Engineering Your Future Manufacturing: Possibilities of a Digital Twin

Inside

- Engineering your Future Manufacturing - Possibilities of a Digital Twin
- Digital Twins: Transport your Operations to the Digital World
- Visualization Technologies Help Create a Smarter and Safer Workforce
- Augmented Reality to the Rescue
EXECUTIVE MESSAGE

Digitizing Your Operations

As we mitigate risk associated with Covid-19 in these unprecedented times, the world around us is rapidly changing. The plight to stem Covid-19 has been the catalyst for change as we navigate the uncertainty, while working to minimize disruption to both our business and personal lives.

With travel restrictions, social distancing and other safety measures in effect in varying degrees globally, we are utilizing remote support as a first line of assistance for our customers and partners. We know many of your operations need to continue, and we are committed to being with you every step of the way.

Having recently been appointed the Regional President for the Asia Pacific region, I am delighted to have the opportunity to lead the Asia Pacific team and I am already immensely proud of their response to the challenging environment we currently find ourselves in. I look forward to working closely with the regional leadership and our valued partners to deliver long-term sustainable success for Rockwell Automation in Asia Pacific.

Although we continue to face new challenges, we are also seeing new opportunities arise. Digital technologies are helping our customers expand the possibilities of their businesses. From improving compliance and data integrity to bettering product quality and customer experience – digital technologies can help increase productivity and profitability.

This issue of Automation Today focuses on how the latest IIoT platforms and visualization technologies can enhance workforce efficiency and digitize manufacturing operations. It delves deep into how digital twins are transforming industrial operations – elevating how people interact with machines and processes, while expanding the potential of future workplaces.

We know you face many challenges during this difficult time, but it is important to remember that we are all in this together. We would like to support you in a way that maximizes productivity and minimizes risk to your business. As you read this issue of Automation Today, you are sure to identify ways that digitalization can help your business and experience the incredible results it can deliver.

Stay safe and stay connected.

Scott Wooldridge
President, Asia Pacific Region
Rockwell Automation
Moda Packaging System

Moda is a global leader in producing high performance modular food packaging equipment. Moda integrates the latest technology with hygienic design for the vacuum packaging of meat and dairy products. Moda equipment has been crafted to endure the challenges of demanding environments, increase productivity, and deliver energy, labor and total package cost savings. The rigorously tested line of Moda systems provides improved ergonomics, product-flow and food safety, also.

Find more information at: www.modanz.com

LET'S KEEP THINGS SMOOTH.
ENSURE QUALITY.
DELIVER CONSISTENCY.

SPEKTRON INDUSTRIAL UV DISINFECTION SYSTEMS FOR FOOD & BEVERAGE.

Find more information at: www.xylem.com
Rockwell Automation Completes Acquisition of ASEM

**Acquisition strengthens Control & Visualization Portfolio**

Rockwell Automation has completed the acquisition of ASEM, S.p.A., a leading provider of digital automation technologies based in Italy.

This acquisition within our Architecture & Software business segment will further enhance the Control & Visualization hardware and software portfolio.

ASEM provides a complete range of Industrial PCs (IPCs), Human-Machine Interface (HMI) hardware and software, remote access capabilities, and secure Industrial IoT gateway solutions. The company is primarily a supplier to European machine builders with great opportunities in the North American market.

ASEM’s products provide customers with a high degree of configurability for their industrial computing needs, allow them to achieve faster time to market, lower their cost of ownership, improve asset utilization, and better manage enterprise risk.

FactoryTalk InnovationSuite Recognized in Industrial IoT Product of the Year Awards

**Rockwell Automation is pleased to announce that FactoryTalk InnovationSuite has been named an “Industrial IoT Product of the Year” in the 2020 IoT Evolution Awards, presented by TMC, a global, integrated media company, in conjunction with its partner Crossfire Media.**

The award honors the best, most innovative products and solutions powering the Industrial Internet of Things. For more than 20 years, TMC has been honoring technology companies with awards in various categories.

These awards are regarded as some of the most prestigious and respected awards in the communications and technology sector worldwide. Winners represent prominent players in the market who consistently demonstrate the advancement of technologies. Each recipient is a verifiable leader in the marketplace.

“Congratulations to recipients of 2020 Industrial IoT Product of the Year Awards,” said Rich Tehrani, CEO, TMC. “I marvel at how these innovative products and solutions are driving efficiency and productivity gains for their customers. With our partners at Crossfire Media, we all look forward to seeing how their current and future offerings will continue to shape the IIoT landscape.”

While industrial organizations struggle to effectively deploy and maintain comprehensive, unified digital transformation initiatives, FactoryTalk InnovationSuite allows manufacturers to easily access, understand and leverage the data they need to make informed decisions.

With more than a century of manufacturing experience, Rockwell Automation uses its enduring legacy to engineer groundbreaking digital innovations that enable the future of intelligent manufacturing.

Rockwell Automation Completes Acquisition of Kalypso

**Acquisition expands Connected Enterprise consulting expertise**

Rockwell Automation has completed the acquisition of Kalypso, LP. Based in the US, Kalypso is a software delivery and consulting firm specializing in the digital evolution of industrial companies with a strong client base in life sciences, consumer products and industrial high-tech.

Kalypso offers a full suite of consulting, digital innovation, enterprise technology and business process management services that enable the transformation of product design and development, production management, and client service models.

Rockwell Automation is best positioned to bring Information Technology (IT) and plant floor technology (OT) together.

This acquisition within our Control Products & Solutions business segment will combine the convergence of plant-level and enterprise networks with Kalypso’s capabilities, further enhancing the company’s ability to implement and deploy technology and deliver even greater value to its customers.
Rockwell Automation Appoints New Asia Pacific Regional President

Scott Wooldridge assumes role as Regional President, Asia Pacific, to lead the execution of the company’s strategy to bring the Connected Enterprise to life.

Rockwell Automation announced that Scott Wooldridge has been appointed as Regional President, Asia Pacific, succeeding Joe Sousa who had been serving in the role since August 2016. Wooldridge will be leading the execution of the company’s strategy to bring the Connected Enterprise to life, combining Rockwell Automation’s technology and domain expertise to deliver positive business outcomes for customers.

“Scott is an experienced executive with a proven track record and passion for developing customer centric strategies that drive results and foster partnerships and collaboration,” said Blake Moret, chairman and chief executive officer, Rockwell Automation. “His strong history with Rockwell Automation and vast experience in the industry makes Scott the ideal candidate to lead Asia Pacific, particularly as we navigate more challenging times and continue to map our route to success.”

Having joined Rockwell Automation in 2017 as regional director, South Pacific, Wooldridge was most recently Vice President, Pacific Rim—a portfolio within the Asia Pacific region covering the markets of Australia, New Zealand, Japan, Korea and South East Asia. Before joining Rockwell Automation, Scott held the role of chief executive officer at Energy Action and was a board member with the Energy Efficiency Council, both in Australia.

“I am delighted to have the opportunity to lead the Asia Pacific team and am already immensely proud of their response to the challenging environment we currently find ourselves in. I look forward to working closely with the regional leadership and our valued partners to deliver long-term sustainable success for Rockwell Automation in Asia Pacific,” said Scott Wooldridge, regional president, Rockwell Automation, Asia Pacific.

Rockwell Automation has an established presence in the Asia Pacific region for over 40 years and continues to invest in its vision of expanding human possibility and digital transformation for its customers across the region. With over 4000 dedicated employees in the region and a robust ecosystem of partners collaborating towards delivering value for our customers, Rockwell Automation continues to transform the industry, unlocking potential and productivity through automated and connected innovation.

Rockwell Automation Recognized in Compass Intelligence Awards

IoT Breakthrough recognizes Rockwell Automation for delivering breakthrough industrial IoT innovation with FactoryTalk InnovationSuite

Rockwell Automation is pleased to be awarded “Industrial IoT Company of the Year” in the 8th Annual Compass Intelligence Awards in 2020.

The Compass Intelligence Awards honor top companies, products and technology solutions in mobile, IoT and emerging technology industries. After receiving more than one hundred nominations, a total of 45 winners are voted on by industry analysts, thought leaders and trade press editors and journalists.

“We are so very proud to spread some cheer during this time and recognize companies and products that stand out in the crowded technology sector,” states Stephanie Atkinson, CEO and founder of Compass Intelligence. “Many of these companies have put in an extreme amount of effort and dedication to innovate, advance, and serve consumers and businesses around the globe.”

While industrial organizations struggle to effectively deploy and maintain comprehensive, unified digital transformation initiatives, FactoryTalk InnovationSuite by Rockwell Automation—a winner in the 2019 Compass Intelligence Innovator Awards selected solely by Compass Intelligence on merit of innovation—allows manufacturers to easily access, understand and leverage the data needed to make informed decisions.

With over 100 years of manufacturing experience, Rockwell Automation uses its enduring legacy to engineer groundbreaking digital innovations that enable the future of intelligent manufacturing.
Expand the possibilities of your business when you transport your people, products and processes into the digital world.

From digital transformation to digital thread and digital twin to digital engineering – the consensus is that ‘digital’ is the next industry buzzword. But, is it just a buzzword or is it something more?

Today, industry is challenged to produce high quality products, quickly and safely, while keeping prices low. Smart manufacturing, made possible by digital technologies, is revolutionizing the way manufacturers operate by providing accessibility to relevant, real time information. Information-enabled manufacturing allows you to combat your biggest challenges.

Why the need for digital technologies?
The benefits of digital transformation run far and wide across the workplace. These include improving compliance and data integrity, bettering product quality and customer experience, and increasing productivity. It also helps reduce costs of goods sold and improves supply chain integrity.

You have probably heard about concepts like digital twin and digital thread but what do they mean? A digital twin is a digital replica of an asset — like a product, machine or plant. This replica is “living,” which means it changes as the asset is developed, operated and maintained. It can also be viewed on a screen or in an immersive 3D environment to improve processes like design, training and maintenance.

A digital thread refers to the digital trail of data created by a digital twin across an asset’s lifecycle. This data can be turned into easy-to-understand insights to inform people how the asset is performing or will perform. The good news is that digital engineering is not an all or nothing strategy. A good first step is to review your business and determine where you can do things smarter, faster or better using a digital approach.

Creating digital solutions
There are exciting new ways that digital engineering can help improve a number of different areas of your business. Specifically, these can be grouped into five key areas: design and prototyping, commissioning, operator training, production and maintenance.

Design and prototyping
Virtual design and prototyping can help you get machines to market faster, reduce risk in your designs, and create higher-caliber, more customized machines. It provides the ability for you to watch your machine run and see how it interacts with people or with other machines.

A food manufacturer used a digital twin to test and validate a facility upgrade prior to implementation. The company achieved 80% less downtime and a more than 10% throughput increase.
with just a few clicks rather than buying parts and spending days of labor to build a new prototype.

**Commissioning**
Waiting until you bring a machine on-site to perform controls testing is a recipe for disaster. Virtual commissioning can help avoid any issues. By creating a dynamic digital twin of both your machine design and the real operational logic of the control system, you can uncover issues earlier in the design phase — long before you bolt your machine into the floor of a customer's plant. You can exhaustively verify and demonstrate the operation of your machine and the controller, before any resources are committed to them.

**Training**
Now, with virtual training, you can use a digital twin to train workers before a machine arrives. By either sliding on a VR headset or working from a screen, workers can build skills and competency in a safe and immersive virtual environment.

**Operations**
The value of digital engineering doesn't stop after machines are commissioned and operators are trained. Once production starts, digital twins can mimic processes, machines and controls to help plant personnel learn about operations and experiment with changes. An ever-growing digital thread of information can reveal insights into how production can be improved.

In fact, a global manufacturer recently implemented a digital thread alongside its MES and saw a 50% lead time reduction to customers, a 50% reduction in defective parts and a 4% improvement in productivity.

**Maintenance**
Maintenance teams can fight downtime like never before using digital simulations and real-time (or even predictive) insights. Data flowing through a digital thread can help technicians detect problems as they happen, to prevent or minimize downtime. This includes health and diagnostic data from control system devices that can notify technicians when maintenance is needed. But it also includes network data, for example, from switch-level alarms, which today is as critical to uptime.

In an ideal world, maintenance teams would never need to respond to downtime events because they could predict them. This is increasingly possible thanks to the use of predictive analytics. These analytics use machine learning and artificial intelligence to learn your operations, identify machine issues early and alert technicians of those issues. Technicians can then schedule maintenance during a planned downtime.

Digital twins can help you improve MTTR in a couple key ways. First, virtual training allows technicians to prepare for downtime problems in advance rather than troubleshooting them the first time they happen. And when problems do happen, technicians can use AR technology to overlay digital diagnostics or work instructions on a physical machine to diagnose and fix problems faster.
Stages of digital transformation

Digitalization is continuing to provide significant benefits to industry. In its recent report, *The Internet of Things: Mapping Value Beyond the Hype*, McKinsey sees IoT having a total potential economic impact of $3.9 trillion to $11.1 trillion a year by 2025.

This is highly prevalent in industry, where digital transformation has moved beyond ‘consideration’ to now experiencing significant business outcomes. In fact, 72% of manufacturing companies plan to significantly increase investment into digitalization efforts in 2020. These manufacturers’ combined financial commitment is expected to reach $907 billion in 2020, according to PWC.

Rockwell Automation recently conducted global primary research to explore the roles, perceptions and decision-making involvement of executives involved in digital transformation/IIoT decisions across seven key industries globally: oil and gas, chemicals, metals and mining, life sciences, food and beverage, household and personal care, and automotive.

In the Rockwell Digital Transformation 2020 Report, it became clear that companies have moved beyond the consideration phase for digital transformation initiatives. In fact, 2019 saw a 400 percent growth in digital transformation projects moving post-implementation. Of companies interviewed, 50% are already in rollout or full-scale production, or applying continuous process improvement to initial digital initiatives (Figure 1).

Value of end-to-end solutions

This research revealed that many enterprises lacked the technology expertise necessary for success. Of the enterprises surveyed, less than one-third rated themselves as knowledgeable in technologies critical to their success. Specifically, only 37% of respondents felt they “knew a lot about” AI, while just 33% were knowledgeable about IIoT. It was 29% for augmented and virtual reality, 31% for cloud analytics, and 27% for robotics.

One thing they all agreed on: there is a need to effectively deploy and maintain comprehensive, unified digital transformation initiatives. Given the complexity of IIoT systems, they look to end-to-end partners that can support wide-scale deployments. The solution needs to address manufacturing execution systems as well as analytics, and act as a complete Industrial IoT platform.

Enabling technologies

In recent times, digital transformation technologies have advanced significantly – making now more than ever the best time to assess how these enabling technologies can help you create a smarter and safer workforce.

Augmented reality can help solve complex plant-floor problems and improve workforce productivity and efficiency. Harpak-ULMA, an industry leader in packaging design solutions recently implemented a digital transformation solution with *FactoryTalk® InnovationSuite*, powered by PTC and its Vuforia augmented reality platform. This new solution expanded the company’s IoT connectivity. With the use of machine learning and predictive analytics, Harpak-ULMA was able to reshape maintenance business models and customer cost structures.

Another common challenge facing the manufacturing industry today is that traditional methods of machine and production line design, commissioning and startup can be costly and impede speed to market. As such, many Consumer Packaged Goods (CPG) manufacturers are turning to emulation as a tool to research, test and validate their process in a virtual space. CPG companies are gaining significant launch-time advantages with emulation technology. Advances in visualization, design software and training are making it easier than ever to employ.

Emulate 3D by Rockwell Automation, develops dynamic digital twin software for virtual commissioning, throughput simulation, and industrial demonstration. Using a 3D model to deliver realistic feedback in place of the real automated system, provides the opportunity to leverage virtual simulation and commissioning to bring your machine and production lines to life while reducing the costs and risks involved.

Digital technologies for OEMs

The demand for smarter, IoT-enabled machines is rapidly intensifying. There is a strong market need for OEMs to reinvent their operations with digital transformation technologies to meet this demand.

Integrating smart machines at the end-user site quickly and cost-effectively is a key challenge for many OEMs. Thankfully, innovative control system design tools can help. At the core of this

---

*Figure 1: Stages of Digital Transformation*
new functionality are system design instructions that enable you to configure ‘smart objects’ that become part of the tag structure. Smart objects identify what data to collect – and how and when that data is collected. This new approach to smart machine control system design streamlines one of the most arduous parts of the integration process, before your machine reaches the plant floor.

The latest visualization technologies including augmented reality, mixed reality, and virtual reality, can help OEMs by enhancing worker capabilities and creating safer, more productive processes. Visualization technologies provide the capability for equipment-manufacturer intelligence to be streamed directly to the engineer’s device. Together, they examine the machine, gather additional information, identify the underlying cause of the problem and recommend a repair solution in minutes, not days.

**Overcoming the road blocks**
The benefits of digital transformation for all industries are undeniable but it is important to note that most digital initiatives fail before they are fully implemented. A recent Gartner study estimated that 85% of big data projects fail across all market segments. There are a number of risks to be aware of when navigating a new digital transformation initiative including:

**Lack of understanding of digitalization**
As important as defining what a digital transformation means to a company, is defining what it does not mean. Companies must clearly define what digital transformation means to their business and what they would like to achieve. Digital transformation is a composition of technology, processes, and people – and it must be positioned as an enabler of business transformation.

**Digital transformation as a standalone strategy**
A recent MIT Sloan study showed that just 28% of executives and middle managers responsible for executing strategy can list three of their company’s strategic priorities. When digital transformation is not incorporated into overall business strategy, the project does not receive the level of prioritization and funding to find long-term success.

**Technology-thinking instead of problem-thinking**
As digital transformation initiatives progress, they often find additional technological solutions attached to them at the behest of executive sponsors or members or the project team but it is important to remember that when it comes to technology – more does not necessarily mean better.

**Workforce skills challenge**
The use of digital tools is often considered a technical endeavor, however, adopting and using digital solutions required more than just technical skills. Companies must focus hiring initiatives on finding employees who possess digital literacy and curiosity, not rule out candidates that lack technical expertise.

**Custom and in-house applications**
Although a custom software solution may seem perfect initially, it is important to remember that custom applications often cannot be updated or altered by anyone other than the person who built them. However, new configuration-based products enable companies to develop and deploy experiences like augmented reality and supply chain simulation without spending an excessive amount of time and resources engineering a custom solution.

**Lack of scalability plan**
A recent study by New Everest Group showed that 78% of enterprises today fail to scale their digital initiative. Digital transformation often happens in silos where companies fail to plan for scalability across the organization. Scalable analytics allow the development of analytics experiences in unit operations, but with the ability to multiply to different areas of the company.

**No clear business case or return of investment**
The value of digital transformation is so obvious that projects are sometimes pushed forward without taking the time to define each project initiative and note the value and risk associated with it. To avoid losing sight of this, it is important to prioritize which project components to start, continue or stop so the best initiatives can be selected, the next best set to be monitored as strategic and the set with the weakest business case to be scrapped.

**Wrong suppliers and partnerships**
Today, we are surrounded with technology solutions from a myriad of vendors. Often, these vendors are so focussed on selling their solutions, they bypass confirming the solution is meeting a legitimate business need for the buyer. Companies must seek suppliers who understand the latest enabling digital technologies and are experienced at tying these technologies back to business needs.

**Challenges in integrating legacy infrastructure**
A report by the Manufacturing Performance Institute showed that only 50% of all manufacturers have business systems that adequately manage their business processes. Thankfully, new IoT platforms can facilitate the integration of legacy systems, without requiring a complete overhaul.

**Entering the digital world**
Digital engineering is the foundation of the future. It provides the technologies required for industry to address their greatest challenges. When undertaking a digital transformation, it is important to define a strategy and outline a clear roadmap.

It is important to approach digital transformation as a journey, not a destination to reach. With proper definition and planning, an upgrade of worker skills, and a company-wide integration of digital initiatives – digital transformation can deliver incredible results.
OEMs Expand Possibilities Through Digital Transformation

Leading OEMs are leveraging the latest digital transformation technologies to give their customers a competitive edge

Companies are under constant pressure to produce more products, faster and cheaper with the highest possible quality. Now more than ever there is a need for OEMs to reinvent their operations with digital transformation technologies. Operational Technology (OT) and Information Technology (IT) integration is key to accelerating innovation and achieving productivity gains.

Harpak-ULMA, an industry leader in complete packaging line solutions for food, medical and industrial products, recently collaborated with Rockwell Automation to deliver a packaging platform for digital transformation. Leveraging the latest technologies to enable increased packaging agility and performance, Harpak-ULMA is resetting expectations of what is possible when it comes to solving some of the most difficult and costly challenges faced by today’s industry.

The company’s vision incorporates faster, easier integration of OT/IT systems, tight integration with FactoryTalk® InnovationSuite, powered by PTC and its Vuforia augmented reality (AR) Platform, expanded IoT connectivity, and the use of machine learning plus predictive analytics to reshape maintenance business models and customer cost structures.

Smart, connected machines

Harpak-ULMA’s commitment to standardize on the Rockwell Automation Integrated Architecture® platform replaced multiple disparate control systems and provided one common framework for control, visualization, motion, safety and networking – converging control and information into a single, secure high-performance architecture for their customers’ packaging lines.

This information-centric, highly connected approach is a major step towards building a richer, enterprise-wide, contextual view of packaging operations and their interaction with other business and production systems. This single automation architecture simplifies operations on multiple levels, from parts and supplies, support availability, and equipment troubleshooting to line performance management, operational simplicity, and scalability. It meets customer demands through greater agility, speed, accuracy, and shortened production lead times.

Benefits include asset and system auto-discovery, data model sharing and reuse, integrated analytics and AR empowerment. This smart, connected packaging platform provides customers a competitive edge by helping them more rapidly adapt to market changes at less cost, improves manufacturing performance metrics, productivity and safety metrics. Furthermore, it overcomes the challenges of an aging and evolving workforce and delivers better control maintenance expenses.

Unlocking productivity

Cama is an international leader in engineering and production of high-technology secondary packaging systems in the food and non-food markets. With a strong commitment to creating smart machines to help their customers meet the ever-changing needs of consumers, Cama collaborated with Rockwell Automation to digitize their machines.

The key goal was to implement condition monitoring, analytics and
augmented reality into their systems, providing an effective interface between their machinery and their customers. By leveraging knowledge of real time control processes from Rockwell Automation and combining it with information software from PTC, it is possible to unlock a traditional level of connectivity – bringing the **Connected Enterprise** to life.

3V Automation is an intelligent automation company focusing on automated production and process engineering. With a rapidly growing specialty in new energy process automation for the automotive industry, 3V Automation knew that digital transformation of their operations would help create new value and revenue streams.

To continue to provide industry leading smart machines to tier 1 automotive customers, 3V Automation knew that by making their data more accessible productivity and visibility would be improved – ultimately enabling more informed business decisions.

The focus of the project was to leverage the existing plant floor data to bring more value with the new IoT platform, FactoryTalk InnovationSuite, powered by PTC. The ThingWorx IIoT platform provides the capability to connect, manage, monitor, and control diverse automation devices and software applications through one intuitive user interface.

3V Automation also implemented the latest AR technologies to improve workforce productivity, efficiency and customer satisfaction. FactoryTalk Innovation Suite’s Vuforia provides the capability for machines to be assembled with AR technology. This helps to improve diagnostics through access to the machine’s real time data. It also provides detailed, xray analysis of key machine parts for customer demonstrations and training.

With the introduction of advanced IIoT technologies, 3V Automation has created a new ecosystem of connected machines and analytics to remotely support global customer workforces, while growing their digital service business model.

3V Automation’s domain expertise and progressive nature, together with the technology platform from Rockwell Automation will help them differentiate in the marketplace. It will help to deliver new revenue streams and return on investment for their customers.

By utilising information solutions, analytics and augmented reality, 3V Automation has been able to improve production, reduce downtime, and lower maintenance costs and risks.

By utilising information solutions, analytics and augmented reality, 3V Automation has been able to improve production, reduce downtime, and lower maintenance costs and risks.

---

**Mixed reality reduces downtime**

Today, industrial companies are facing serious issues relating to downtime. Industry reports suggest that a single hour can cost between one and five million dollars. The latest mixed reality and augmented reality technologies can help industrial customers reduce downtime.

This was certainly the case for **Howden**, a global leader in air and gas handling solutions whose products can be found in many applications around the world.

Compressors are critical equipment within many plants but a large number of plant operators are typically not experts in compressors. Howden’s customers are looking to them for solutions to empower them and how to best service their equipment.

To meet these needs, Howden implemented Vuforia’s studio solution with ThingWorx IIoT platform.

As part of FactoryTalk InnovationSuite, the **ThingWorx IIoT platform** connects disparate devices, applications and data sources across the enterprise, providing a single source to collect, aggregate, and enable secure access to industrial operations data.

Howden is overlaying that information in context on the physical product through mixed reality to show customers the operating condition and performance of the equipment. With Vuforia and the Microsoft HoloLens mixed reality device, Howden can provide a truly transformative experience for their customers in the industrial market.

**Differentiating machine offerings**

Digital transformation technologies are helping to enable OEMs deliver smart, connected equipment that can reduce downtime and unlock new levels of productivity for their customers. It creates new value and revenue streams, helping OEMs differentiate their offerings in a competitive market.
Lonza Optimizes Operations for the Digital Age

Digital transformation in life sciences companies is essential for ongoing business success in a constantly evolving industry

In today’s environment, the life sciences industry is challenged to accelerate innovation while optimizing production facilities and meeting increasingly stringent regulations. In light of this, many business leaders are inspecting the state of their current operations and looking for ways to streamline efficiencies and improve productivity.

**Digital transformation** can help you create your facility of the future. It can help integrate manufacturing processes with the rest of your enterprise, while improving quality, compliance, cycle time and yield. Through digital transformation, the power of information and advanced analytics delivers a distinct competitive advantage.

**Digitizing Operations**

Lonza, a leading global provider of integrated healthcare solutions, recently digitized their operations and in doing so, ushered in a new era of operational efficiency. The Switzerland-based company, founded in 1897 with approximately 15,500 employees, chose Rockwell Automation’s **PharmaSuite** Manufacturing Execution System (MES) software to digitize the operations in their manufacturing environment.

This turnkey implementation of the Lonza strategic vision of bringing the digital factory to nine former Capsugel facilities that manufacture drug capsules. The new solution was designed to help avoid disruptions during high volume periods of just-in-time orders for on-demand production.

Lonza will use PharmaSuite MES software, along with FactoryTalk **InnovationSuite** software to better trace product down to the individual capsule carton and gain insights into performance and production. A segregation of SAP and PharmaSuite MES will also help avoid the disruption of a global enterprise resource planning ERP shutdown or required maintenance by enforcing workflows and collecting necessary information.
“Digital transformation is bringing new levels of operational efficiency, quality, process automation, and employee productivity to pharmaceutical companies globally, said John Genovesi, senior vice president, Enterprise Accounts and Software, Rockwell Automation. “We’re proud to be working with Lonza as they evolve their products, operations, and workforce towards their maximum potential through the use of Rockwell Automation’s software solutions.”

Rockwell Automation services all of the top ten global life sciences firms, offering expertise in scalable digital transformation, industrial analytics, and IOT solutions for fully automated, high-speed manufacturing environments. This deployment to nine sites will also provide 1500 employees across the globe new, operational technology-centric tools for reaching the next level of efficiency and quality.

MES: A pillar for industrial transformation
The global MES market is a key pillar of smart factories and digital business for manufacturers. Given this important role, Gartner recently conducted a Magic Quadrant study into the vendor landscape for Manufacturing Execution Systems.

For the second consecutive year, Rockwell Automation has been recognised as a leader in the Gartner Magic Quadrant for MES. This recognition validates the company’s vision and innovation for supporting digital transformation in the industrial sector.

“Customer reference reviews of Rockwell’s product, implementation and support were almost 100% positive, with some customers stating the support was among the best from organizations the size of Rockwell Automation.” – Gartner, Magic Quadrant for MES, Rick Franzosa, 29 October 2019.

Digital transformation is a growing global industrial capability that uses networking and smart technologies to integrate all processes – from sourcing and manufacturing to distribution.

MES software is defined as one of fundamental building blocks among the enabling technologies underpinning the ongoing digital transformation in industrial process control within pharma. It is capable of standardizing production processes, while at the same time integrating them and rendering them more homogeneous, with a positive impact on corporate organization and employee productivity, all without any negative effects on production processes.

To thrive in a digital world, pharma companies will need to deploy the latest technologies to streamline their business processes. Leaders in biopharma are taking a more strategic approach to technology in many areas including digital transformation, augmented reality and advanced analytics. The latest digital technologies are crucial enablers of success connecting and integrating the commercial, operational, and scientific areas of organizations.

The digital age is well and truly upon us. Investing in software and technologies that render data and information more useful and transferable to people who need them drives this digital transformation – helping organizations improve productivity and efficiency.
Augmented Reality to the Rescue

Augmented reality modernises technical support in manufacturing – connecting users across digital and physical worlds

Now more than ever, manufacturers are looking for the most cost-effective and time-efficient way to get the technical support they need to deal with downtime and repairs. Every minute that slips by with a machine unable to operate negatively impacts their bottom line.

In many situations, technical support via a phone call with a knowledgeable advisor provides the answers required to fix a problem. However, at other times, the issue might be more complex or unfamiliar and there can be a variety of obstacles to getting a machine up and running. The skills gap is widening, making it difficult to have a trained person on hand.

Furthermore, if the problem cannot be rectified by calling technical support and it requires an onsite visit, time is lost while the technical expert travels to site. If the problem is in a remote location, travel time could amount to a day or more and lost production time grows. A delay that manufacturers simply cannot afford.

AR reduces downtime

Rockwell Automation recently entered into a strategic partnership with PTC to help customers around the world transform their physical operations with digital technology. FactoryTalk® InnovationSuite powered by PTC, improves connectivity to operational technology (OT) devices on the plant floor, natively supporting the rapid, scalable and secure connection of most industrial equipment.

Combined with data from information technology (IT) applications and systems, decision makers can now gain a complete digital representation of their industrial equipment, lines and facilities from anywhere in the enterprise. Utilizing advanced innovations in machine learning, IIoT and augmented reality (AR), this comprehensive suite conceptualizes and connects data to make it accessible and insightful for operations personnel.

AR technology can help solve complex plant-floor problems and improve workforce productivity and efficiency. Using an augmented reality application with live video feed, an experienced technician can view equipment in real time and provide specific, detailed directions for repairing the hardware. 3D spatial notations can even be made on the screen, so you know exactly which component of the machine needs attention.

Identifying new ways to help customers troubleshoot and perform self-service is a key focus to improve productivity. Vuforia Chalk, part of FactoryTalk® InnovationSuite, is a collaborative remote assistance tool that uses AR to help employees who need to share real-time instructions and guidance without being physically on-site to increase workforce effectiveness and efficiency.

Vuforia tools allow you to quickly create and deliver AR content and deploy it to the cloud or on premises. Vuforia experiences can be accessed from smartphones, tablets and wearable devices via a single universal viewer application.

Virtual support

Rockwell Automation has introduced the Live View Support™ tool, which leverages PTC augmented reality technology to help customers solve complex plant floor problems in real time.

With the Live View Support tool, a Rockwell Automation support person can actually draw on the screen and mark an area to be addressed. So, you know exactly which cable or piece of hardware needs attention. The notations and lines stay in place on the screen view of the machine so there is less room for error. Live View Support also addresses background noise. Having specially designed noise-cancelling headphones allows the person receiving information to hear the directions clearly. This allows troubleshooting to be done directly on the manufacturing floor.

Combining AR and TechConnect™

Now, not only can you use Vuforia Chalk within your team, but you can also leverage it with the Rockwell Automation technical support team. To best support our customers, we are adding Live View Support to our TechConnect™ remote support offering for all TechConnect customers.

Live View Support, powered by FactoryTalk InnovationSuite Vuforia Chalk, enables our remote support engineers to more effectively troubleshoot and resolve issues. Learn more about Live View Support™ and the rest of our Remote Support offerings.
Getting Smarter with Machine Control System Design

Smart objects can help OEMs ease integration of smart machines and improve the solutions they deliver

As an OEM, you are challenged to differentiate yourself amidst global competition and rapidly evolving technology. Smart machines and equipment provide unprecedented access to data, greater connectivity, and robust security – positioning you and your customers for greater success.

The demand for smarter, IoT-enabled machines is intensifying but integrating smart machines at the end-user site quickly and cost-effectively is a key challenge for many OEMs.

The commonly asked question that must be addressed within the marketplace is: How can we make control systems even more information-enabled to ease integration – and improve the solutions smart machines deliver?

Smart objects for smarter machines

Innovative control system design tools currently in development are focused on changing the machine integration equation by allowing OEMs to define discoverable data points and the data relationship model well before system integration. These data points can now be defined at the control level as part of the machine programming process, creating a new level of efficiency in the design process.

At the core of this new functionality are system design instructions that enable you to configure ‘smart objects’ that become part of the tag structure. In line with information system application requirements, smart objects identify what data to collect – and how and when that data is collected.

A second set of instructions creates the organization around the data and determines how data is grouped. For example, if six data points are meaningful together, the instruction defines a single ‘parent’ to collect the data points synchronously.

Information gateway software – added to the machine control platform – finds the collected data along with the organizational model and maps it to a database automatically. To retrieve the needed data, information system applications communicate with the gateway where the collected data and the data model in accessible in database form.

New approach streamlines integration

This new approach to smart machine control system design streamlines one of the most arduous parts of the integration process – before your machine reaches the plant floor. It does so by leveraging the existing skill sets of your staff who are comfortable using PLC instructions to configure functionality in the control platform.

While streamlining integration is a critical goal, we envision that an approach based on smart objects will deliver additional benefits throughout the lifecycle of a machine, including:

Better, synchronous data

- On plant floors today, information applications poll machine control systems for individual data points based on intervals of time. Relationship models built with this asynchronous data are often incomplete, depending on the sequence of variables collected – and when a condition requiring analysis is discovered.
- Smart objects automatically trigger data collection based on conditions detected in the control system. All data related to the condition is collected synchronously when the event occurs – and delivered to the information gateway.

- In the short term, synchronous data is optimal for pinpointing the reasons for a machine state change from ‘run’ to ‘fault’, for example. In the longer term, synchronous data provides better insight into ways to improve Overall Equipment Effectiveness (OEE).

Smaller datasets requiring less processing power

- Different information applications often look for the same machine data. Today, each application typically polls the machine control system, creates a dataset – and expands the plant data footprint.
- Smart objects minimize interrogations by multiple applications often looking for the same thing. The result is significantly fewer datasets, which translate to lower costs related to data management, analysis and storage. In addition, the synchronous collection of data means less false entries, or ‘noise’, in the datasets and thus less processing power dedicated to identifying the noise and removing it before data is used in information system applications.

Learn more about how our technology helps OEMs build smarter equipment
Visualization Technologies Help Create a Smarter and Safer Workforce

Organizations around the world are quickly becoming smarter, faster and leaner using new visualization technologies delivering immersive experiences.

In the past, technologies such as virtual, augmented and mixed reality were something out of a science fiction movie – fantasy and futuristic. Fast forward to today and all that has changed. These revolutionary visualization technologies are now being used by industrial companies to enable digital transformation, and provide the capability to become smarter, faster and leaner.

These new visualization technologies can address a number of common industry challenges. For example, many companies are experiencing a shortage of qualified workers; aging experts are retiring; turnover rates are high; recruiting is becoming increasingly difficult and products are becoming more complex.

Thankfully, new visualization technologies can help. Organizations that have already implemented visualization technologies are seeing measurable ROI in several areas of their business, including training, manufacturing, service, and sales and marketing.

Implementing these technologies requires proper planning, including identifying the technology that will best fit your needs, as well as how it will be adapted into existing processes, workflows, and systems.

What you need to consider?

PTC has identified six critical steps to help customers drive efficiency and innovation in their industrial enterprise by overlapping digital information on the physical world:

**Step One: Identify the Business Case**
To better understand where augmented reality (AR) can provide the greatest value to your business, you first need to identify your biggest challenges. AR offers capabilities such as remote ‘over the shoulder’ guidance, virtual demonstrations that provide full scale product visualization, and step by step procedural guidance or instructions.

**Step Two: Communicate and Collaborate to Maximise Success**
Having a trusted team who understands your AR goals will help you to identify and overcome potential obstacles, while providing additional project support. Project owners should get input from across the organization including both end users and subject experts. They should educate key decision makers on the value of AR solutions.

**Step Three: Start Small with Short-Term Wins**
According to research from IDC, the number one reason that businesses use AR is to increase manufacturing efficiency by helping workers perform their jobs more effectively. To do that, AR experiences and hardware need to be simple, straightforward and helpful to the end user.

**Step Four: Gather AR Knowledge**
Successfully implementing industrial AR at the enterprise level requires a mix of hardware, software, and services. AR solution providers that have experience with enterprise transformation will know exactly where and how AR can reduce costs, increase productivity, and improve training and skill adoption for new and existing workers. Read their blogs, watch their videos, and talk to their experts to understand how their solutions align with your business needs.

**Step Five: Prioritize the User Experience**
The AR user experience should be intuitive, instructional and easily reproducible. It will vary depending on the use case and who the target user is, but it is important to design experiences that reflect user intent, and to involve them early and often in the testing and development phases.

**Step Six: Measure the Results**
Now that you have done the legwork and completed the planning and development stages for your AR program, it is time to deploy it and start measuring results – as soon as possible. Gathering a pre-AR baseline with key metrics you’ve identified will help you connect your results to immediate business value and allow you to better track progress over time.

Game-changing technology

The market for AR technology is growing, with projections for 2023 valuing it at over 18 billion U.S. dollars. The FactoryTalk InnovationSuite portfolio, powered by PTC, brings edge-to-enterprise analytics, machine learning, industrial internet of things (IIoT) and AR to industrial operations.

The Vuforia AR Enterprise Suite allows you to quickly create and deliver AR content and deploy it to the cloud or on premises. Specifically, Vuforia Expert Capture provides the capability for your
workforce to capture first-person, step-by-step video procedures as they are performed. It is the fastest, easiest way to create powerful step-by-step instructions that help frontline workers get their jobs done quickly, safely and accurately.

Vuforia Studio allows you to create game-changing AR experiences tailored to specific audiences and deploy them via desktop, mobile and wearable devices. It provides the fastest, most convenient way for enterprises to author and publish scalable AR experiences without writing any code. While through Vuforia Chalk, experts and technicians can use their fingers on the screen to draw digital annotations that accurately anchor to physical objects.

**Creating a smarter and safer workforce**

Imagine the knowledge of your entire organization applied to a specific production problem. For example, a maintenance engineer can wear a mixed-reality device as he examines a machine stoppage on a high-volume line.

Hundreds of dollars are lost each second the equipment sits idle. Until now, the engineer would be forced to solve the problem alone – slowly.

But now equipment-manufacturer intelligence can be streamed directly to the engineer’s device, even as maintenance staff at other plants help with the diagnosis. Together, they examine the machine, gather additional information, identify the underlying cause of the problem and recommend a repair solution in minutes, not days.

Mixed reality devices can also help frontline employees to safety assemble complex products. Instead of flipping through work manuals, an employee uses the device to see real-time production data and safe assembly instructions as required while performing the task at hand.

'Sequential technologies — mixed reality, virtual and augmented reality — can enhance worker capabilities and help create safer, more productive processes'

Similarly, virtual reality (VR) workers can practice production tasks in a digital environment, learning how to safely manage potential problems. Machine builders can proactively monitor installed bases of equipment anywhere around the globe via VR viewing a digital twin of the equipment or even the entire production process.

This allows them to mitigate downtime events and quickly resolve incidents. By analysing real-time data from machinery, they can alert customers to maintenance requirements, warranty renewals, or parts/component replacement schedules – driving new service revenues and profits.

In return, their customers enjoy improved uptime, optimized performance and faster maintenance responses.

Visualization technologies and real time production information create competitive advantages for machine builders and customers alike. If your workforce is challenged by high turnover, expert worker scarcity or increased competition, now is the time to get started with visualization technologies.
As consumers demand new products and more variety, companies are racing against the clock to deliver. Speed to market is key to getting ahead of the game. A virtual environment can help you gain significant launch-time advantages.

Traditional methods of machine and production line design, commissioning and startup can be costly and impede speed to market. Discovering issues with controls integration, line sequencing or bottlenecks after machines are built or lines reconfigured is not the best time as it often results in installation and commissioning delays.

Manufacturers are turning to emulation as a tool to research, test and validate their process in a virtual space – before making physical changes to plant layout and workflow. Employing a virtual system that uses real operational logic and connects to PLCs can help minimize the resources required to bring a line from design to production. Producers commonly report a reduction in onsite controls commissioning times from three weeks to four days on a bottling line. This scale of reduction is typical, and is a big factor in driving adoption.

Embrace the possibilities

Have you ever wondered what would happen if you increased throughput by 10 percent? How would the control system respond if you change the mix of products? With factory floor virtualization, you can experiment and troubleshoot. An emulation model can easily be built for your existing lines, allowing for ongoing testing of new configurations and product types. Essentially, you can push the system to its breaking point, without any consequence, damage or interruption to the real thing.

The possibilities virtualization holds for reducing speed to market for manufacturers is becoming more accepted for multiple reasons including:

- **Emulation technology is more attainable.** Not only are more 3D drawings available, but creating your own model can be easy using drag-and-drop software.
- **Your workforce is ready.** Industrial engineers are coming out of school trained on this technology. They are even building cases for leadership given their understanding of the potential virtualization holds.
- **Plug and play expectations are growing.** As automation becomes more reliable, there is an expectation to create production lines that work from the start, without months of ramp.
- **Seeing is believing.** The ability to see a virtual operation in context, using augmented reality and today’s realistic visuals, makes your vision more believable, to more stakeholders.

Putting the virtual environment to the test

By creating a dynamic digital twin comprising of both the CAD model of the system or machine together with the control system, you have at your disposal a powerful means of putting a system through its paces in a virtual environment, where the cost of changes is minimal compared to those incurred at the commissioning phase.

3D simulation and emulation software provides an ideal platform for creating dynamic digital twins. With it, you can import the CAD from a wide range of standard formats, create kinematic behaviours to reflect the movements of the real system, and connect the model control items to the real control system via a tag browser. Then, you need to only create loads to drive the system and your twin is live and ready to be operated via the HMIs you will use in the real system.

This virtual environment can be verified and demonstrated, before committing any resources to their manufacture. When the real system is assembled onsite and connected to the control system, you can be confident that there will not be any logical operation or sequencing issues. They will have been identified and resolved earlier during the virtual commissioning phase of the project.

**Emulate3D™, by Rockwell Automation is an innovative engineering software developer whose products digitally simulate and emulate industrial automation systems. By using accurate simulation models to improve systems planning and decision-making, followed by emulation trials that test the control system before installation, Emulate3D’s software enables customers to virtually test machine and system designs before incurring manufacturing and automation costs and committing to a final design. Emulate3D maintains a library of generic industrial equipment to help make a digital twin of your factory a reality.**

**APPLICATION PROFILE**

**Digital Twins: Transport your Operations to the Digital World**

**A virtual environment can help you gain significant launch-time advantages**

Emulate3D™
A system that has been put through the rigors of virtual testing and commissioning benefits everyone. Production workers gain a more thoroughly tested system that performs as expected. System integrators can predict commissioning times more accurately and plan accordingly, and all stakeholders win when projects come in on time and on budget.

Digital twins give OEMs a competitive edge

Gartner predicts that by 2022, or perhaps sooner, more than two-thirds of companies that have implemented IoT projects will have launched at least one digital twin in production. For machine builders, the nearly unlimited uses of a digital twin can provide a competitive edge. There are three key advantages that the technology can unleash in your business:

1. **A Better Way to Design and Sell Machines**
   By using a digital twin to design, test and prove your machines digitally helps create higher calibre, lower-risk machines and get them to market faster. Using simulation software, you can apply physics to your machine’s CAD model to bring the model to life. Then, you can see how your machine runs and interacts with both people and other machines in a virtual environment.

2. **Faster, More Consistent Commissioning**
   When a machine design and control system come together for the first time, there is a risk they may not be aligned. This can lead to last-minute design changes that are not only costly but can cause you to miss your customer’s start-up deadline. By using a digital twin to virtually commission your machine you can avoid these surprises.

3. **Optimized Operations for Customer**
   When you pass a digital twin of your machine to a customer, you can help them optimize production and reduce downtime in several ways. Your customer can use the digital twin to train operators virtually, before your machine arrives. This can help workers build competency sooner and it can help them prepare for a wider range of incidents than real world training, because virtual training allows you to simulate faults and extreme conditions that may be difficult to recreate physically.

During production, a digital twin can simulate operations, which can help workers explore opportunities for improvement or try changes before making them. Finally, a digital twin can help maintenance teams reduce downtime in new ways. If there is a stoppage, technicians can see digital diagnostics overlaid on a physical machine in an augmented reality (AR) environment to more quickly troubleshoot the problem.

A digital twin can make you more competitive by improving how people work and moving projects into a dynamic digital environment.
New CIP Safety Encoders Help Improve Productivity

New Allen-Bradley 843ES CIP Safety over EtherNet/IP Absolute Encoders can meet the needs of safety applications that require speed, direction or position-monitoring functions and, at the same time, help users be more productive.

The encoders are the first on the market on CIP Safety over EtherNet/IP capable of up to – and including – SIL 3/PLe safety applications. The encoders can achieve this performance when used as part of an integrated safety system that includes an Allen-Bradley GuardLogix 5580 controller or Compact GuardLogix 5380 controller.

In addition to the safety features, the new encoders can also deliver:

- **Higher productivity**: Users can continue production while safely monitoring for speed, direction or position to improve overall productivity.

- **Better visibility**: By integrating safety with standard control systems, operators gain access to all machine events, including safety events, to shorten response times.

- **Reduced design times**: Integrating safety functions over EtherNet/IP can reduce hardware and installation costs and save time.

- **More efficient system designs**: Auxiliary feedback through an EtherNet/IP network on CIP Safety delivers the desired safety integrity and performance with fewer necessary components.

Users and machine builders can find the right 843ES CIP Safety Encoder for their needs with three configurable resolution options, solid and hollow shafts, and a range of flange options. With both safety and flexibility, the encoders can satisfy needs in a range of industries, including entertainment, material handling, mining and automotive manufacturing.

48CR Code Reader

The Bulletin 48CR Code Reader delivers a small, high performance, easy-to-use Ethernet/IP solution suitable for electronics, life sciences, automotive, packaging and more.

It has the ability to read any barcode or QR code and can decode all 1D, 2D and Direct Part Marked (DPM) symbols. Featuring the latest decoding algorithms technology, the 48CR Code Reader can successfully read damaged and incomplete symbols despite poor prints, scratches and other obstructions.

The 48CR supports Ethernet/IP and can be configured through either the Studio 5000 Logix Designer Add-on Profile (AOP) or the embedded WebConnect visual browser. With read ranges of 102mm to 400mm, it has a standard 4-pin M12 Ethernet/IP connection and IP65/67 enclosure rating. Suitable for a wide range of applications including:

- **Automotive**: Ability to read low contrast codes, integrated lighting, easy set up;

- **Printed circuit board**: Ability to automatically reconfigure the device quickly between line change over, positive read indicator

- **Pharmaceutical packaging**: High-speed processing, match code routines, positive read indicator

- **High-speed sortation**: High-speed processing, multiple code types and positioning, ability to automatically reconfigure when symbol location has changed

Compact 5000 I/O System

The Allen-Bradley Compact 5000 I/O modules, Bulletin 5069, provide high-performance control in a compact design, maintain legacy communication and expand the performance capabilities of the Logix platform.

They are the local I/O modules in a CompactLogix 5380 or CompactLogix 5480 system, and safety options are available for the Compact GuardLogix 5380 system.

These modules are the ideal distributed I/O solution on an EtherNet/IP network for CompactLogix 5380, Compact GuardLogix 5380, CompactLogix 5480 and ControlLogix 5580 controllers. Compact 5000 I/O modules are great for applications with high-processing requirements.
Simplify Integration and Operation with PowerFlex 6000T Medium Voltage Drives

Using a common control platform across your entire installed base of variable frequency drives lowers integration, operation and maintenance costs. That’s why the new PowerFlex 6000T medium voltage drive shares the same powerful control hardware and firmware as PowerFlex 755T low voltage drives. The PowerFlex 6000T also has an Add-On Profile in the Studio 5000 design environment. The Add-On Profile is the preconfigured data translator, visual user interface and data configurator all rolled into one. It is also the primary tool that sends drive data to the common control system.

In addition to simplified operation and integration, the PowerFlex 6000T has other new features that make it easier to use including a larger 10” color touchscreen enhanced HIM, Forensic Data Recorder functionality for faster troubleshooting, extensive input power monitoring capabilities for kW, kVA, kVAR, elapsed kWh, MWh, power factor, and quick and secure flash-over-fiber firmware updates for all main control boards and power cells from a single file.

Enhanced Communication Module Provides Additional Resiliency

Industrial producers can now improve their network resiliency by using primary and backup adapters for the 1756-EN4TR ControlLogix® EtherNet/IP communications module. This new redundant-adapter functionality is provided through a recent firmware update to the communication module.

In addition to helping users improve network redundancy, the module’s firmware enhancement also offers more advantages:

- No single point of failure: When used with ControlLogix controllers and redundant switches, the communication module is no longer a single point of failure. This can improve uptime and productivity in continuous process applications like oil and gas.
- Architecture options: The firmware enhancement can be used with a single ControlLogix controller or redundant controllers. It can also be used with star or Device Level Ring (DLR) architectures. This gives users design flexibility.
- Ease of modification: An existing 1756 I/O chassis can be modified for redundant adapters. Slots 0 and 1 are used for the redundant adapters.

The 1756-EN4TR communication module implements network-based access control for users, devices and networks in a 1756 ControlLogix chassis. The module can increase performance in networked operations, with 1-gigabit-per-second communications speeds and the ability to support future network or infrastructure expansions.
Expanded Linear Motion Control System Improves Flexibility in Food and Beverage Packaging

The iTRAK 5730 small-frame intelligent track system can improve throughput in multi-product applications.

Food and beverage manufacturers are constantly under pressure to package a wider variety of products in more types of packaging without compromising productivity. Now they can answer these trends while increasing throughput using the new iTRAK 5730 small-frame intelligent track system from Rockwell Automation. The system uses independent cart technology to support smart, flexible and efficient machines.

Independent cart technology offers many benefits over traditional gear, chain and belt conveyors, including unlimited machine flexibility, better traceability and increased uptime.

By using magnetic propulsion, the individually controlled carts can quickly start and stop with high precision, which reduces machine wear and is highly energy efficient. The technology also quickly manages changeovers using pre-configured move profiles that can be implemented with the push of a button from an HMI.

The iTRAK 5730 system has the smallest footprint within Rockwell Automation’s independent cart portfolio. It has a 50 mm minimum pitch that makes it ideal for primary packaging applications, such as flow wrapping, end load cartoning, and form-fill-and-seal pouching. The system also easily integrates into a manufacturer’s architecture, providing analytics that help optimize energy use, monitor parts wear and reduce downtime.

“The iTRAK 5730 system extends the flexibility and productivity benefits of iTRAK to meet the growing demand for customized food and beverage products,” said Michaela Kaufmann, iTRAK product manager at Rockwell Automation. “The technology is truly scalable. Your system can have as little as a 50 mm pitch in a small, standalone machine, or be as large as 100 meters and part of a large, complex line.”

“We are always exploring ways to enhance our offering and better support our machine assembly, food and beverage manufacturing customers; enabling them achieve their manufacturing and throughput goals without restriction,” added Max Kiah, Independent Cart Technology Sales Manager, Asia Pacific at Rockwell Automation.

“The new iTRAK 5730 system will be a great addition to our customers’ existing architecture, helping them to attain greater agility in their packaging and assembly lines, without compromising on quality or safety.”

In addition to delivering a smarter form of motion control, the iTRAK 5730 also offers integrated safety. Features such as safe torque off, Safe Stop 1, a SIL 3, PLe safety rating and the ability to create safety zones help increase confidence in machine safety. Safety zones, for example, can increase safety without compromising productivity by allowing motion to continue outside of the safety zone, even after a trip inside the safety zone.

Furthermore, simulation capabilities allow users to calculate throughput on the iTRAK 5730 system. Users can also create a digital twin that can be used to virtually design, commission and demonstrate the system, and to virtually train workers. Standardized object-oriented libraries also can help create a consistent user experience and accelerate time to market.
Better Integration Makes Switching to High Efficiency Motors Easier

It can be challenging to make the switch from less efficient induction motors to newer, high efficiency motors.

Rockwell Automation is making it easier for industrial companies to modernize and meet efficiency goals by enhancing the PowerFlex 755 low voltage drive and Kinetix VPC servo motor integration.

The power of the PowerFlex 755 drive with the IE5 efficiency of the Kinetix VPC servo motor is a winning combination. The two products have now been system tested, simplifying the selection process. Additionally, IO parameters are readily available, which makes programming faster and easier.

Compact 5000 I/O Safety Module

We have your high processing standards and safety requirements covered. The safety capability of the new Compact 5000 I/O Safety modules expand to support local safety I/O control in the Compact GuardLogix 5380 controller. It provides faster safety reaction time and enhanced diagnostic information.

With the ability to provide a local safety connectivity to the Compact GuardLogix 5380 controller, this latest safety module supports up to 31 I/O modules per controller or adapter. It also provides distributed I/O to the Compact GuardLogix 5380 and GuardLogix 5580 controllers, which is accessible via a 5069-AEN2TR or 5069-AENTR over an EtherNet/IP. The Compact 5000 I/O Safety module is rated up to SIL 3/PLe.

Bulletin 5069-SERIAL Module

The latest Compact 5000 I/O serial module provides two independent channels that functions as a network interface via RS232C, RS422 or RS485 to serial devices communicating on Generic ASCII, Modbus RTU/ASCII, DF1 or DH485 protocol. It provides ease for modernizing legacy embedded serial solutions using these protocols.

The 5069-SERIAL module provides communication to Modbus devices both as a Master or Slave. It supports up to 50 Master commands, disable command function and reset diagnostics. It also supports migration from existing legacy SLC 500, CompactLogix 1769-L3xE and CompactLogix 1768-L4x systems. The latest module reuses existing MSG instructions and predefined messages in Logix.

Rockwell Automation Saves Project Creation Time with New Standards Builder Tool

The new ProposalWorks Standards Builder from Rockwell Automation is an application designed to assist end users with generating, customizing and maintaining their control standards. Engineers can document project standards, track revisions and more to help establish consistency from project design through procurement and commissioning. Although Standards Builder is its own capability, users launch the application via the Rockwell Automation ProposalWorks tool.

Users can output detailed specification documents and a standards BOM that can be uploaded into ProposalWorks. They can share this with others, including suppliers, to help product design and selection.

Control standards creation and maintenance can be a manual, time-consuming process. Typical information included in a control standard can contain electrical code, product line and reference architecture content. Users can be unaware of changes in lifecycle status and product obsolescence after a control standard is published. With Standards Builder, users will spend less time maintaining control standards or specifications and also achieve more detailed content that is easier to maintain than in a static document.

In addition, users can achieve a higher standardization of systems, resulting in fewer spare parts, less training and more reliable designs. They can easily add a wider range of product lines or products to their standards or specs with minimal effort. This can provide improved product availability and better alignment with suppliers during design/build.
Accelerate and Simplify Digital Transformation

FactoryTalk® InnovationSuite collects and consolidates information technology (IT) with operational technology (OT) from your existing equipment and systems so you can make data-driven decisions that align with your exacts needs.