Carlos H. Torres – Smart Manufacturing, Industrial AI & Enterprise Operations Executive

Where the Shop Floor Meets Enterprise AI — Robotics · Intelligent Operations · Enterprise Transformation



About

Executive who turns factory floors into intelligent operations — connecting manufacturing execution platforms, AI vision systems, industrial robotics, automation, controls engineering, and enterprise platforms into a unified layer that scales across sites. At Pella, driving simultaneous modernization of MES, PLM, CPQ, and ERP while deploying the intelligent operations layer on top — recognized with three industry awards within the two years. Before that, at Ericsson built and led a 70+ person global Industry 4.0 team earning designation as one of the first three WEF Lighthouse Factories in the world.

Impact

- At Pella, achieved a **33% reduction in customer quality issues** leveraging Vision AI, accelerated equipment issue resolution by **10% leveraging AI-powered maintenance assistant**, **improved front line employe experience**, reduced attrition, **and increased first pass yield** via voice directed work instructions, **Exposed ~$13% of material spend as unidentified consumption**, unlocking a major opportunity for improved material traceability, cost control, and operational accountability. **Awards -** 2026 Future of Manufacturing award for Pella's Industrial AI Strategy for Quality and Efficiency at Scale, 2025 Future of Manufacturing award for our voice-guided work instructions by MLC, AI Breakthrough of the Year for AI Maintenance Doctor by the Technology Association of Iowa.

- At Ericsson, **achieved a 54% reduction in unplanned equipment downtime**, **24% improvement in production efficiency** and **a 22% increase in equipment utilization**, and Championed Industry 4.0 initiatives, resulting in **Ericsson's USA 5G Smart Factory being distinguished as a lighthouse factory by the World Economic Forum (WEF),** a prestigious global recognition.

Current Role

Head of Industrial AI & Digital Transformation at Pella Corp - Lead enterprise digital manufacturing and intelligent operations initiatives across Pella's production network, integrating operational technology, manufacturing systems, and data platforms to improve productivity, quality performance, and operational visibility.

Digital Manufacturing Platforms – Lead the architecture & deployment of enterprise manufacturing systems including MES, AI Vision, hardware automation, and real time production visibility.
Enterprise System Transformation – Leading a large-scale modernizing of Pella enterprise systems (PLM, CPQ, ERP, MES).
Operations Data & Insights – Building connected operations data ecosystems that surface actionable intelligence across labor productivity, machine performance, quality trends, and supply chain flow.

Experience

Global Head of Industry 4.0, Global Head I4.0 Manufacturing Data, and 5G in Manufacturing Leader - Appointed Global I4.0 Data Manufacturing Leader responsible for establishing a unified global technology stack, creating & implementing a global smart manufacturing data governance strategy & data upskilling program.

Head of Industry 4.0 USA 5G Smart Factory - Deliver innovative smart manufacturing solutions and technology that enables Ericsson to consistently meet customer expectations, maximize production capacity, and drive adoption of advanced cellular technologies.

Sr. Technology Manager – Data, Analytics & AI - Apply advanced data analytics, leveraging IIoT, cloud computing & smart automation to quantify impact of planned & unplanned events on railway operations, determine causality in order to predict and prevent and identify actionable opportunities to reduce impact of planned and unplanned train stop events

Head of Intelligent Automation Center of Excellence at BNSF Railway orchestrating all automation activities including securing executive sponsorship, evaluating opportunities for potential for aggressive financial returns, innovation strategies, governance, delivery**,** and customer success

Areas of Expertise

- Industries: Manufacturing | Telecomm | Transportation & Rail
- Strategy: Automation | IIoT | Intelligent Operations | AI
- Systems: MES | ERP | PLM | QMS
- Tech Stack: OT Platforms | Industrial IoT | Edge Computing | Cloud Data Platforms | Industrial AI & Vision Systems
- Delivery: Agile & SAFe | Portfolio Governance | Product & Project Management

Education

- Bachelors of Science in Electrical and Electronic Engineering

Carlos H. Torres – Transformation Leadership & Operational Impact

Head of Industrial AI & Digital Transformation

Situation – Pella is undergoing a multi-year operational modernization to improve manufacturing productivity, quality performance, workforce experience, and material efficiency while scaling digital capabilities across production operations.

Customer Quality Performance – Improve product quality outcomes and reduce customer issues through advanced quality analytics and production intelligence.
Material Visibility & Cost Control – Address lack of material traceability and operational accountability revealed by significant unidentified material consumption.
Voice-Directed Work Execution – Improve frontline employee experience, accelerate training, and reduce manufacturing variability through digital work instructions.
Enterprise Systems Modernization – Modernize core enterprise and operational systems (PLM, CPQ, ERP, MES) to support scalable digital operations and connected production environments.

Global I4.0 Manufacturing Leader

Situation – To increase the gains of Industry 4.0 a, previously non-existent, global unit was established to scale manufacturing solutions across all global Ericsson sites I am a key contributor and main driver of the strategy for this transformational effort affecting close to 6000 employees.

Global 4.0 Domains – My department was appointed to establish **global data platforms**, **global enterprise architecture and technology stacks and global 5G in Manufacturing program** due to the much-earned success at the USA 5G Smart Factory.

Results – Global data platform created enabling of **Dashboards in a day** and an **increase in citizen analysts** around the globe. **Establishment of a cloud 1st principal** for deployment of applications.

Industry 4.0, Smart Manufacturing at the USA 5G Smart Factory

Situation – To establish a competitive edge Ericsson built a factory in the US in 2020. A key strategic to mitigate higher operational costs in the US included creating a new department responsible for building systems leveraging advanced technologies to create solutions that aggressively maximize operational efficiencies and help Ericsson consistently meet our customer expectations.

Advanced Use Case Development & Automating the production of our product portfolio – Automation of Assembly, Product & Material Movement to improve efficiency & quality of manufacturing processes

Results – 54% reduction in unplanned downtime, **24% improvement in production efficiency** & **22% improvement in equipment utilization**

Agile Transformation

Situation – Ericsson 5G product portfolio is challenging in that the product life span is short, we have a high mix of products & low volumes requiring a high level of flexibility and agility to build solutions that drive improvement in operation efficiencies.

Digital Transformation – Implementation of Scaled Agile framework (60 employees) and simplified technology stack to improve competence of development teams while reducing technical debt

Results – 10x improvement in deployment time, 6x improvement in velocity & 90 percent reduction in cost per project.

Railroad Advanced Analytics Initiatives

Compaction Order Removals – Restoring the consolidation and lateral resistance of disturbed track is critical to the safe operation of trains. Our objective was to identify opportunities to restore the physical infrastructure and improve the efficiency of moving trains. By leveraging onboard **IIoT devices** our analysis found that, by using actual train weights and automating the notification process and / or speed restriction removal, **~80% of BNSF's network would see an improvement**

Locomotive Yard Utilization (YLU) – In order to **measure & manage productivity** of locomotives, our analysis results found that **on average locomotives are idling 81% of the time** at remote locations. This analysis is currently allowing operations teams to, in real time, optimize crew productivity

Help Desk Productivity Analysis – The help desk manages timely resolution of incidents. Analysis results demonstrated less than **50% utilization of resources** resulting in workforce rationalization and redeployment of resources

Railroad Systems

CBM & Equipment Quality Management System (EQMS) – EQMS is a high severity system critical to railroad operations that enabled condition-based maintenance (CBM) of our locomotive and car fleet. The rail network includes roughly **4000 detectors**, **edge IoT devices**, of different types, producing **35 million daily readings**. This team is leveraging machine learning algorithms to improve the quality of data through better matching of readings to correct cars and by predicting car component failures. This allows the BNSF to develop more robust preventative maintenance plans to address challenges before they arise

Enterprise Asset Management (EAM, Hours of Service App & Document Repository) – EAM transformed 36,000 route miles in a linear method including all network rail assets into a single source of truth, including scheduling of preventative maintenance inspections in a mobile disconnected interface for ~3000 users

Carlos H. Torres – Industry Week's Talent Advisory Board

Board Goals

This board would give manufacturers a forum to discuss talent challenges, give young people career advice and give IndustryWeek a better understanding of what people just embarking on their careers want to learn from industry leaders.



October 24th, 2023 - How Problems get turned into opportunities - Link here

"Difficult situations often inspire the most innovation solutions"



August 30th, 2023 – How to Give and Get Constructive Criticism – Link here

"A technique I often use is to think of myself as a guide to answers, as opposed to an answer provider. This allows me to encourage employees to seek solutions and empower them to take ownership"



June 27th, 2023 – Delegating – Link here

"The key to clear and concise communication is organizing your thoughts communicating, using simple and familiar language and taking the time to condense complex thoughts or ideas into a concise form."



May 30th, 2023 - Ready for the next challenge – Link here

"The challenge is taking chaos and transforming it into something that can consistently deliver quality results with a motivated and empowered group of smart people."

Carlos H. Torres – In the media



5G Innovators: Ericsson USA Smart Factory
YouTube
Ericsson's USA 5G Smart Factory is living proof that advanced technologies like 5G connectivity can create safer, cleaner manufacturing jobs.

Thank you CTIA for the opportunity to share our #smartmanufacturing story

Link here



CTIA on LinkedIn: During today's panel discussion, Carlos H Torres, Head of Industry 4....
linkedin.com
Building a culture of innovation that is powered by smart people.

Link here



CTIA on LinkedIn: Manufacturing Webinar
linkedin.com
Future of Manufacturing Webinar with CTIA

Link here



Silicon, USA: Technology That's Actually Made in America - Ericsson: Lewisville, TX
PCMAG
Ericsson is featured in PC Mag's list of companies manufacturing high-quality tech products in the U.S. Here in Lewisville, Texas.

Full video in the link feature Daniela Pires, Paul Tse and myself.

Link here



Ericsson Pushes Industry 4.0 to Make 5G
industryweek.com
In the news.

Link here



In Business, Better Connectivity Means Better Productivity
Bloomberg
Quote by Carlos H. Torres Head of I4.0 USA 5G Smart Factory

Link here