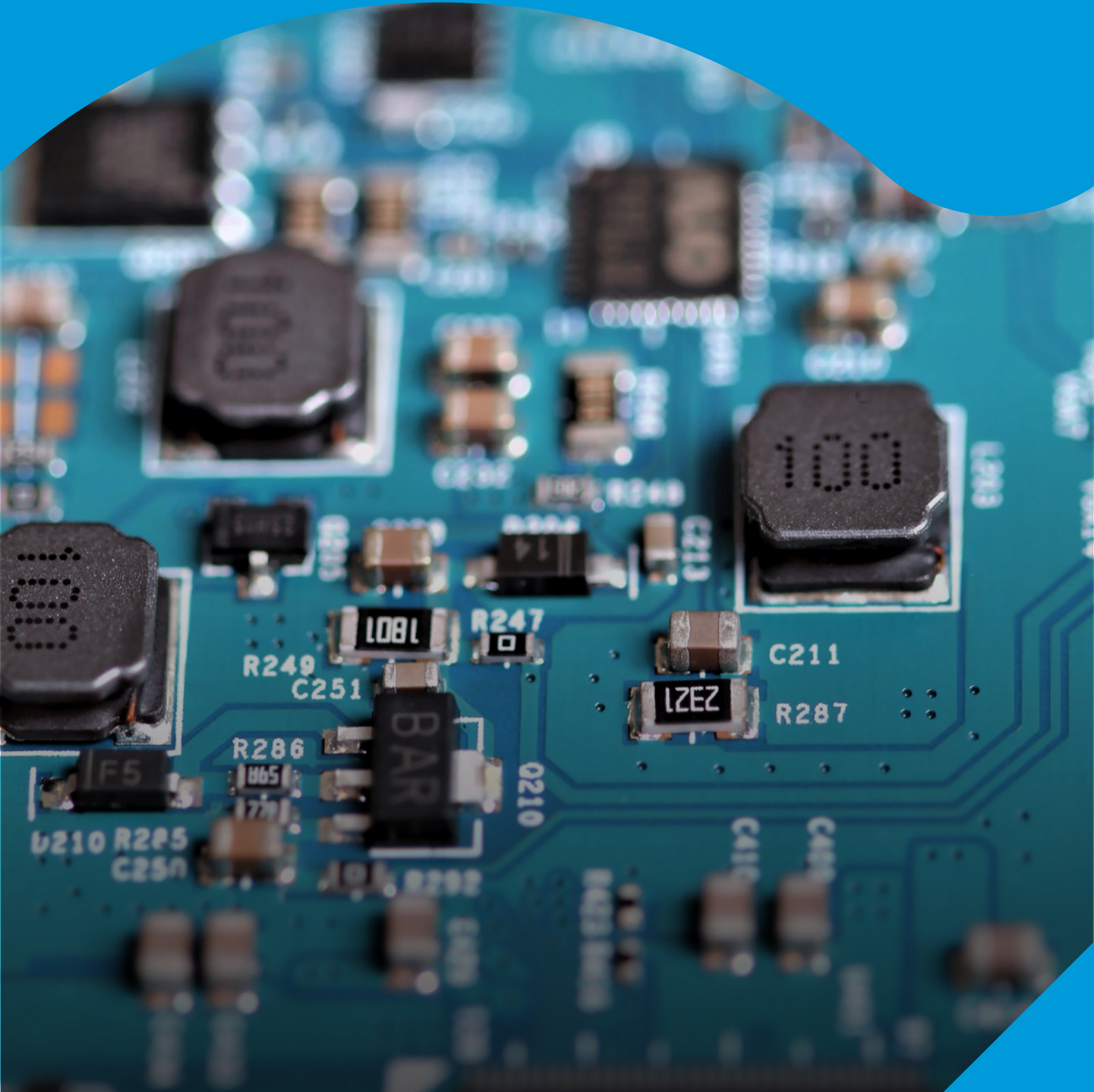


# How Texas Instruments saved \$1M and 8600+ training hours annually with an integrated global LMS



*In order to consistently achieve best-in-class for safety, quality, and productivity, Texas Instruments needed to create an innovative, operationally integrated end-to-end standardized learning solution that could scale across all 23 factories and over 36,000 employees in 8 countries.*

## SCALING PRODUCTION CAPACITY TO MEET GLOBAL DEMAND IS HARD

Texas Instruments Incorporated (TI) manufactures semiconductor chips that are used in a large variety of end products, such as cars, cell phones, medical devices, industrial tools, appliances and many more. TI manufactures a diverse portfolio of approximately 80,000 different products that serve over 100,000 customers worldwide. To meet the increasing demand for semiconductor chips and to meet the breadth of diverse product lines, TI continues to add capacity by adding more equipment to the existing manufacturing facilities and by building new manufacturing sites across the globe. As of Q1 2022, TI has over 23 factories across 8 different countries and have announced new locations for 6 more factories to be built by 2025. To support this growth, TI's hiring in 2021 was up 55% YOY which amounts to thousands of new employees onboarding and training.



80,000  
PRODUCTS



100,000  
CUSTOMERS



23  
FACTORIES



36,000  
EMPLOYEES



8  
COUNTRIES

A typical semiconductor factory requires complex processing steps involving a vast quantity of machinery and varying types of equipment, along with hazardous chemicals, gases and a significant number of highly skilled employees. Add to this a typical manufacturing process that can take between 4 to 6 months to complete from start to finish, depending on the complexity of the product. Increasing the difficulty of scaling TI's manufacturing, the COVID pandemic added additional business challenges via a rapid increase in demand for semiconductor chips, compounded by supply chain disruptions, and an ongoing shortage in the labor market across the globe.

One of the major factors in meeting production demands driving TI's growth is how effectively and quickly factory employees are onboarded and trained to safely master their specific job functions. Reducing the onboarding training by just 1 day per employee can equate to significant cost reductions – especially when applied to thousands of new hires globally. For TI's factory employees, skill-based learning and development for their job function is not just 'nice-to-have'. They require mastery of mission-critical skills to ensure the safety and health of the employees along with the ability to precisely and consistently execute their job duties.

At TI, there are 3 key business imperatives:

1. Ensure the safety of our employees
2. Ensure the quality of our products by eliminating human errors
3. Ensure highest productivity while maintaining cost competitiveness

These 3 key imperatives have traditionally been difficult to scale with consistency across 8 countries and 23 factories, given the organic nature of growth and fragmented adoption of operational practices and systems. In order to scale to meet demand consistently, TI needed to adopt a new, improved consolidated approach to managing operational and strategic training and certification as a core capability.

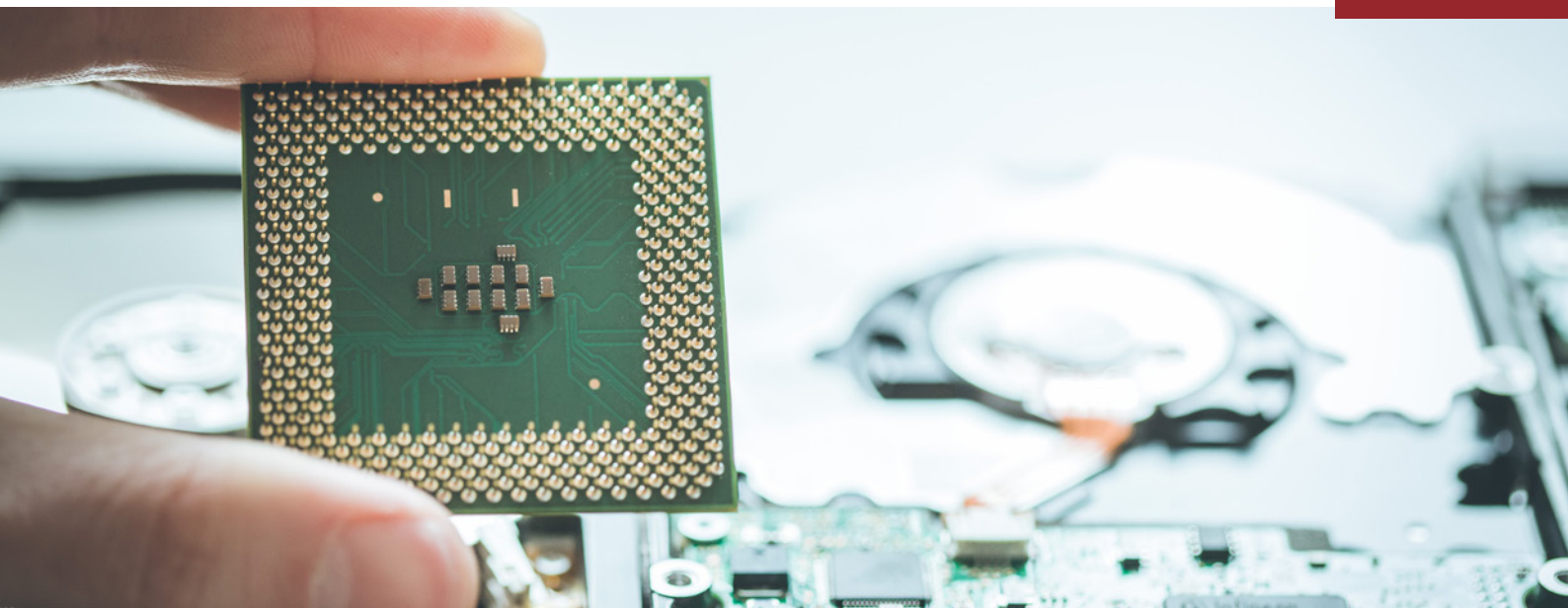
## A PLAN TO UNIFY PROCESSES AND SYSTEMS SPANNING THE GLOBE

To achieve best-in-class for safety, quality, and productivity, TI determined there was a business need to create an innovative, end-to-end, and standardized learning solution that can scale across all 23 factories in 8 different countries. This solution needed to:

- have flexibility to adapt where required to meet the factory needs
- maintain a cohesive solution that was user-friendly
- effectively supported TI's onboarding, training, and development programs across the wider business.

In January 2017, TI began to focus on improving its factory training and development program through process standardization and enterprise-wide solutions. At the time, all TI factories utilized multiple methods and disparate systems to manage training programs. Each factory also had their own local administration support resulting in inconsistent process used to manage employees' learning and development. To address these challenges, Texas Instruments partnered with Seerotech Solutions to explore innovative ways to operationalize the structured OJT training process, as well as supporting other strategic and operational training programs including induction, compliance and leadership programs.

Seerotech was selected because its learning solution had the capability and flexibility to design and manage a learning and certification flow to support TI's unique OJT training process requirements, as well as its wider application to other key training & development programs. The Seerotech Learning LMS is a highly specialized operational skills development, certification and learning management application facilitating workforce enablement for mission-critical operational personnel and processes – for both enterprise and extended enterprise focused clients at scale. This includes multi-modal training scheduling, delivery, tracking, assessment, certification, operational competency tracking, evidentiary capture and mobile offline accessibility with a high degree of automation and integration with upstream and downstream processes.



## AN AUTOMATED SYSTEM THAT TAKES RISK OUT OF FACTORY WORK

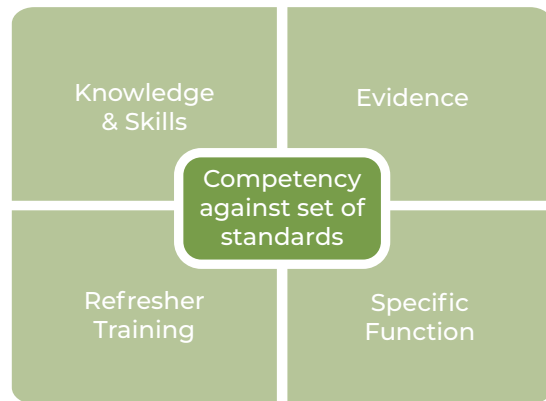
A 12-month long series of deep-dive meetings were conducted at all 22 factories to understand the current local processes and each unique business environment. After much negotiation and collaboration with key stakeholders from each factory, a new globally consistent OJT training process flow, underpinned by Seertech Learning was established.

The scale of change was significant and extremely complicated due to the global nature of TI's manufacturing business. This challenge was mitigated by opting to take a phased go-live approach. Lessons learned after each factory rollout were incorporated into the subsequent project plan.

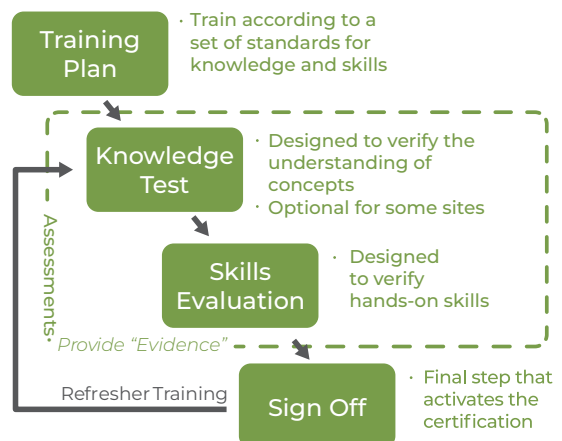
In addition to the process standardization, many of the best practices from various factories were studied to explore how the OJT training process in the new Learning Management System (LMS) can be further improved to enhance controls and productivity.

Some of the key innovative ideas that were implemented into the new system's framework include:

- Standardizing Structured On the Job Training** - focusing on developing competencies for specific functions against a set of standards together with a robust evidentiary process that gathers and established proof of competency:



Within this framework, an innovative process framework for OJT was developed using LMS system capability to consistently support the components of the OJT framework:



- **Skills Matrix visibility** - the LMS provides training matrix gap analysis dashboard and reporting enabling a supervisor to easily establish OJT training / certification gaps vs production requirements for each job role, shift and module, facilitating timely assignment of the right trainees to appropriate structured OJT.
- **Training Plan and Skills Evaluation** – LMS supports a fully configurable, built-in, “save as you go” detailed checklist that outlines key learning objectives, tasks, and critical milestones providing consistency by preventing trainers and trainees from missing steps in trained work processes. Skills evaluation is conducted by the auditor in the LMS via skills checklist and is gated by successful completion and trainer signoff on delivering the training via training plan (with evidence capture of delivery).
- **Peer OJT trainer and peer skills evaluator** – the new LMS solution improved how a trainer and auditor was assigned by supervisors to a trainee by enabling a special trainer & auditor system view and assignment capability. The new system automates and updates the list of qualified OJT trainers and skills auditors, based on several qualifying criteria and availability, and makes it easy for a supervisor to assign qualified trainers and auditors to individual OJT's.

**Supervisor control of Certification** - Automated signoff requests are submitted to supervisors in the LMS (via notification and dashboard prompts), enabling full review of the OJT progression from Training Plan to Skills Evaluation with full evidence accessible. Supervisors can then signoff the certification in the LMS, driving OJT gap closure and operational certification for equipment or facility access.

- **Manager, Trainee, and Skill Evaluator hand-offs** – in the new LMS, all assignments and hand-offs trigger automated notifications at key milestone points to ensure seamless

and timely communication between all parties involved to ensure rapid completion of the OJT.

- **Restriction on OJT trainer and skills evaluator for the same training** – the new system provides checks and balances to ensure integrity in trained with a system control to force a different employee to perform the skills assessment audit vs training plan delivery.
- **Assigning training to the employees** – assignment tasks are now automated in the new system. Over 700,000 automated assignments have been executed since inception, implying that over 700,000 opportunities for human error were avoided through automated, consistent & controlled assignment.
- **Linking training completion record to factory equipment access** – an automated, integrated systems solution was implemented to tie the training record signoff certification status to employees' ability to access factory equipment and/or locations. If the employee's training was not current, their company badge ID is locked out automatically from equipment or facility access.
- **Decertification (disqualifying) training after an extended leave of absences (LOA)** – an automated process was built to calculate the length of time an employee was on LOA. If the length of LOA exceeds a specific set point, the system automatically decertifies the employee to force refresh training prior to working in the production line reducing errors and safety concerns due to skills atrophy.

In addition to support for automated, consistent OJT process execution, the LMS has been established to support key compliance, onboarding, leadership development and other core learning and development programs within TI.

## A NEW LEARNING SYSTEM THAT DRIVES GLOBAL IMPROVEMENT

Completed after five years from initial factory review to final phased deployment, the implementation of the standardized and structured OJT training process flow combined with all the system controls and automations has been an outstanding success, with zero interruption to factory production capacity.

Implementing Seertech's LMS across all Texas Instruments factories has resulted in:

- **100% of all 23 factories (as of Q1 2022) being live** in the new system
- **Over 920,000 training assignments processed**, and of those 84% were auto-assigned and eliminated over 410,000 manual assignment tasks
- **Over 883,000 training completions**
- **Over 24,000 factory employees completed online training**, eliminated all paper tracking
- **Over 11,000 structured OJT training plans in the system**
- **Increased the "On-Time Training Completion Rate" globally**, from 85-90% before the change to >99% after the change
- **Reduced overall employee's average training time by 9%** (from 83 days to 75 days); one specific US job role experienced up to 38% reduction in training time
- **8611 hours saved annually** by productivity enhancements in the new system
- **Eliminated approximately 14 safety and human error incidents annually**, related to employees returning from an extended LOA
- **Eliminated approximately 12 ethics complaint cases annually** due to consistency, automation and independence of process
- **Cost savings of ~\$1M annually** by installing a central LMS admin team in India
- **Return On Investment (ROI) of at least 3x (USD\$77m to-date and growing)**

## A PARTNERSHIP THAT EVOLVES WITH TEXAS INSTRUMENTS

It's clear from the key measurables that this project produced significant positive impact on TI's business, in part because TI selected an LMS solution with the needed custom workflows, and with flexible, adaptable, and integrated application technology that aligns with desired business and operations model, both today and in the future.

As of Q1 2022, TI has over 23 factories across 8 different countries and has announced new locations of 6 more factories to be built by 2025. Moving forward, TI has plans to continue boosting its hiring processes, and the reduced onboarding of employees equates to a significant gain when the savings are applied to thousands of new hires globally.

TI is also exploring system solutions to incorporate adult learning principles to improve knowledge retention and reduce training time and investigating methods like "nudge training theory" and performance tracking to enhance the current OJT training process. Additional process automation, Job Role streamlining and expanded analytics are also high on the agenda to deliver even greater operational scalability and ROI.

Vital ingredients of the success of the TI quest for safe, consistent operational growth at scale through structured learning and OJT were the strong desire and focus on consolidated process reengineering, together with selecting the right LMS partner with direct experience in supporting manufacturing industries and the versatility of their LMS platform to enable targeted solutions to business-critical scenarios at both operational and strategic levels.





## A LEARNING SOLUTION THAT CAN HANDLE COMPLEXITY

Managing training in a heavily regulated, compliance-driven industry is a complex task. Lucky for you we thrive on solving for complexity. Our learning solution is flexible yet powerful, able to handle even the most complex learning needs.

### Let's chat

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