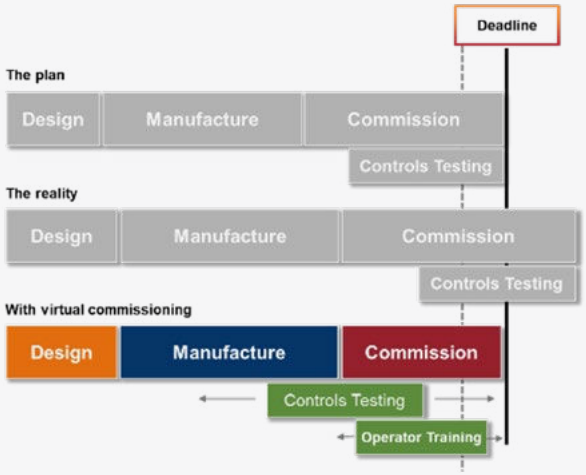
AS PART OF A UNIFIED APPROACH, CONTROLLING ROBOTS THROUGH STUDIO 5000 SOFTWARE HELPS:

- Reduce engineering time with a machine-wide common platform.
- Provide quick access to rich robot data for analytics.
- Create robot experts from your skilled design team.
- Save time and budget with no robot training.

WORK FASTER AND BETTER IN A DIGITAL ENVIRONMENT

What if you didn't have to wait until your robot cell is built to test your control code? Or to confirm that mechanics and logic are working in harmony? What if you could stress test the real-world performance of your system digitally to confirm cycle rates and see bottlenecks before implementing any changes?

Digital engineering makes this and much more possible. When your staff can do their work in a digital environment and use capabilities like digital twins, they can design, iterate, test, and prove solutions faster. And the benefits aren't limited to the design stage. Digital engineering can improve how people work across an asset's entire lifecycle.



Build a better project with virtual commissioning

You can create more efficient, effective robot applications by designing with the Emulate3D™ software. And advanced tools use the power of your data to better control, operate, and support the system.

- **Reduce design time and costs** by shifting important controls programming tasks earlier in the project.
- **Lower risk** by using virtual commissioning to diagnose and remedy late-stage issues early.
- **Increase operator readiness** with training on virtual systems that allow you to create specific scenarios not feasible on physical systems.
- **Make data-driven decisions** by verifying performance and throughput capacity. Test and validate scenarios of online systems before going live.
- **Create a digital model** to build out your advanced digital manufacturing capabilities.

GET MORE FROM INDUSTRIAL ROBOTS

Discover a faster, simpler way to unleash the power of robots in production when you work with Rockwell Automation.

Our robot integration solutions can help you more easily connect your robot and control systems, or combine them into one unified system. This can help you accelerate deployments, ease access to analytics, and simplify overall operations. It can also help you more easily realize the promise of robots – from reduced safety risks to greater productivity, flexibility, and efficiency.

Are you ready to unleash the power of integrated robots?

Learn how Rockwell Automation can help deliver better outcomes for your industrial robots here or contact us here.

WHAT DOES ROCKWELL AUTOMATION BRING TO YOUR ROBOT APPLICATIONS?

- Robot automation technology that's standardized, modular and scalable.
- Partnerships with robot companies, OEMs, and integrators that are proficient in building robot systems.
- Deep robot application expertise from decades of experience in several industries.
- Simulation capabilities to prove the performance and workflows of your robot application before it's built.
- A global presence to support your deployments around the world.

Connect with us.

rockwellautomation.com — expanding **human possibility**®

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication MOTION-SP005A-EN-P - January 2022