



Skills management and development re-invented for the plant floor

How to empower supervisors and
workers to accelerate skills development



Table of contents

1. The problem with manufacturing training and skills management	5
2. One time training events to continuous, on-the-job learning	7
3. Engaging workers in their skills development	11
4. Manual skills tracking to automated skills management	15
5. Tribal knowledge to collective knowledge	19
6. Keeping workers digitally connected and engaged	23



Introduction

Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



Introduction

It can take weeks and even months to get frontline workers up to speed on the basic skills needed to operate today's complex industrial equipment. It then takes years for them to develop the expert level skills needed to train others, troubleshoot problems and contribute solid ideas for continuous improvement.

So how can your organization accelerate the time to performance of your new and existing frontline workers? Moreover, how can you make it easier for your entire workforce to continuously develop new skills and learn from one another? Equally important, how do you lessen the burden of managing worker skills so that supervisors and Learning & Development stakeholders spend less time doing manual tasks, such as tracking and updating skills, and have more time to be strategic.

This e-book explains what leading organizations are doing differently to address these challenges, and how this has led to faster training, a more efficient workforce, increased compliance and reduced costs.

If you're like most organizations today, you probably can't recruit and train new hires quickly enough to replace the outflow of workers retiring or leaving your organization each year. Some of your workers have likely been with your organization for decades. When they leave, they take all of their experience and tribal knowledge out the door with them, making them impossible to replace overnight.

Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



The problem with manufacturing training and skills management

**Problem with
training and skills
management**

One time training
events to continuous,
On-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



The problem with manufacturing training and skills management

To enable more effective lifelong learning, organizations must use new skills development and management strategies to address the many problems with traditional training methods. These include:

- Training is typically a one-time event. If workers don't grasp everything they need to learn in that short period of time, there's no easy way to do so later.
- Workers don't have visibility into their skills or what's expected of them after their initial on-boarding, and updates to standard procedures are often communicated verbally.
- Worker skills are still being manually tracked in Excel spreadsheets, making it more difficult and time consuming for management to verify, update and prove compliance.
- There is no systematic way to capture and share workers' knowledge and experience, so they can't easily learn from one another.

The good news is a more efficient and effective way to train workers and manage their skills exists, and it's generating impressive results at some of the world's leading organizations.

Training is now the top investment priority for 74% of manufacturers surveyed in Deloitte's 3rd annual Industry 4.0 Report. This represents a significant shift in thinking as only 12% listed this as a priority two years ago.

These organizations recognize that they need to continuously develop workforce skills in order to succeed in a constantly evolving Industry 4.0 environment.

So, it's no surprise that 80% of surveyed CXO's said they have created or are in the process of creating a culture of lifelong learning, and another 17% said they have plans to do so in the near future.

From one time training events to continuous, on-the-job learning

Problem with
training and skills
management

**One time training
events to continuous,
on-the-job learning**

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



From one time training events to continuous, on-the-job learning

We've all heard the research or know from personal experience that people only retain a fraction of the information they are presented with during training if they don't immediately practice or apply what they learn.

In fact, only 62% of people transfer information immediately after training, according to a Saks and Belcourt research study, and that number drops to 44% after six months.

Because most training is squeezed into a one-time training event with a specific start and end date, there is a tendency to overload workers with

too much information. Our brains were simply not designed to process and retain so much information in such a short period of time.

And even when new hires have the opportunity to apply what they learn during on-the-floor shadowing, the less frequent tasks that are only done weekly, monthly or annually are forgotten by the time the need arises.

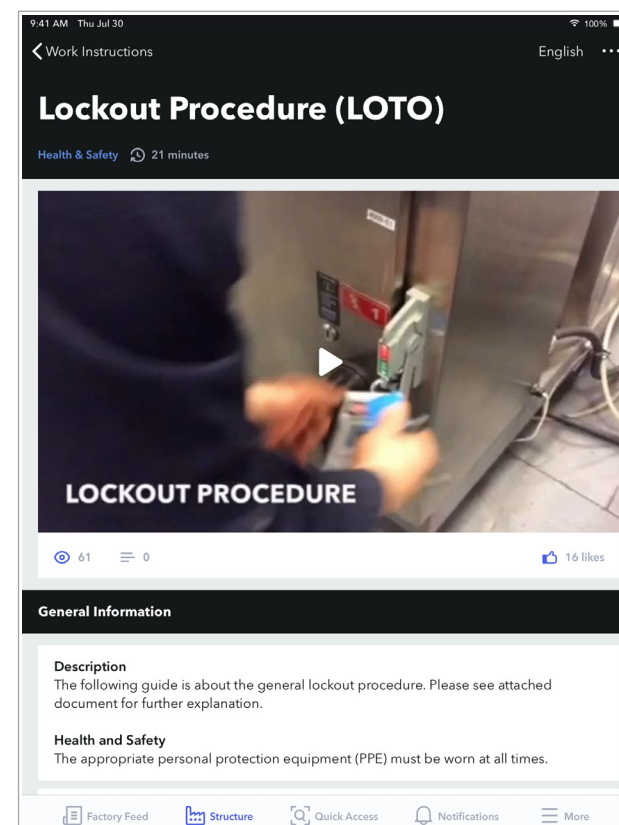
That's why some organizations are moving away from one-time training events in favor of continuous skills development using a digital performance support application.

“Only 62% of people transfer information immediately after training, and that number drops to 44% after six months.”

From one time training events to continuous, on-the-job learning

Workers learn how to perform a task or work to a standard directly at their workstations by viewing digital content and micro-lessons on a tablet.

They use the tablet to scan a QR code on their machine to instantly access all the skills required to operate the equipment and trouble shoot problems.



Problem with
training and skills
management

**One time training
events to continuous,
on-the-job learning**

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



A step by step training program for each skill outlines all the digital content that must be viewed and any exams and mandatory offline activities that must be completed, such as shadowing and classroom training.

Workers use the app to access training manuals, work instructions, SOPs, exams and even link to any content that is stored in external systems. After completing all steps, workers can take an online exam and request an endorsement from their supervisor, who then observe them performing the task and ranks their competency level.

Because the content is digital and always available, workers don't need to learn everything at once. They can start a lesson whenever they have a few minutes to spare and as the need arises. The app tracks where workers are in a lesson and makes it easy for them to resume their training.

By empowering workers to learn at their own pace at their workstation, a large food company, reduced shadowing time and manpower-related costs by 40%.

“Operators take the lead in their own learning,” explains a Learning and Development Coordinator. “They learn when they need to, the right way, and without constantly taking other more senior operators away from their work.”

By making digital content easily accessible at their stations, workers at a leading confectionary manufacturer are now accessing critical information needed to do their jobs 90% faster compared to when the information was stored in binders away from their stations.

Many organizations are also gradually replacing their text-based content with video micro-lessons in order to accelerate comprehension and retention.

“Video micro-lessons are quicker and easier to understand than reading text. Text can be easily misinterpreted, whereas there is no ambiguity with videos,” explains the Operations Support Coordinator at a Canadian producer of premium dairy products.

“40% reduction in shadowing time and manpower-related costs (international food company)

90% faster access to critical information (confectionary manufacturer) ”

Engaging workers in their skills development

Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

**Engaging workers
in their skills
development**

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



Engaging workers in their skills development

Production environments are constantly evolving due to equipment upgrades, focused improvements, global events and changing priorities, forcing workers to constantly update and master new skills throughout their employment.

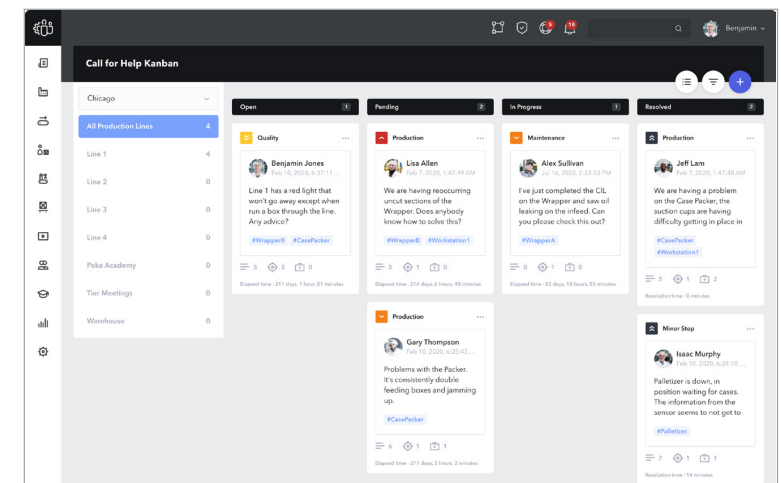
While on-boarding is typically supported by a well-documented training program that spells out clear learning goals and lessons to be completed. On-going training and skills development is usually communicated to workers by their supervisors on an ad-hoc, “need to learn now” basis.

Workers don’t have any visibility into which skills they need to develop or update in the short-term, let alone how they can prepare themselves to take on new responsibilities or positions in the company in the future.

So, it’s no surprise that most workers aren’t motivated and proactive with when it comes to their development.

That’s why forward-looking organizations are empowering their workers with the digital tools to take ownership of their learning and development.

“Workers lack visibility into the skills they need to develop and update in the short-term, and how they can prepare themselves for future roles and responsibilities.”



Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

**Engaging workers
in their skills
development**

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

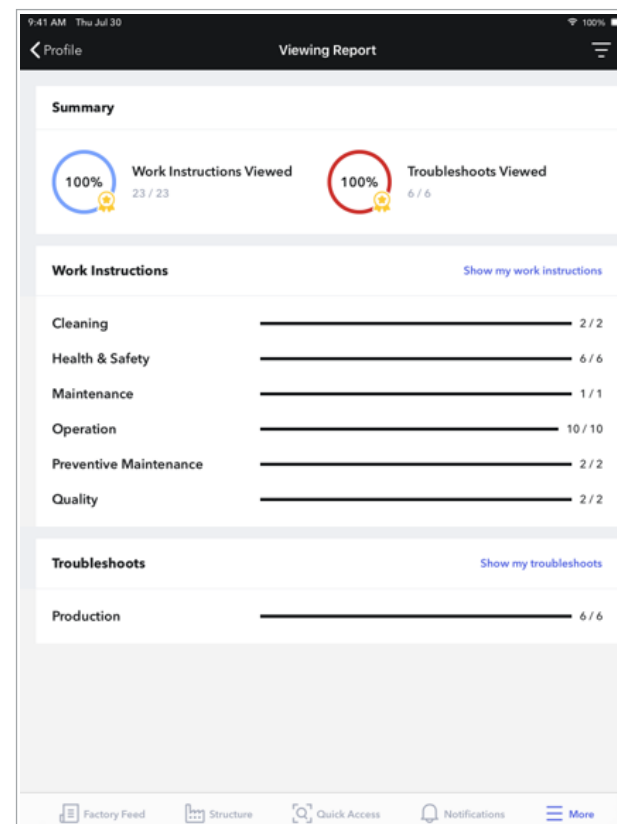
Workers digitally
connected
and engaged



Engaging workers in their skills development

Workers view their individualized curriculum, are notified when a work instruction has been updated, and track their progress directly at their workstations without having to rely on their supervisor or training department to pass on the information.

They simply navigate to their profile page to get an at-a-glance view of all the skills, work instructions, troubleshoots and compliance training that have been assigned to them based on their job title and location.



Engaging workers in their skills development

Workers have real-time visibility into all their skills and assignments directly at their workstations. They can quickly see what new or updated instructions have been added, which skills they have completed and been endorsed for, and which skills are past due and require updating. Automatic notifications are sent to workers, alerting them when a new skill or work instruction has been added to their profile page.

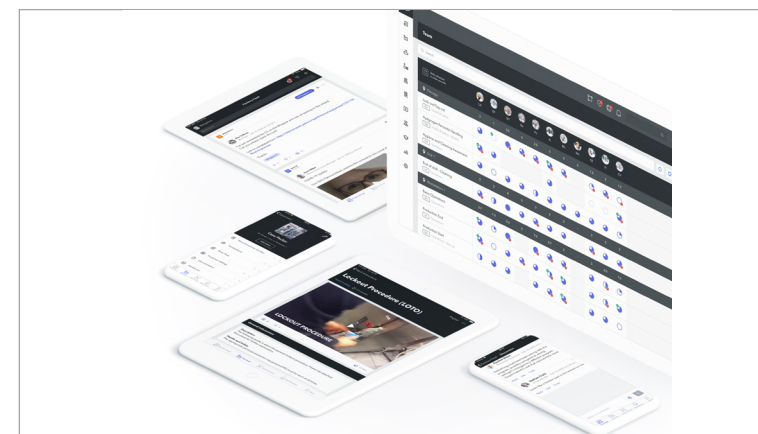
By giving its workforce more visibility into their skills, the HR Director at a technology manufacturer believes people will be more autonomous and productive. “Because employees can see their own skills matrix and monitor their progress, they will be motivated to improve.”

The factory director at a food plant in the Netherlands also believes this approach will future-proof the way its workforce learns.

“We saw that we had a great learning opportunity with a number of people retiring and new people coming into our factory,” said the Factory Director. “We wanted to future-proof the way our associates learn about our culture, about our standards, and how they can have a better experience at work every day.”

“Workers can no longer claim that they didn’t see a new work instruction because everything is spelled out to them right in their profile,”

- explains the HACCP & SQF Manager
a Canadian dairy manufacturer.



Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

**Engaging workers
in their skills
development**

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



From manual skills tracking to automated skills management

Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

**Manual skills tracking
to automated skills
management**

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



From manual skills tracking to automated skills management

Learning & Development stakeholders are increasingly assuming a more strategic role within their organization to ensure their workforce has the needed skills to support operations both today and in the future. To do that, they need to have real-time visibility into the current skill set of workers, and be able to identify where the gaps are now and will be in the future.

However, because worker skills are still largely being tracked manually using a combination of paper documents, Excel spreadsheets and learning management systems, the information is time-consuming to consult and update, resulting in outdated and unreliable records.

This not only prevents management from being able to quickly identify who has the competencies to replace an operator that calls in sick, is in quarantine or suddenly leaves the company, and where the biggest demands in hiring and training will be. It also puts organizations at risk of noncompliance which can lower their audit scores.

These common challenges have led many leading organizations to automate the tracking and management of plant skills with a digital skills matrix built into their performance support application.

“ Manually tracking and updating worker skills is time-consuming and the cause of outdated, unreliable and non-compliant records. ”

Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

**Manual skills tracking
to automated skills
management**

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged

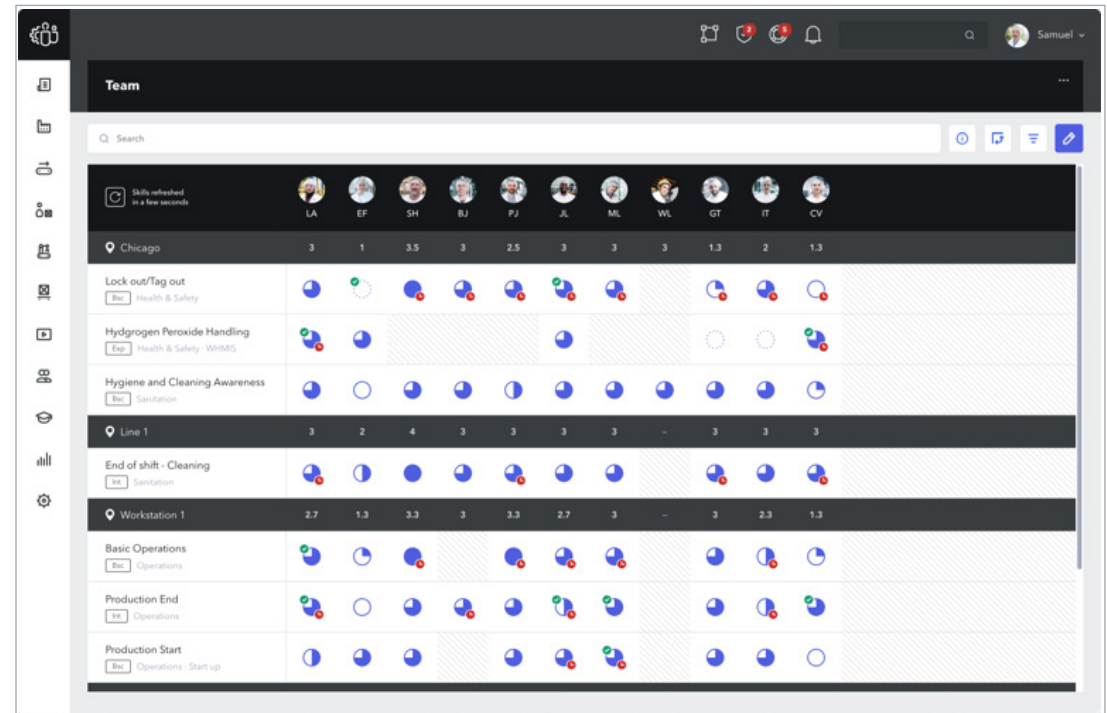


From manual skills tracking to automated skills management

A digital skills matrix gives management real-time visibility into workforce competencies.

The app makes it easy to quickly see skills coverage across team members, including who has requested endorsements and which skills are due for renewal.

The matrix is automatically updated and provides easy access to the content and exams used to train workers.



Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

**Manual skills tracking
to automated skills
management**

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



From manual skills tracking to automated skills management

The digital skills matrix provides an at-a glance view of all workers' completed skills and competencies segmented by plant, area or line, workstation and equipment. The visual icons enable management to quickly identify per skill who has basic knowledge, who can perform basic tasks versus all tasks, and who can teach.

Management can also track where each worker is in their skills progress, and if a follow-up of some kind is required. For example, they can see which skills are expiring and require updating, and which skills have been completed but are waiting for an endorsement from a supervisor.

The matrix is automatically updated as workers complete skills, saving management time and ensuring the records are up to date and accurate. Summarizing the benefits a technology manufacturer has seen from a HR Director's perspective:

And because information is always up to date, quality managers can reply to auditors' requests for training records in a fraction of the time. For example, a dairy manufacturer in Canada, reduced the time to retrieve training records from one hour down to 10 minutes.

More importantly, the accuracy of the information ensures the organization complies with training-related audit requirements. Since automating skills management with the app, "we have had zero non-compliance issues tied to training. This has brought our audit score from 86% to 91%," explains their HACCP & SQF Manager.

“This was the answer to our prayers. It helps us to closely track people's skills so that we can be agile, prove our compliance during audits, and maintain our certifications.”

Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

**Manual skills tracking
to automated skills
management**

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



From tribal knowledge to collective knowledge



Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

**Tribal knowledge
to collective
knowledge**

Workers digitally
connected
and engaged



From tribal knowledge to collective knowledge

Learning isn't only a formal, structured event. As we've all experienced, ad-hoc learning happens organically all around us as part of our daily lives and routines, and workplace learning is no exception. In fact, 96% of workplace learning is informal and only 4% is formal according to a study from the 70:20:10 Institute.

Frontline workers are continuously learning through trial and error and by sharing their experiences with one another. But because the information is usually passed on via face-to-face conversations, it's rarely documented so that it can be incorporated into the next revision of a work instruction or SOP.

And while sharing updates with a supervisor during a Gemba walk or daily meeting is common, many workers lose confidence in this feedback channel if they don't see that their input leads to a response. Without a more efficient and effective way for workers to pass on their knowledge and ideas, tribal knowledge persists and is lost forever when workers retire or leave.

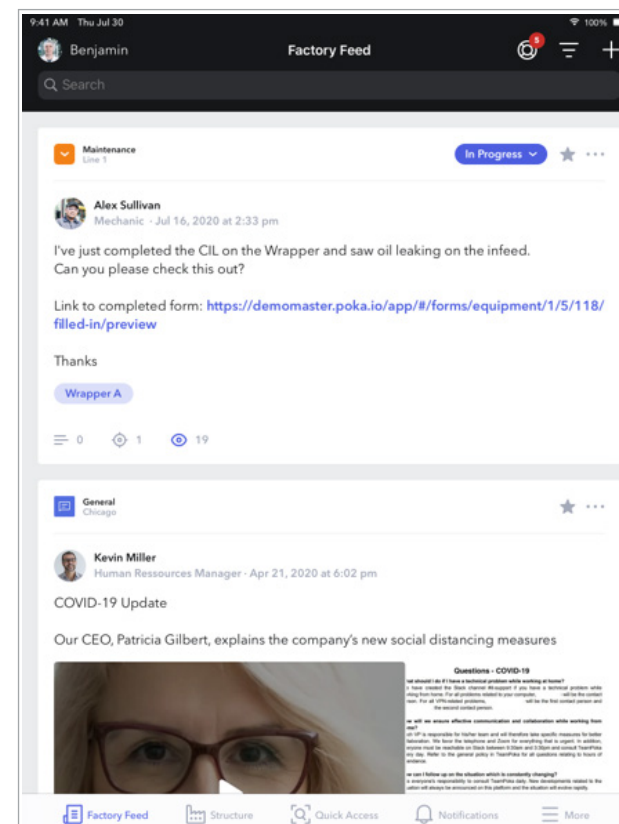
That's why organizations are empowering their workers to digitally communicate, collaborate and share information with one another directly at their workstations

“ 96% of workplace learning is informal and only 4% is formal, according to a study from the 70:20:10 Institute. ”

From tribal knowledge to collective knowledge

Workers post calls for help with photos or video as issues arise. Experts across the company can comment and collaborate to offer suggestions and find a solution.

Once a problem is solved, it can be automatically converted into a troubleshooting solution in the knowledge base for others to learn from.



Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



Digitally connecting all frontline workers and management across shifts, lines and plants encourages everyone to share their knowledge and experience and collaborate to solve problems, while creating urgency and accountability.

For example, when workers post a call for help, they can tag a specific machine or workstation so that notifications are automatically sent to alert the right people to respond or take action.

This not only forces accountability and action, it leads to collaborative problem solving across shifts and plants. Anyone can then contribute their idea or best practice to solve a problem.

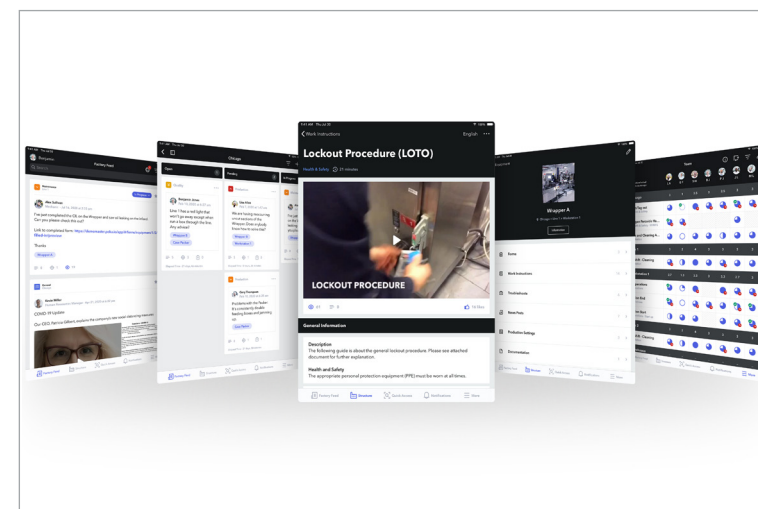
This means knowledge is continuously captured and shared organically as part of the daily flow of work, thereby enabling a culture of continuous improvement.

What's more, because both the problem and solution are captured in real-time, everyone has visibility into what's happening on the plant floor at all times, and the information can be quickly converted into a best practice within the knowledge base.

Keeping workers digitally connected in this way is generating some impressive results at a Canadian technology manufacturer. The plant has significantly increased worker engagement and suggestions for continuous improvement which has helped to increase the plant's productivity and safety, and reduce quality issues.

“ The factory of the future is going to involve all workers. They're the ones who have the deepest insights into daily operations. So if we want to continuously improve, we have to tap into workers' knowledge and make it easier for them to share what they know ”

– Operations Director, Technology Manufacturer



Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

Workers digitally
connected
and engaged



Keeping workers digitally connected and engaged

Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

**Workers digitally
connected
and engaged**



Engaging workers in their skills development

The starting point for each one of the success stories mentioned in this e-book is to keep plant workers digitally connected with one another and management so that they have instant access to all the resources and people they need, when and where they need it most.

When plant workers are digitally connected, they have real-time visibility into their skills development and can learn directly at their workstations. This empowers workers to be more autonomous and learn more efficiently and effectively.

When management is digitally connected to workers, they have real-time visibility into their skills and can be offloaded from performing many manual and non-valued added tasks. This empowers management to be more strategic and make more timely decisions.

And finally, when workers and management can digitally communicate and collaborate with one another in real-time, tribal knowledge can finally be documented and shared across an organizations global operations for everyone's to benefit. This empowers all to contribute to continuous improvement, leading to a stronger and higher performing organization.

Empower workers to be autonomous and learn more efficiently and effectively

Empower management to be more strategic and make timely decisions

Empower everyone to share knowledge and contribute to continuous improvement

About AVEVA™ Teamwork

AVEVA Teamwork is the performance support application that is empowering workers at organizations to learn, solve problems and share knowledge from their workstations.

Teamwork combines digital content, skills management and communication features into a single, worker-centered application to support the unique needs of the plant floor. The result is a continuously updated knowledge base of best practices and training content, automatically shared with the workers who need them, across shifts and global operations.

[Watch the demo](#)

Skills management and development
re-invented for the plant floor



Problem with
training and skills
management

One time training
events to continuous,
on-the-job learning

Engaging workers
in their skills
development

Manual skills tracking
to automated skills
management

Tribal knowledge
to collective
knowledge

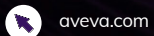
**Workers digitally
connected
and engaged**





For more information on how Skills management and development re-invented for the plant floor please visit:

aveva.com/en/products/aveva-teamwork



aveva.com



linkedin.com/company/aveva



[@avevagroup](https://twitter.com/avevagroup)

About AVEVA

AVEVA is a global leader in engineering and industrial software driving digital transformation across the entire asset and operational life cycle of capital-intensive industries. The company's engineering, planning and operations, asset performance, and monitoring and control solutions deliver proven results to over 16,000 customers across the globe. Its customers are supported by the largest industrial software ecosystem, including 4,200 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 4,400 employees at 80 locations in over 40 countries.

AVEVA and the AVEVA logo are a trademark or registered trademark of AVEVA Group plc in the U.S. and other countries. All product names mentioned are the trademarks of their respective holders.

© 2020 AVEVA Group plc and its subsidiaries. All rights reserved.

