

LISTEN.
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Workforce Support and Training

How to retain and build critical skills as workforce and technology landscapes undergo dramatic changes



A Seismic Skills Shift

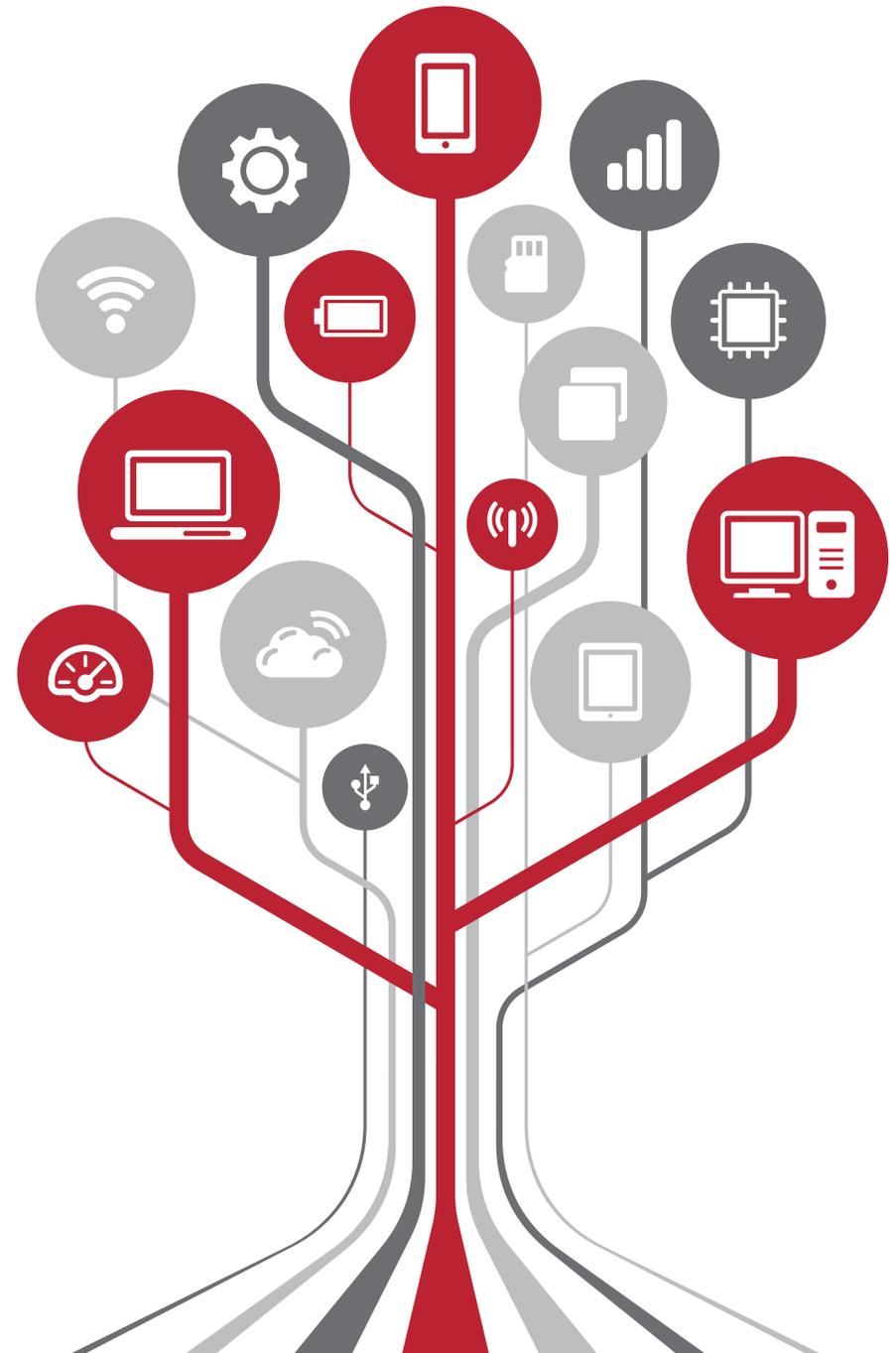
Two major transformations are simultaneously taking place within manufacturing and industrial operations.

- 1. The first is in the workforce.** Companies' most experienced and knowledgeable workers are nearing retirement. And the talent pool of qualified workers to take their place is limited.
- 2. The second is in the technologies.** An influx of connected, information-enabled technologies is re-defining manufacturing and industrial operations. The skills needed to design, implement and oversee the use of these technologies are not.

Both of these forces are profound in their own right. Combined, they're creating a skills gap that could significantly impact your productivity, worker safety and growth for years or even decades to come.

“ *Nearly 3.5 million U.S. manufacturing jobs will likely need to be filled between 2015 and 2025. The skills gap is expected to result in 2 million of them going unfilled.*”¹

¹ The Skills Gap in U.S. Manufacturing 2015 and Beyond, Deloitte, 2015



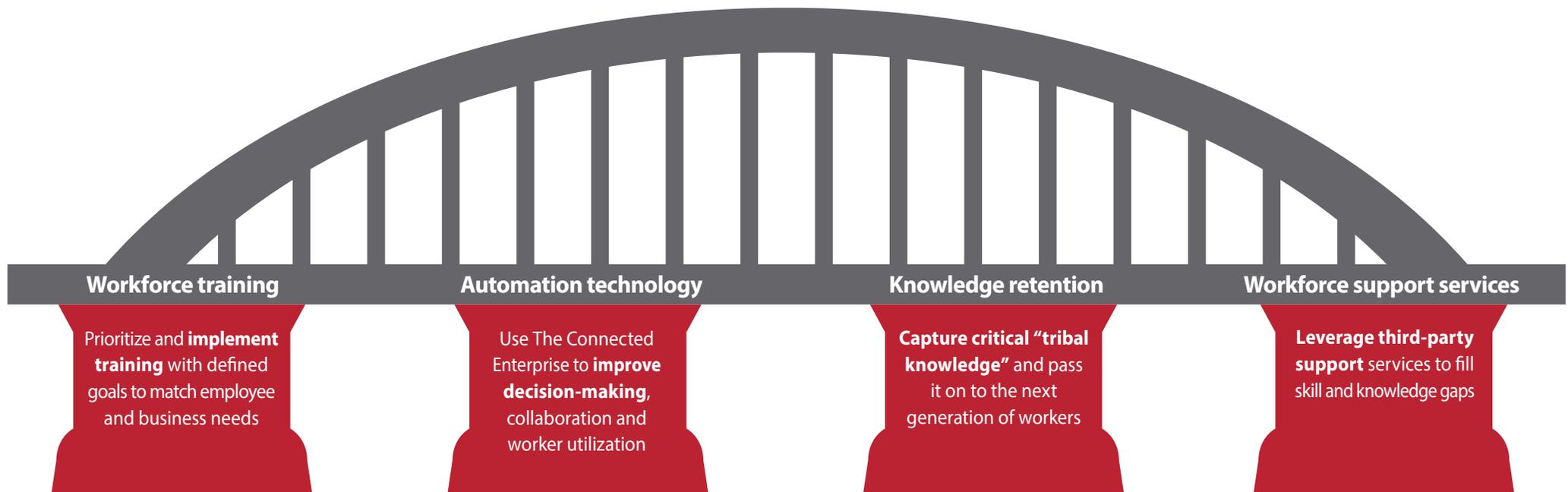
Bridging the Gap

The skills gap is reverberating around the world.

In the U.S., the average age of a highly skilled manufacturing worker is 56. In China, factories are struggling to fill positions, and the over-65 population is expected to reach 210 million by 2030. In the European Union, countries are seeking to prolong people's working lives. And in Latin America, the birth rate is now nearly one-third of what it was 50 years ago.

Because of this, methods such as offshoring and workforce relocation are less effective.

“ In 2010, there were 110 million people 65 and above in China; by 2030, the number will increase by more than 100 million.”¹



¹ China's Aging Population Threatens Its Manufacturing Might, CNBC, Oct. 24, 2012

Workforce Training

Training will be vital for the new generation of workers taking the place of more experienced workers. That's why it's important that your training be strategic. It should be tailored based on data and defined needs rather than historical preference or opinion.

Creating a highly skilled workforce through effective training is not a one-time event but an ongoing process. And that process should be built around four key steps:



1. **Assess:** Conduct an assessment to evaluate where your skills or knowledge gaps are, and then develop a plan to fill them



2. **Train:** Employ a tailored training approach that matches employee needs and aligns with business goals



3. **Hone:** Use job aids and refresher tools to help employees continuously practice and improve their skills



4. **Optimize:** Capture pre- and post-training data to measure training effectiveness, and refine where needed



Accelerated Training

As the skills gap continues to grow, new approaches to training are needed to address urgent needs. Immersive training services, such as the Rockwell Automation Accelerated Skills Academy, can provide a rapid approach to employee development to specifically address workforce skills gaps.

The Accelerated Skills Academy is an intensive training program with a multicraft curriculum. It aims to empower workers with skills and knowledge in 12 weeks that could otherwise take up to eight years of on-the-job learning to acquire.

Network Convergence Training

Connecting operations does more than bring together enterprise-level information technology (IT) systems and plant-level operations technology (OT). It also brings together IT and OT roles that previously operated separate from each other.

IT and OT workers now require a blended mix of skills and knowledge encompassing both disciplines. Specialized training and certification services have been specifically developed to help fill this need.



Rockwell Automation and Cisco have developed an Industrial Networking Certification program. The program is designed for both IT and OT professionals, and includes two courses:

- **Managing Industrial Networks With Cisco Networking Technologies (IMINS):**
Covers the foundational skills that workers need to manage and administer networked industrial control systems
- **Managing Industrial Networks With Cisco Technologies (IMINS 2):**
Delves deeper into topics, such as EtherNet/IP™, wireless technology implementation and advanced troubleshooting, and prepares students for the CCNA Industrial exam and certification

The Industrial IP Advantage, an educational community supported by a coalition of like-minded industry leaders, also offers training for implementing and managing networked industrial control systems. The e-learning courses cover areas such as logical topologies, protocols, switching and routing infrastructure, physical cabling and wireless.

“For IoT to deliver its full value in the manufacturing space, both manufacturers and IT need well-trained and competent staff to support industrial IT – a blend of expertise from typical manufacturing and business IT networks.”

- Dan Miklovic, Principal Analyst, LNS Research



Automation Technology

A Connected Enterprise is a smart and secure enterprise. It converges IT and OT systems, and capitalizes on enabling technologies, including Internet of Things (IoT) devices, wireless, mobility and data analytics. The end result is seamless connectivity and information sharing across your organization's people, processes and technologies.

This is creating unprecedented opportunities to access and act on information to address skills-gap challenges.



Real-time production data can be collected and delivered in a context relevant to each employee to reduce complexity for younger, less experienced workers. And because young people are more frequently injured, safety data also can be collected to identify risks and gain visibility into where safety-related incidents are occurring.



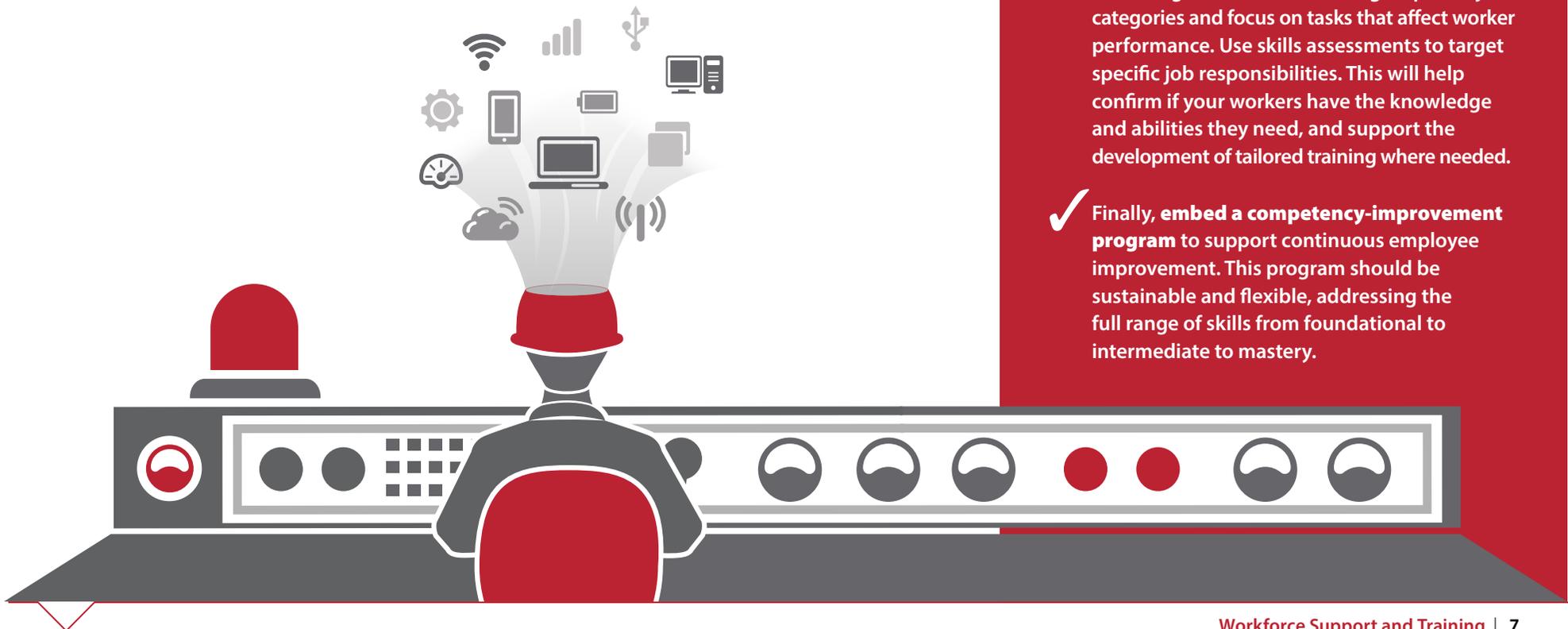
Remote-monitoring technologies can monitor equipment, collect performance analytics and identify issues in dispersed or remote operations. This can reduce travel demands and improve work-life balance for older workers who may otherwise be considering retirement. If local talent isn't available, third-party services can remotely monitor equipment to augment the on-site team.



Mobile devices can improve collaboration among workers. For example, real-time video communications can connect a less-experienced worker with a remote specialist to troubleshoot a machine failure right on the plant floor. Mobile devices also provide information to younger workers in a format with which they are familiar.

Knowledge Retention

When your most experienced workers retire, they risk taking years or decades of critical “tribal knowledge” with them. It’s important that you act to preserve this knowledge and pass it on to the next generation of workers.



- ✓ Start by **creating a formal program** to document your standard processes and procedures. This will help maintain consistency through the coming workforce transition. The program should identify any exceptions to standard processes and procedures, as well as spell out when issues should be escalated.
- ✓ Next, **conduct an analysis** of job skill and knowledge levels. It should target specific job categories and focus on tasks that affect worker performance. Use skills assessments to target specific job responsibilities. This will help confirm if your workers have the knowledge and abilities they need, and support the development of tailored training where needed.
- ✓ Finally, **embed a competency-improvement program** to support continuous employee improvement. This program should be sustainable and flexible, addressing the full range of skills from foundational to intermediate to mastery.

Workforce Support Services

Service providers can support your core competencies and fill skills or knowledge gaps. They can be especially crucial when qualified workers cannot be found locally, and for specialized skills that are only occasionally required.



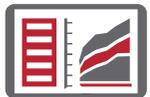
Consulting services can be a useful starting point in tackling your skills-gap challenges, such as with a workforce gap analysis and remediation plan. Service providers also can conduct network, safety and security assessments, which require skills that aren't easily developed in-house and may not be needed on a day-to-day basis.



Remote support and monitoring services can prove especially valuable for critical processes, around-the-clock operations and remote operations. These services can complement your on-site maintenance teams, providing everything from continuous machine monitoring and downtime prevention to 24/7 live support and software/firmware updates.



Resident engineers can help keep operations running when qualified talent isn't available, such as for facility upgrades or operation start-ups. These factory-trained professionals can provide dedicated engineering support and maintenance services, and complement the skills of your current workforce.



Data integration and contextualization services can help you capture your wealth of data and convert it into actionable information. These services are increasingly vital for capturing the value of The Connected Enterprise, and can provide new opportunities to help you increase productivity.

“There is a level of expectation that someone is watching the drive systems at all times and is capable of making the call to alert the mill that there is a potential or actual issue occurring.”

- Production Manager, Large Industrial Manufacturer

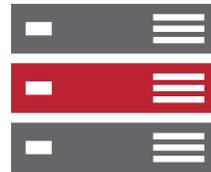
Resources

An aging and evolving workforce combined with the new skills needed to capitalize on connected technologies are driving an ever-widening skills gap. But you don't need to face these challenges alone.

Rockwell Automation has a wide range of solutions, services and expertise that can help you retain and build critical skills. This includes:



Diversified training programs covering safety, industrial networks, security services and more.



Network and security services that utilize a blend of IT and OT expertise, and collaborations with Panduit, Cisco, vMware, Microsoft and others.



Remote monitoring and support services, such as application support, and TechConnectSM support service from Rockwell Automation.



A global team of more than 3,400 engineers operating in more than 80 countries.

For more information about the Rockwell Automation portfolio of Services, visit [rok.auto/services](https://www.rockwellautomation.com/rok.auto/services)

“ Having Rockwell Automation as a collaborator gives us a level of comfort knowing we can count on them to not only troubleshoot issues, but help all plant personnel be able to understand and identify the issue in the future.”

- Plant Manager, Agriculture Company

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