

A woman wearing a white hard hat and a red safety vest is shown in a vehicle interior, possibly a truck or bus. She is looking upwards and to the right, with her hands raised in a gesture. The background shows the interior structure of the vehicle, including windows and overhead lights.

# ThingWorx<sup>®</sup>

## Connected Work Cell (CWC)

Solution Brief

A woman with her hair in a ponytail, wearing a large headset and safety glasses, is shown in profile, looking towards the right. She is working at a computer workstation in what appears to be a factory or industrial setting. The background is blurred, showing large circular structures. The overall image has a light, semi-transparent overlay.

# Introduction

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Manufacturing CIOs and Technology Executives are under strong pressure to improve employee productivity, reduce costs, improve customer experiences, and improve business operations while gaining only modest IT budget increases. They must also adapt to rapidly changing demands, including sustainability targets, managing energy costs, and investing in new technologies with the right ROI. Yet, traditional systems and fragmented information often create barriers to operational excellence.

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# Key Challenges



## Share Knowledge Efficiently

- An aging and retiring workforce presents challenges for knowledge transfer when much of the knowledge is either in the senior employees' heads or written in multiple manuals.
- Less experienced newcomers take time to upskill, and aren't interested in reading dense manuals. Companies are under pressure to provide a better employee value proposition and better employee experience overall.
- Operators waste valuable time searching for the correct work instructions across paper, PDFs, and multiple digital systems.
- Inconsistent or outdated instructions lead to errors, rework, and increased downtime.



## Improve Productivity

- Scaling best practices and standardizing processes across multiple sites is slow and difficult.
- Integrating data from various sources (ERP, MES, smart tools) is complex, limiting real-time visibility and responsiveness.
- Disparate systems, tools, and manual paperwork impact your Overall Labor Effectiveness, level of scrap and rework, and Overall Production Effectiveness.



## Reduce Costs

- Sustainability, energy management, and cost reduction targets demand ongoing optimization with limited resources.

Overcoming these challenges is essential for manufacturers who want to empower their workforce and drive sustainable improvements in efficiency and quality.

The Connected Work Cell (CWC) application, powered by ThingWorx, addresses these challenges head-on. By unifying data from multiple production sources and delivering digital, version-controlled instructions directly to the shop floor, CWC empowers operators and managers alike to achieve new levels of efficiency and quality. CWC is designed for rapid deployment and scalability, making it an essential tool for manufacturers seeking a competitive edge.

According to the  
National Association of Manufacturers,  
the manufacturing skills gap  
in the U.S. could result in

**2.1**  
**MILLION**

Positions unfilled  
by 2030

**25%**

of manufacturing workers  
are aged 55 or older,  
according to the US Bureau of  
Labor Statistics.

Their knowledge and domain  
expertise may be leaving  
soon, and upskilling  
newcomers will be critical.

According to a  
report by Vanson Bourne,

**23%**

of unplanned downtime  
in manufacturing is caused  
by human error.



# What is ThingWorx?

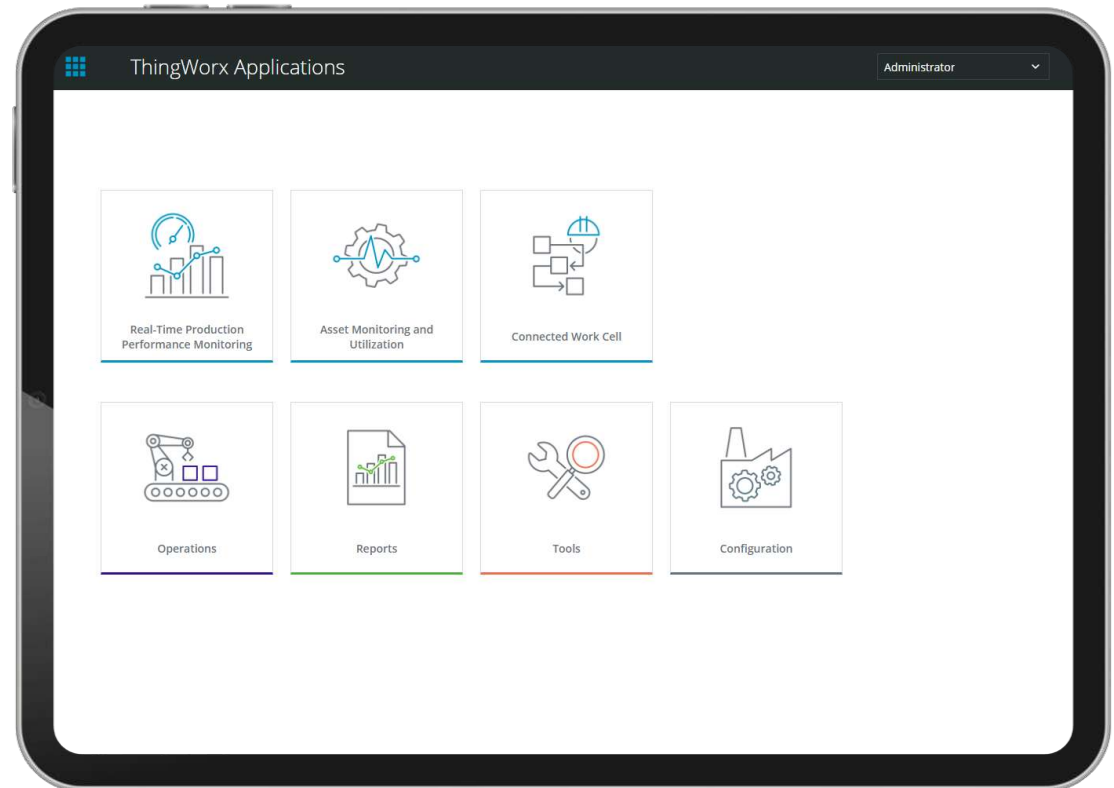
**ThingWorx is an enterprise grade Industrial Internet of Things (IIoT) platform** that helps companies accelerate digital transformation across manufacturing, service, and engineering domains. It enables organizations to securely connect devices, systems, and assets from the shop floor to enterprise applications like **PLM, ERP, and MES**, aggregating real-time data for actionable insights.

**With robust tools for data modeling, analytics, machine learning, and visualization**, ThingWorx empowers users to optimize performance, reduce downtime, and improve quality across operations. Its flexible architecture supports cloud, on-premise, and hybrid deployments.

**ThingWorx provides building blocks for no-code and low-code application development**, allowing companies to build smart, connected solutions that drive operational agility, enable predictive maintenance, and support scalable innovation strategies.

# ThingWorx Applications

Utilize pre-built industrial IoT solutions designed to deliver rapid impact on a company's bottom line while laying the groundwork for scalable digital transformation. Instead of relying on custom-coded systems, these applications offer a repeatable, configurable approach that draws on proven domain expertise from hundreds of successful deployments. By streamlining the design, development, and testing process, they dramatically reduce implementation effort and accelerate both time-to-value and time-to-scale. Each application targets high-value use cases—like asset monitoring, production performance, and predictive maintenance—helping teams optimize operations and unlock new efficiencies without starting from scratch.

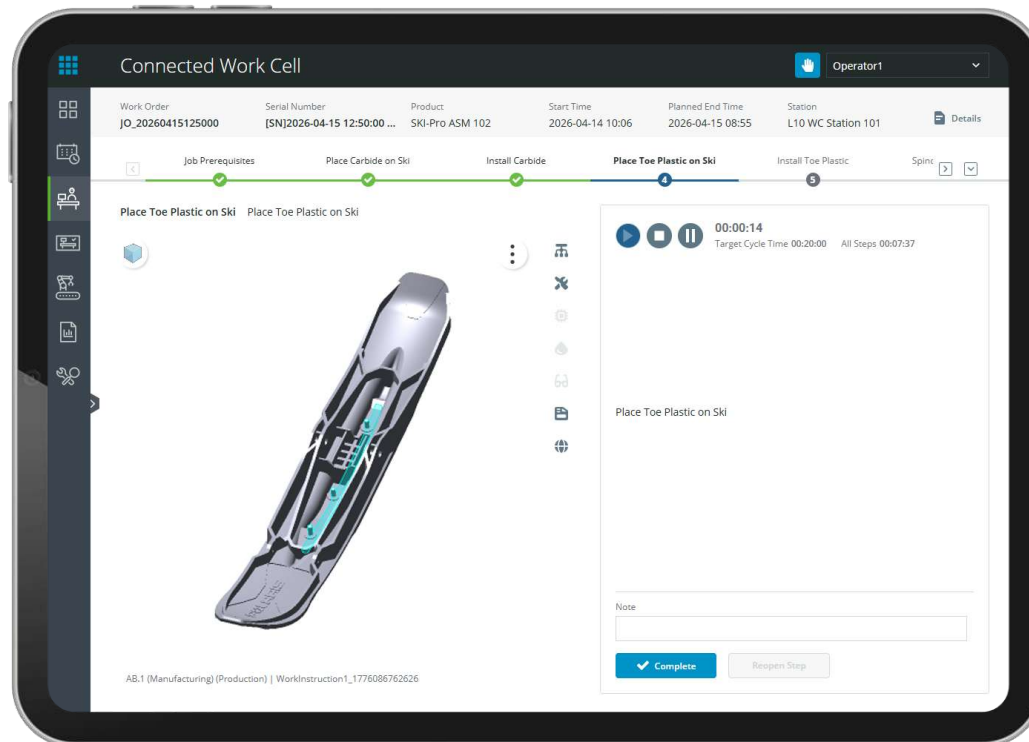


# Connected Work Cell

ThingWorx Connected Work Cell (CWC) is an application built upon the ThingWorx platform designed to streamline how frontline operators receive and execute work instructions. CWC aggregates data from disparate systems—like PLM, MES, ERP, and smart tools—into a unified, digital interface that delivers real-time, in-context guidance directly at the workstation. It was created to address the persistent challenges manufacturers face with fragmented documentation, aging workforces, and the need to upskill newcomers quickly.

CWC replaces paper-based and PDF instructions with version-controlled, step-by-step digital workflows that are easy to author and update. For companies that already have hundreds of work instructions in Word, Excel, PowerPoint, or PDF, they can be imported in CWC as attachments or converted automatically to HTML format—meaning they do not have to start from scratch.

Operators benefit from reduced training time, fewer errors, and increased productivity, while manufacturers gain improved uptime, traceability, and compliance. The application supports work order scheduling, smart tools, and performance tracking, and it integrates seamlessly with PLM systems to bring 3D data to the shop floor.



# Challenge: Share Knowledge Efficiently

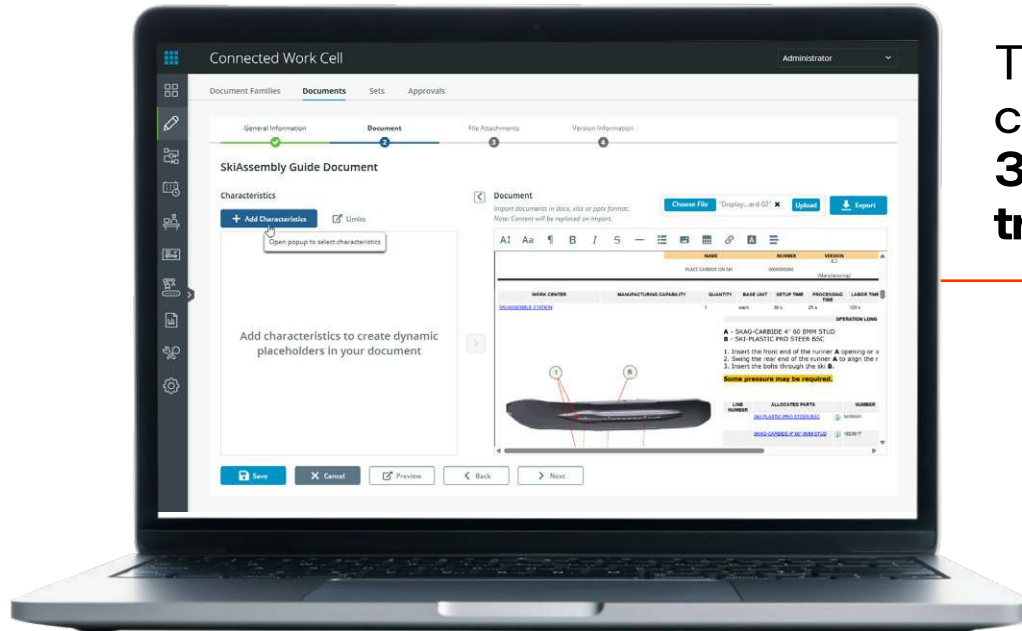


## With CWC: Unified, Digital Work Instructions that Eliminate Knowledge Gaps and Boost Uptime

CWC provides a single, centralized platform for creating, storing, and executing digital work instructions. Its intuitive authoring tools support multiple step types and version control, ensuring that operators always have access to the latest, approved procedures. By eliminating the confusion of paper documents, PDFs, and scattered digital files, CWC reduces training burdens and minimizes the risk of errors.

For manufacturers of complex, discrete products, this unified approach is a game-changer. Operators no longer waste time switching between systems or searching for the right instructions. Instead, they receive clear, step-by-step guidance tailored to their tasks for the specific work order they are executing, increasing quality across the shop floor.

Additionally, pre-built connectors to CWC allow bringing work instructions complete with 3D data from PLM systems straight to the shop floor. This ensures the operator is working with the latest released configuration from Manufacturing Engineering at all times.



ThingWorx CWC customers have seen a **30-65% reduction in training time on average.**

# Challenge: Improve Productivity

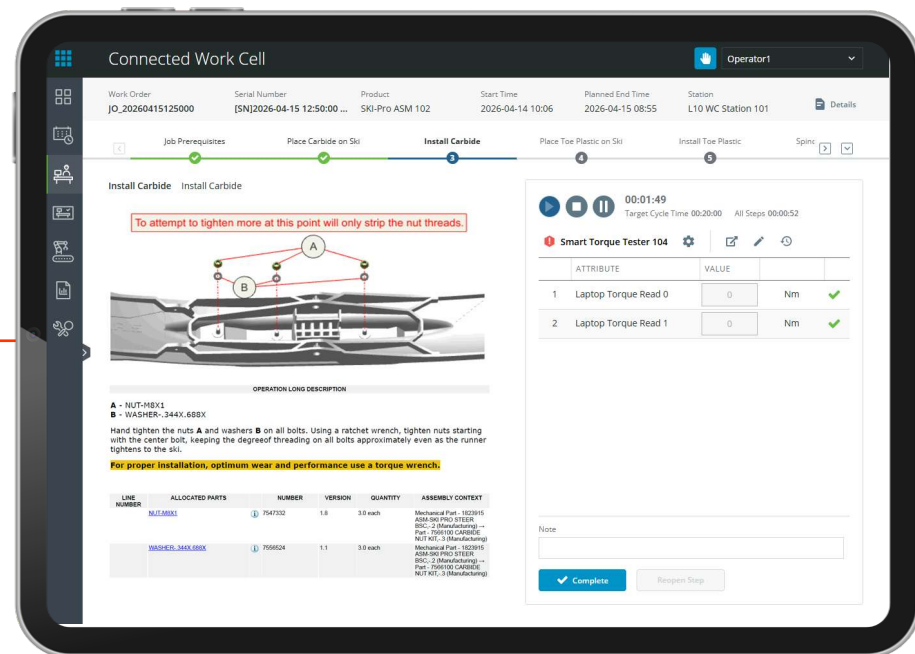


## With CWC: Rapid Deployment and Scalable Rollout that Accelerates Time to Value

CWC is architected for fast, repeatable deployment across multiple sites and geographies. With flexible hosting options of on-premise or the cloud, manufacturers can match deployment to their unique needs and scale quickly as operations grow. The standardized implementation process, developed by manufacturing experts, ensures that companies can realize business benefits quickly.

This rapid time to value is further enhanced by CWC's integration with existing systems like ERP, PLM, and smart tools. By combining data from multiple sources and providing bi-directional interaction, CWC enables seamless workflows and real-time visibility, driving immediate impact on productivity and quality, and reducing safety risks immediately.

ThingWorx CWC customers have seen a **10-40% increase in worker productivity on average.**



# Challenge: Reduce Costs

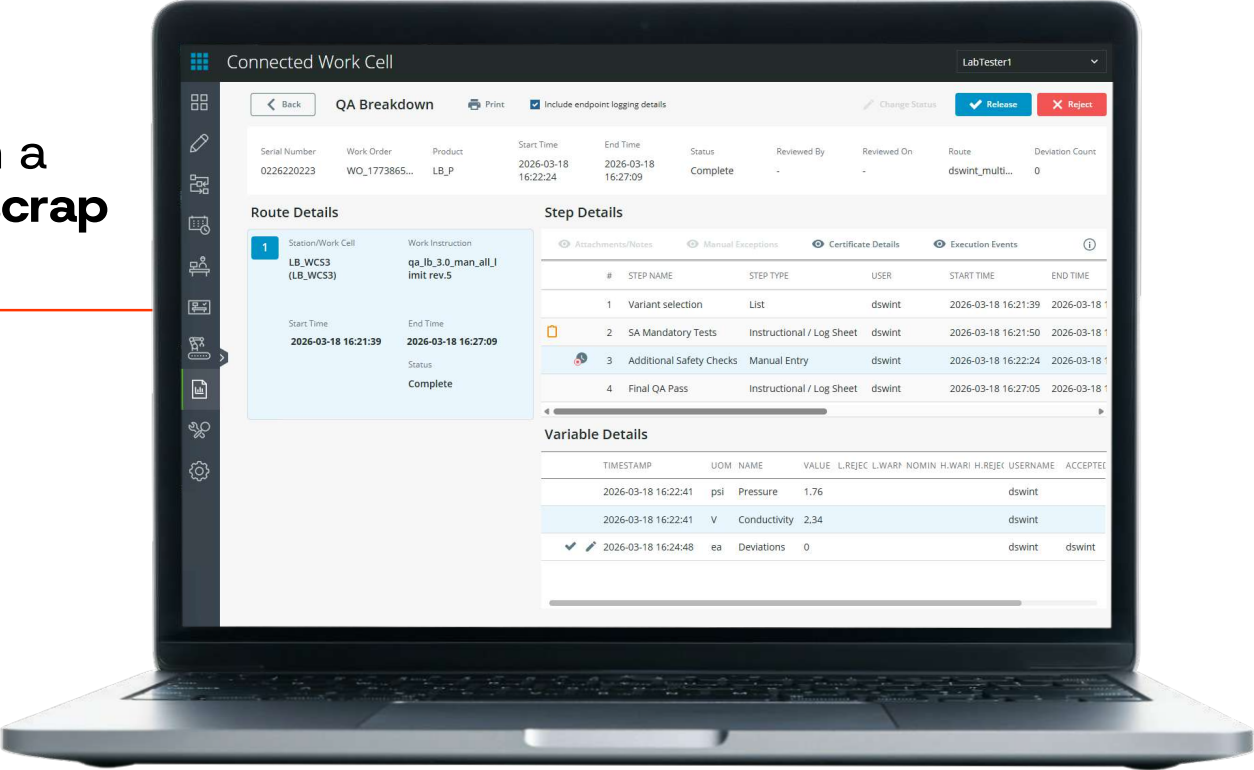


## With CWC: Lower Total Cost of Ownership and Continuous Improvement

CWC’s subscription model removes the heavy capital investment typically required for digital transformation initiatives. Manufacturers benefit from a low-risk, fast implementation with ongoing operational support to ensure smooth adoption. All updates and enhancements are included at no additional cost, so the solution continues to evolve with your needs.

By standardizing digital work instructions and integrating with real-time production and asset monitoring, CWC lays the foundation for continuous improvement. Managers gain actionable insights into performance, enabling data-driven decisions and ongoing optimization of processes.

ThingWorx CWC customers have seen a **3–25% reduction in scrap on average.**





# Connected Work Cell Core Capabilities

Out of the box, Connected Work Cell features industry leading capabilities that fit right into your workflow.

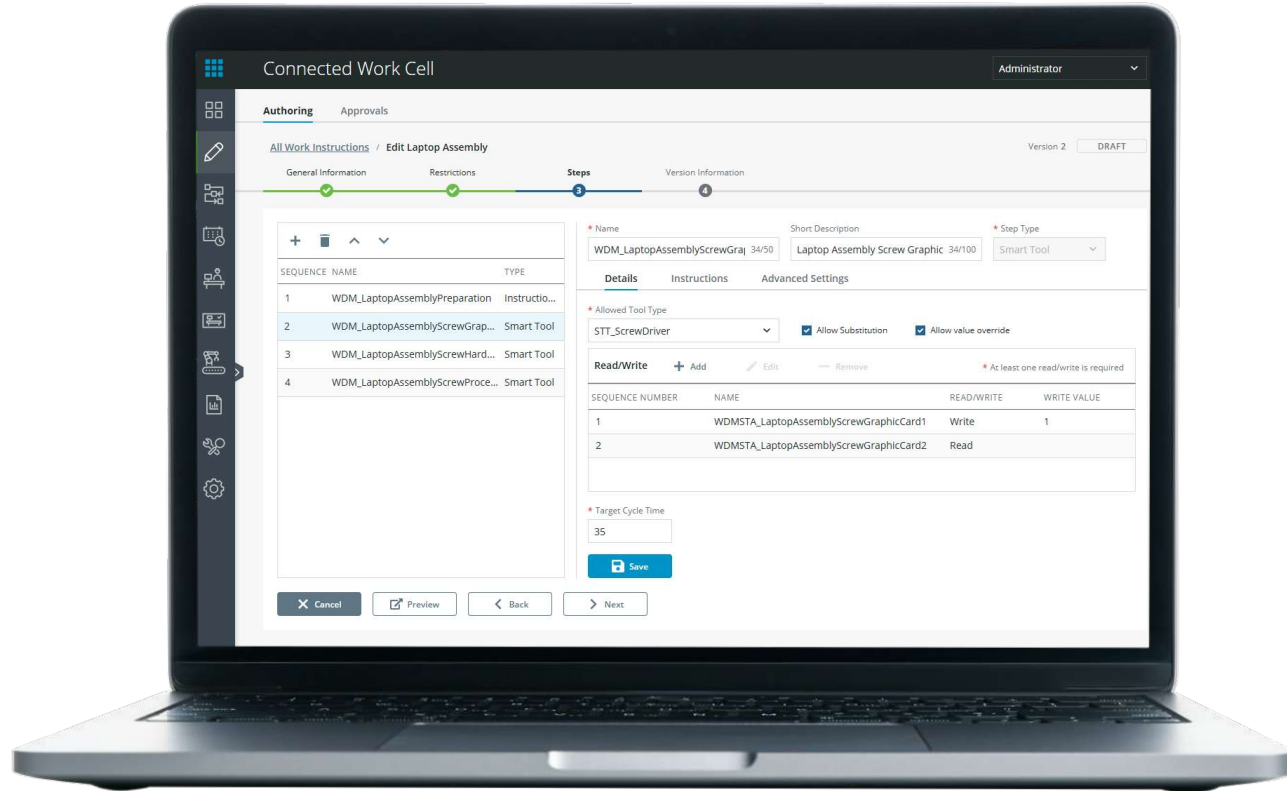
# CWC Features

## Digital, Version-Controlled Work Instructions

- Create and execute standardized digital work instructions with multiple step types (assembly, fabrication, verification, data capture), replacing paper and disconnected documents.
- Built-in versioning and approvals ensure operators always execute the correct, released instruction.

## Guided, In-Context Operator Execution

- Step-by-step guided execution with real-time feedback, timers, validation, and required sign-offs to ensure consistent, repeatable work.
- Smart tool, equipment, and data integration provides operators the exact information they need, when they need it.



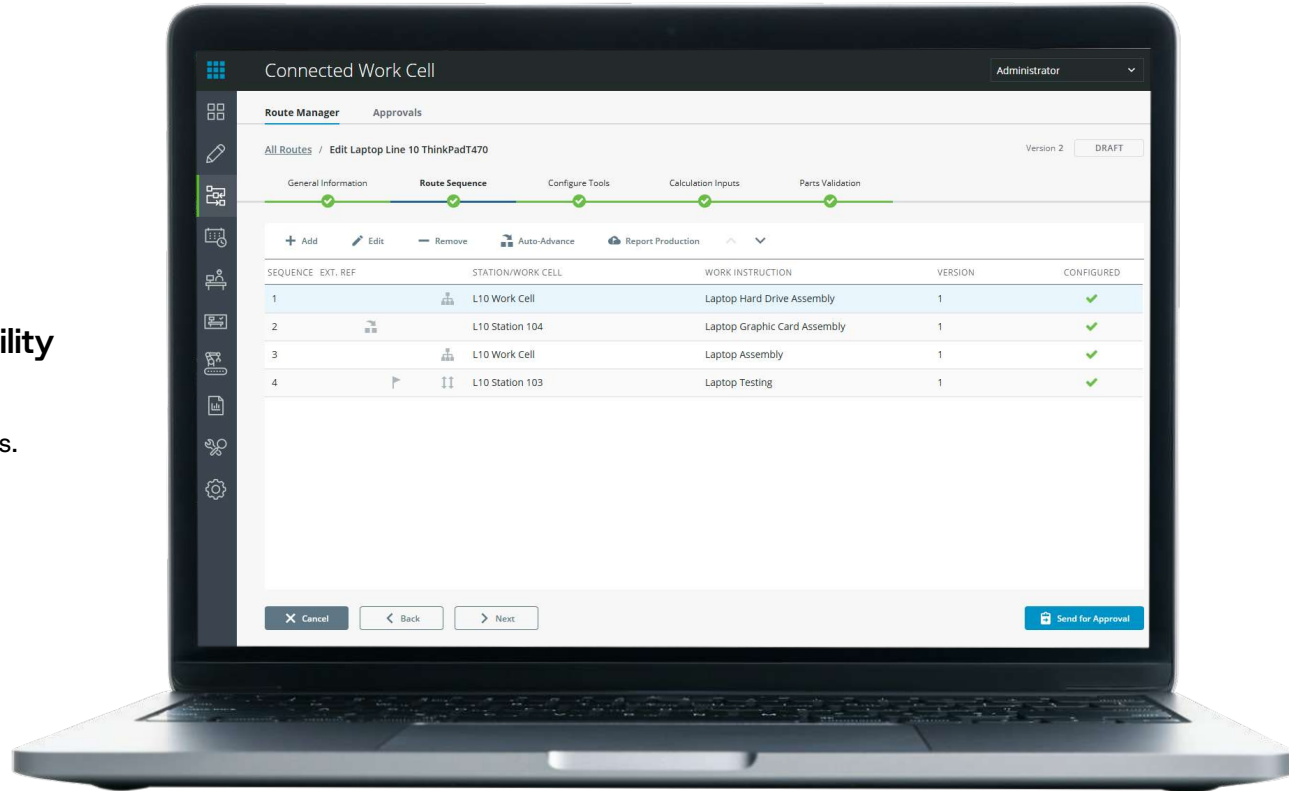
# CWC Features

## Flexible Routing Across Stations and Products

- Product- and route-based execution supports variations in products, processes, and stations without duplicating instructions.
- Multi-station and parallel execution enables complex assembly and fabrication workflows at scale.

## Work Order-Driven Execution & Full Traceability

- Work order-based execution (ERP/MES-initiated) with serial and lot tracking across the full build process.
- Complete digital traceability of who performed each step, when, where, for how long, and with what results—supporting quality, compliance, and audits.



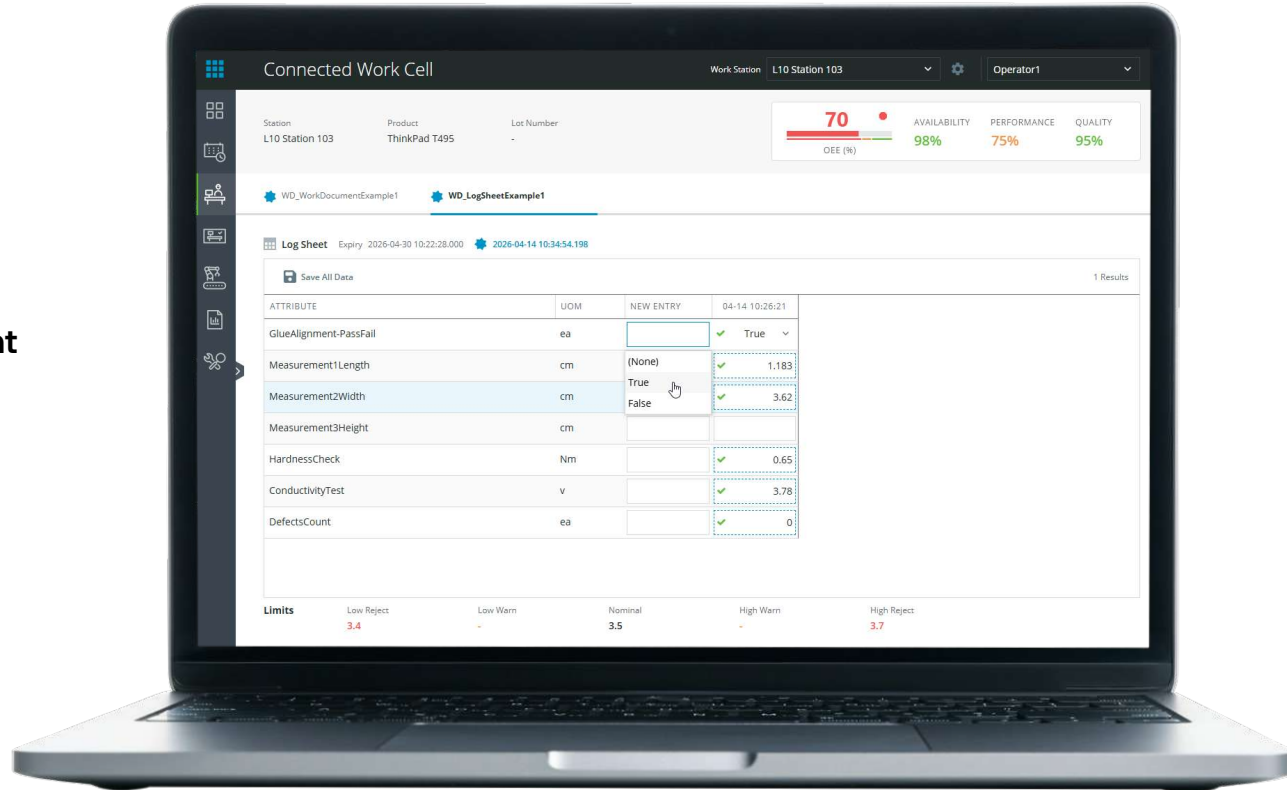
# CWC Features

## Built-In Quality, Data Capture, and Reporting

- Integrated data capture and log sheets enable operators to record measurements, results, and checks during execution.
- Execution and performance reporting compares target vs. actual cycle times and provides step-level visibility for continuous improvement.

## Enterprise-Ready Integration and Deployment

- Native integration with ERP, PLM, machines, and smart tools through the ThingWorx platform.
- Scalable, multi-site architecture designed for rapid deployment and consistent rollout across plants and regions.





# Why Choose CWC?

Connected Work Cell is more than just an application—it's a strategic investment in operational excellence. By delivering up-to-date, in-context information to operators, unifying data sources, and enabling rapid, scalable deployment, CWC empowers manufacturers to boost productivity, reduce errors, and adapt quickly to changing demands. With its low total cost of ownership, commitment to continuous improvement, and proven ability to deliver rapid results, CWC stands out as a must-have solution for any manufacturer looking to modernize operations and stay ahead in a competitive market. Find out why CWC customers have experienced a **10-40% increase in worker productivity**, and unlock the full potential of your workforce and processes with Connected Work Cell.

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