INDUSTRY WHITE PAPER

Your Next Hires Never Sleep

5 Agentic AI Use Cases for Manufacturing

CNXN HELIX
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CONTENTS

Executive Summary

The Digital Worker: Agents as Capacity, Not Cost

Five Use Cases Across the Value Stream

The Platform Underneath

Answering the Hard Questions

Next Steps with CNXN Helix®

Ready to hire your first digital worker?

Executive Summary

Manufacturers don't need another technology stack. They need more capacity to run the business they already have, with the people they can hire and keep.

This paper describes five places across the manufacturing value stream where AI agents act as **digital workers**. They run 24/7/365 alongside your teams and take on the repetitive, data-heavy work that slows supply, design, production, quality, and service. Your people keep the judgment calls; the digital workers keep everything moving between them.

Each use case is written for the leader who owns the outcome and breaks down the problem in plain terms, what the digital workers do, the results to expect, published benchmarks, and the Microsoft capabilities that deliver it. Pick the one that sounds like your Monday morning. That is where a conversation with CNXN Helix® starts.

#	USE CASE	WHO OWNS IT	THE DIGITAL WORKER'S JOB
1	Supplier Management	VP Supply Chain, Procurement	Watches every supplier, PO, and shipment and raises risk before it becomes a line-down event
2	Product Design and Closed-loop Feedback	VP Engineering, R&D	Brings field, quality, and production data back to engineering so the next revision is right the first time
3	Production	VP Operations, Plant Manager	Watches lines and assets, predicts downtime, and coaches operators and technicians in the moment
4	Quality Management and Customer Corrective Actions	VP Quality	Finds root cause across systems, drafts the 8D or CAPA, and closes customer complaints faster
5	Customer Management and Field Service	VP Service, Aftermarket	Triages cases, sends the right tech with the right part, and fixes issues on the first visit



1.9 million U.S. manufacturing jobs could go unfilled through 2033.

The Digital Worker: Agents as Capacity, Not Cost

The most useful way to think about an AI agent is as a new hire who works every shift. Treated as software, agents look like a new line item for tokens and licenses. Treated as digital workers, they are the fastest way a manufacturer can add capacity in a labor market that cannot supply enough people.

Deloitte and The Manufacturing Institute project that U.S. manufacturing could need as many as 3.8 million new workers between 2024 and 2033, and that 1.9 million of those jobs could go unfilled.[1] No recruiting plan closes that gap alone. What you can do is give every scarce engineer, planner, buyer, quality lead, and technician a team of digital workers that does the searching, reconciling, drafting, and chasing for them.

QUESTION	AGENTS VIEWED AS A COST	AGENTS VIEWED AS DIGITAL WORKERS
What are we buying?	Tokens, licenses, consumption	Hours of skilled capacity on every shift
How do we measure it?	Monthly spend	Cost per completed task against the same task done manually
What does it do to headcount?	Feared as replacement	Covers roles you cannot fill; frees people for work only humans can do
When does it work?	Business hours, when someone runs it	24/7/365, across shifts, plants, and time zones
Where does know-how live?	In a few experts' heads, until they retire	Captured, reused, and available to every new hire on day one
How does it scale?	Linear with seats	With demand, without overtime or recruiting lead time

Three principles keep digital workers productive and safe:

- **They have a job description.** Each agent owns a defined outcome, such as "no PO goes late without a buyer knowing 10 days ahead," and is measured on it.
- **They have a manager.** People approve the decisions that matter; agents propose, prepare, and follow up. Every agent has an identity, permissions, and an audit trail, just like an employee.
- **They earn their keep.** If a digital worker costs less per completed task than the human time it frees, and that time goes to higher-value work, it pays for itself. Every use case in this paper is built to be measured that way.

Five Use Cases Across the Value Stream

This paper is for line-of-business leaders at manufacturers in any NAICS sector 31–33 or SIC major group 20–39: discrete, process, and mixed-mode, from industrial machinery and electronics to food, chemicals, medical devices, and automotive. The five use cases follow the value stream in order, from the supplier's dock to the customer's site, and back again into the next product design.

Every use case uses the same six-part template, so you can compare them side by side and pick the one with the biggest payoff for your business.

PART	WHAT IT ANSWERS
Function	What this part of the business is responsible for
Challenges	What gets in the way today
Digital Workers	The agents on the team and the real-world problem each one takes off your team's plate
Impact and Outcomes	What changes for the business, the team, and the customer
Statistics	Published benchmarks for the size and speed of improvement
Microsoft Alignment	The Microsoft capabilities that deliver it, for your IT partners

The statistics are drawn from published analyst research, industry studies, and customer results, cited at the end of this paper. They show what peers have achieved; they are not a guarantee. Your own baseline is measured in the first weeks of an engagement, so the business case is built on your numbers.

Use Case 1: Supplier Management



Agentic AI could make procurement 25–40% more efficient.

Digital workers watch every supplier, purchase order, and shipment around the clock, so a buyer hears about a late part 10 days ahead instead of the morning the line stops.

> **A night with digital workers.** At 2:00 a.m., a typhoon closes a port in Asia. By 6:00 a.m., the risk agent has matched it to 14 open POs and two sole-source parts. The impact agent has shown which customer orders are exposed and ranked three recovery options. The follow-up agent has drafted the supplier emails. Your buyer walks into a decision, not a fire drill.

Function

Supplier management covers sourcing, qualifying, contracting, and monitoring the suppliers that feed production. It spans PO confirmation and follow-up, delivery performance, cost, quality, compliance, and risk across tier-1 suppliers and the sub-tiers behind them.

Challenges

- Buyers spend much of the day chasing confirmations and ship dates instead of managing strategy and relationships.
- Risk signals such as supplier financial stress, weather, tariffs, port congestion, and geopolitics live outside your systems and arrive too late.
- Supplier data is split across ERP, portals, quality systems, spreadsheets, and inboxes, so no one sees the full picture.
- A sole-source part three tiers down can stop a line, and sub-tier visibility is thin.
- Workload keeps climbing: McKinsey finds spend managed per procurement employee is 50% higher than five years ago.[2]
- Experienced commodity managers are retiring with supplier knowledge that was never written down.

Digital Workers

DIGITAL WORKER	WHAT IT DOES	PROBLEM IT TAKES OFF YOUR PLATE
Supplier follow-up agent	Chases unconfirmed and late POs, reads supplier replies and attachments, and proposes PO updates for buyer approval	Hours a day lost to inbox chasing
Supplier risk agent	Watches news, weather, financial, trade, and logistics signals 24/7 and maps them to your parts, POs, and plants	Learning about a disruption after it hits
Impact agent	Traces a slipped date through inventory, production orders, and customer orders and then ranks options: expedite, alternate source, or re-sequence	Spreadsheet scrambles to see who gets hurt
Sourcing agent	Drafts RFQs; compares bids on price, lead time, quality, and risk; and recommends award scenarios	Slow, inconsistent sourcing cycles
Contract and invoice agent	Checks invoices against contract pricing, rebates, and terms and flags leakage	Money lost to price variance and missed terms
Scorecard agent	Builds supplier scorecards on delivery, quality, and responsiveness and prepares the quarterly review pack	Days of manual prep before every supplier review

Impact and Outcomes

- Fewer line-down events and expedite charges because risk surfaces days or weeks earlier
- Buyers move from chasing to negotiating and developing strategic suppliers
- Lower total cost from better sourcing decisions and recovered contract leakage
- One trusted view of supplier performance shared by operations, quality, and finance
- Supplier know-how is captured and stays with the company when people move on

Statistics

MEASURE	PUBLISHED RESULT	SOURCE
Procurement efficiency with agentic AI	25–40% more efficient	McKinsey, 2025[2]
Value leakage found by an AI invoice-to-contract check	More than $10M found in a four-week proof of concept	McKinsey, 2025[2]
MRO cost reduction from digital e-sourcing	20%	McKinsey, 2025[2]
Cost of doing nothing	Month-long disruptions every 3.7 years on average; expected losses of about 42% of one year's profit per decade	McKinsey Global Institute[3]

Microsoft Alignment

MICROSOFT CAPABILITY	ROLE IN THIS USE CASE
Dynamics 365 Supply Chain Management supplier communications agent[4]	Out-of-the-box follow-up on unconfirmed and late POs and understanding of supplier replies, inside the ERP
Copilot Studio	Build and tailor the risk, scorecard, and sourcing agents with low code; connect to SAP, Oracle, Infor, Epicor, and supplier portals
Microsoft Foundry and Foundry IQ	Orchestrate the impact agent across systems; ground every agent in contracts, specs, and supplier documents
Microsoft Fabric and Fabric IQ	One governed home for supplier, PO, quality, and logistics data, with shared business meaning for terms like "on time" and "sole source"
Microsoft 365 Copilot and Work IQ	Buyers work with agents in Outlook and Teams, where supplier conversations already happen
Purview, Defender, Entra Agent ID, and Agent 365	Protect pricing and contract data, give each agent an identity and least-privilege access, and govern the agent fleet

Use Case 2: Product Design and the Closed-loop Feedback Cycle



AI in R&D can cut time to market by 20–40%.

Digital workers close the loop between the field, the factory, and the design desk, so every field failure, scrap trend, and customer request reaches engineering as evidence it can act on.

> **A week with digital workers.** Over six weeks, field technicians log 37 bearing replacements on one pump model. On Monday, the voice-of-the-field agent links them to a single supplier lot and a tolerance stack-up introduced in Rev C. By Wednesday, engineering has a draft change request with the evidence attached, the cost impact, and every affected BOM and open order listed.

Function

Product design and engineering turns customers' needs into designs, specifications, BOMs, and manufacturing instructions and manages engineering changes across the product's life. In a closed loop, real performance data from production, quality, and the field flows back to shape the next revision.

Challenges

- Feedback from service, warranty, and the plant floor reaches engineers late, in fragments, or not at all.
- Engineers lose hours searching for prior designs, test results, specs, and lessons learned.
- Engineering changes crawl through review while cost, supplier, inventory, and production impacts are assessed by hand.

- Manufacturability problems are found on the shop floor, after tooling is cut.
- Customer specs, standards, and material regulations are checked manually and late.
- Senior engineers' design rationale leaves when they retire.

Digital Workers

DIGITAL WORKER	WHAT IT DOES	PROBLEM IT TAKES OFF YOUR PLATE
Voice-of-the-field agent	Reads service notes, warranty claims, returns, complaints, and connected-product telemetry; clusters failure modes and ties them to part numbers and revisions	Field problems that never reach engineering
Design knowledge agent	Answers, "Have we solved this before?" across PLM, CAD metadata, test reports, specs, and past changes	Hours lost searching and reinventing
Change impact agent	Drafts the change request with evidence and traces impact across BOMs, suppliers, inventory, routings, and open orders	Slow, manual change assessment
Manufacturability agent	Reviews new designs against plant capabilities, process history, and scrap data and flags risks before release	Problems found after tooling is cut
Requirements and compliance agent	Checks designs against customer specs, standards, and material regulations and keeps traceability current	Late compliance surprises

Impact and Outcomes

- Faster time to market, with fewer late design changes and less rework
- Products that improve with every revision because real-world data shapes the design
- Lower warranty cost and fewer repeat failures reaching customers
- Engineers spend their time engineering, not searching or assembling change packages
- Design rationale is captured and reusable by the next generation of engineers

Statistics

MEASURE	PUBLISHED RESULT	SOURCE
Time to market with AI in R&D	20–40% reduction	McKinsey R&D Leaders Forum[5]
Product–market fit	20–50% increase	McKinsey R&D Leaders Forum[5]
Product performance	15–60% increase	McKinsey R&D Leaders Forum[5]
Design time and validation effort (company example)	55% less design time; 48% less validation effort	McKinsey R&D Leaders Forum[5]

Microsoft Alignment

MICROSOFT CAPABILITY	ROLE IN THIS USE CASE
Microsoft Fabric, Real-Time Intelligence, and Fabric IQ	Bring telemetry, warranty, quality, and production data together with PLM and ERP, under one shared model of product, part, and revision
Microsoft Foundry and Foundry IQ	Build the voice-of-the-field and change impact agents and ground them in PLM documents, test reports, and specs
Copilot Studio	Put engineer-facing agents in Teams and connect them to PLM systems such as Teamcenter or Windchill
Microsoft 365 Copilot and Work IQ	Summarize design reviews and change boards and draft change packages in Word and Teams
GitHub Copilot	Speed firmware and software work for connected and smart products
Purview, Defender, and Entra	Label and protect design IP, prevent leakage of CAD and specs, and control which agents and people can see what

Use Case 3: Production



Predictive maintenance can cut machine downtime by 30–50%.

Digital workers watch every line, asset, and shift in real time; predict failures before they stop production; and put the plant's best troubleshooting know-how in every operator's hands.

> **A night shift with digital workers.** At 3:40 a.m., spindle vibrations on a CNC cell have been creeping up for three days. The maintenance agent flags a likely bearing failure within 72 hours, confirms the spare is in the crib, and proposes a 40-minute window at the next changeover. Down the aisle, an operator six months on the job asks why yield is off on line four and gets the same answer a 30-year veteran would have given.

Function

Production turns materials into finished goods safely, on time, and at target cost and quality. It covers scheduling, line operations, maintenance, changeovers, staffing, safety, and shift handoffs—measured on OEE, throughput, yield, and cost per unit.

Challenges

- Unplanned downtime is expensive and getting more so: Siemens estimates it costs the world's 500 largest companies about 11% of revenue.[6]
- Machine, MES, historian, maintenance, and ERP data sit in separate systems, so answering "Why did line three miss rate?" takes hours.
- Veteran operators and maintenance technicians are retiring, and new hires take months to ramp up.
- Shift handoffs lose information, so the same problems get rediscovered.

- Schedules break whenever a machine, material, or crew is unavailable, and replanning is manual.
- Safety issues and near misses are often spotted after the fact.

Digital Workers

DIGITAL WORKER	WHAT IT DOES	PROBLEM IT TAKES OFF YOUR PLATE
Factory operations agent	Answers plain-language questions across machines, MES, quality, and ERP data; explains why OEE dropped; and suggests what to fix first	Hours of report pulling to find a root cause
Predictive maintenance agent	Watches sensor data for early signs of failure, opens the work order, checks spares, and proposes the least disruptive window	Breakdowns that stop the line
Operator coach agent	Guides operators and technicians step by step through SOPs, troubleshooting, and changeovers in their own language, at the machine	Slow ramp-up and lost veteran know-how
Shift handoff agent	Summarizes each shift's events, open issues, quality holds, and priorities for the next crew	Information lost between shifts
Scheduling agent	Re-sequences the schedule when a machine, material, or crew is unavailable and shows the trade-offs	Manual replanning after every disruption
Safety agent	Reviews near-miss reports, incident logs, and permits; flags hazards; and checks lockout and permit compliance	Hazards found after someone gets hurt

Impact and Outcomes

- Higher OEE and throughput from less unplanned downtime
- Lower maintenance and spare-parts cost, and longer asset life
- New operators are productive in weeks instead of months
- Faster root cause and fewer repeat problems across shifts and plants
- Safer plants, with hazards caught earlier

Statistics

MEASURE	PUBLISHED RESULT	SOURCE
Machine downtime with predictive maintenance	30–50% reduction	McKinsey, via Reliability[7]
Machine life	20–40% longer	McKinsey, via Reliability[7]
Spare parts needed when fixing before failure	Up to 40% fewer	Siemens, via ISM[8]
Cost of doing nothing	About $1.4 trillion a year, 11% of revenue, for the world's 500 largest companies	Siemens, 2024[6]

Microsoft Alignment

MICROSOFT CAPABILITY	ROLE IN THIS USE CASE
Azure IoT Operations	Connects and normalizes machine data at the plant edge and moves it to the cloud
Microsoft Fabric Real-Time Intelligence and Fabric IQ	Live analytics online and asset data, automatic triggers when conditions drift, and one shared model of plant, line, and asset
Factory Operations Agent (Foundry and Copilot Studio)[9]	Prebuilt manufacturing agent for plain-language questions across MES, quality, and supply chain data
Microsoft Foundry	Build the predictive maintenance and scheduling agents, with model choice and built-in evaluation
Copilot Studio and Microsoft Teams	Deliver the operator coach, shift handoff, and Factory Safety Agent on shop-floor devices
Dynamics 365 Supply Chain Management or your ERP and CMMS	Production orders, asset records, and maintenance work orders the agents act on
Defender for IoT, Purview, and Entra	Protect OT networks and equipment, govern plant data, and control agent access

Use Case 4: Quality Management and Customer Corrective Actions

Digital workers turn every nonconformance and customer complaint into a fast, evidence-backed corrective action and then keep watching until the fix holds.

Quality-related costs run 15–20% of sales at many manufacturers.

> **A weekend with digital workers.** At 4:55 p.m. on a Friday, a key customer opens a complaint: 12 parts with porosity. By Saturday morning, the containment agent has found every suspect lot in inventory, WIP, and transit. The root-cause agent has tied the defect to a die-temperature drift on press seven and pulled two similar past investigations. The 8D agent has drafted the first four disciplines for the quality engineer to review. The customer has confirmed containment inside the 24-hour window.

Function

Quality management keeps product in spec and customers confident. It covers inspection and testing; SPC; nonconformance handling; corrective and preventive action (CAPA); supplier quality; audits and certifications such as ISO 9001, IATF 16949, AS9100, and ISO 13485; and formal responses to customer complaints such as 8D reports.

Challenges

- Poor quality is expensive: ASQ estimates quality-related costs run 15–20% of sales at many manufacturers.[10]
- Most companies can't see that cost clearly; only 31% of organizations in ASQ's 2025 benchmark say they fully understand its financial impact.[10]
- Root-cause work means pulling data from MES, QMS, ERP, supplier records, and inspection images—often for days.
- CAPAs and 8Ds pile up, miss customer deadlines, and close without proof that the fix worked.
- The same failure recurs in another plant because lessons aren't shared.
- Scarce quality engineers spend their time on paperwork and audit prep instead of prevention.

Digital Workers

DIGITAL WORKER	WHAT IT DOES	PROBLEM IT TAKES OFF YOUR PLATE
Containment agent	When a complaint or nonconformance arrives, finds suspect lots across inventory, WIP, and shipments in transit and drafts the containment plan	Slow or incomplete containment
Root-cause agent	Correlates the defect with process, machine, material, supplier, and operator data and surfaces similar past cases	Days of data gathering per investigation
8D and CAPA agent	Drafts 8Ds and CAPAs in each customer's format, tracks actions and due dates, and nudges owners	Late, inconsistent corrective actions

DIGITAL WORKER	WHAT IT DOES	PROBLEM IT TAKES OFF YOUR PLATE
Effectiveness agent	Watches SPC and defect data after the fix and confirms it held before the action closes	CAPAs closed without proof
Visual inspection agent	Inspects parts inline with computer vision and routes borderline cases to people	Missed defects and inspector fatigue
Audit-readiness agent	Keeps procedures, training, calibration, and records audit-ready and answers auditor questions with evidence	Weeks of audit prep

Impact and Outcomes

- Faster containment and customer response, protecting scorecards and preferred-supplier status
- Lower scrap, rework, warranty cost, and customer chargebacks
- Fewer repeat failures, because every plant learns from every investigation
- Quality engineers shift from paperwork to prevention
- Continuous audit readiness instead of audit fire drills
- Findings flow automatically to design (use case 2) and supplier management (use case 1), closing the loop

Statistics

MEASURE	PUBLISHED RESULT	SOURCE
Cost of quality at many manufacturers	15–20% of sales revenue	ASQ, via Reliability[10]
Organizations that fully understand their cost of quality	31%	ASQ 2025 benchmark[10]
Defect detection with AI visual inspection	Up to 90% higher than human inspection	McKinsey, via Quality Digest[11]

Microsoft Alignment

MICROSOFT CAPABILITY	ROLE IN THIS USE CASE
Microsoft Fabric and Fabric IQ	Bring QMS, MES, SPC, inspection, supplier, and complaint data together with shared definitions for defect codes, lots, and characteristics
Microsoft Foundry and Foundry IQ	Build the root-cause and 8D agents and ground them in past CAPAs, FMEAs, control plans, and procedures
Foundry vision models with Azure IoT Operations	Run AI visual inspection at the line and send results to the quality record
Copilot Studio	Build containment and CAPA-tracking agents and connect them to your QMS, such as ETQ, MasterControl, or Dynamics 365 quality management
Dynamics 365 Customer Service	Take in customer complaints and returns as cases that trigger the quality workflow
Microsoft 365 Copilot and Work IQ	Draft customer responses and summarize material review and 8D meetings
Purview	Retention, audit trails, and data governance that support regulated quality records

Use Case 5: Customer Management and Field Service



Newer support staff resolved 34% more issues per hour with an AI assistant.

Digital workers answer customers instantly, predict service needs before equipment fails, and send the right technician with the right part, so problems are fixed on the first visit.

> A service call that never had to happen. A connected compressor at a customer's plant starts drawing more current than normal. Before anyone notices, the diagnostics agent identifies a failing valve and opens a case. The scheduling agent books the nearest certified technician for Tuesday's planned stop, and the parts agent ships the valve to arrive Monday. The account manager gets a note that the customer's service contract expires next quarter, with a renewal quote attached.

Function

Customer management and field service keep customers productive and loyal after the sale. This covers order and inquiry handling, technical support, warranty and returns, installed-base and service contracts, dispatch and on-site repair, spare parts, and aftermarket revenue from service agreements, parts, and upgrades.

Challenges

- Customers expect answers around the clock across phone, email, portal, and chat—while inquiries pile up in shared inboxes.
- Second visits are common when the technician arrives with the wrong part, the wrong skills, or no equipment history.
- Experienced field technicians are retiring, and demand for industrial maintenance technicians is projected to grow 16% by 2032.[14]
- Installed-base records are incomplete, so you don't know exactly what is in the field, its condition, or its contract status.
- Service is reactive: you learn about a failure when an unhappy customer calls.
- Aftermarket revenue from contracts, parts, and upgrades goes unclaimed, and field insights rarely reach engineering or quality.

Digital Workers

DIGITAL WORKER	WHAT IT DOES	PROBLEM IT TAKES OFF YOUR PLATE
Customer service agent	Answers order status and technical and warranty questions 24/7 from manuals, knowledge articles, and case history and hands off to a person with full context	Customers waiting for answers
Case triage agent	Reads incoming emails and forms, works out intent, creates and routes the case, and drafts the reply	Inbox backlogs and misrouted cases
Remote diagnostics agent	Monitors connected-equipment data, predicts failures, and opens proactive work orders	Hearing about failures from an angry customer
Dispatch and scheduling agent	Matches jobs to technicians by skill, location, parts, and service level and reshuffles the day as conditions change	Second visits and missed SLAs
Technician assistant	Gives the technician equipment history, step-by-step fixes, and parts lookup and writes the service report from voice notes	Slow repairs and end-of-day paperwork
Aftermarket growth agent	Spots expiring warranties and contracts, upgrade opportunities, and parts patterns and drafts quotes for account managers	Service revenue left on the table

Impact and Outcomes

- Higher first-time fix rates and fewer truck rolls
- Faster response and higher customer satisfaction and retention
- New technicians and support staff are productive in weeks, with veteran know-how at their fingertips
- Growing, recurring service revenue from the installed base
- Field insight flows automatically to engineering (use case 2) and quality (use case 4)

Statistics

MEASURE	PUBLISHED RESULT	SOURCE
Support productivity with an AI assistant	14% more issues resolved per hour on average; 34% for newer, less experienced agents	NBER[12]
Return on modernized field service	346% ROI for a composite organization	Forrester TEI for Microsoft[13]
Second visits avoided through better first-time fix	12%	Forrester TEI for Microsoft[13]
Growth in demand for industrial maintenance technicians	16% by 2032	Deloitte and The Manufacturing Institute[14]

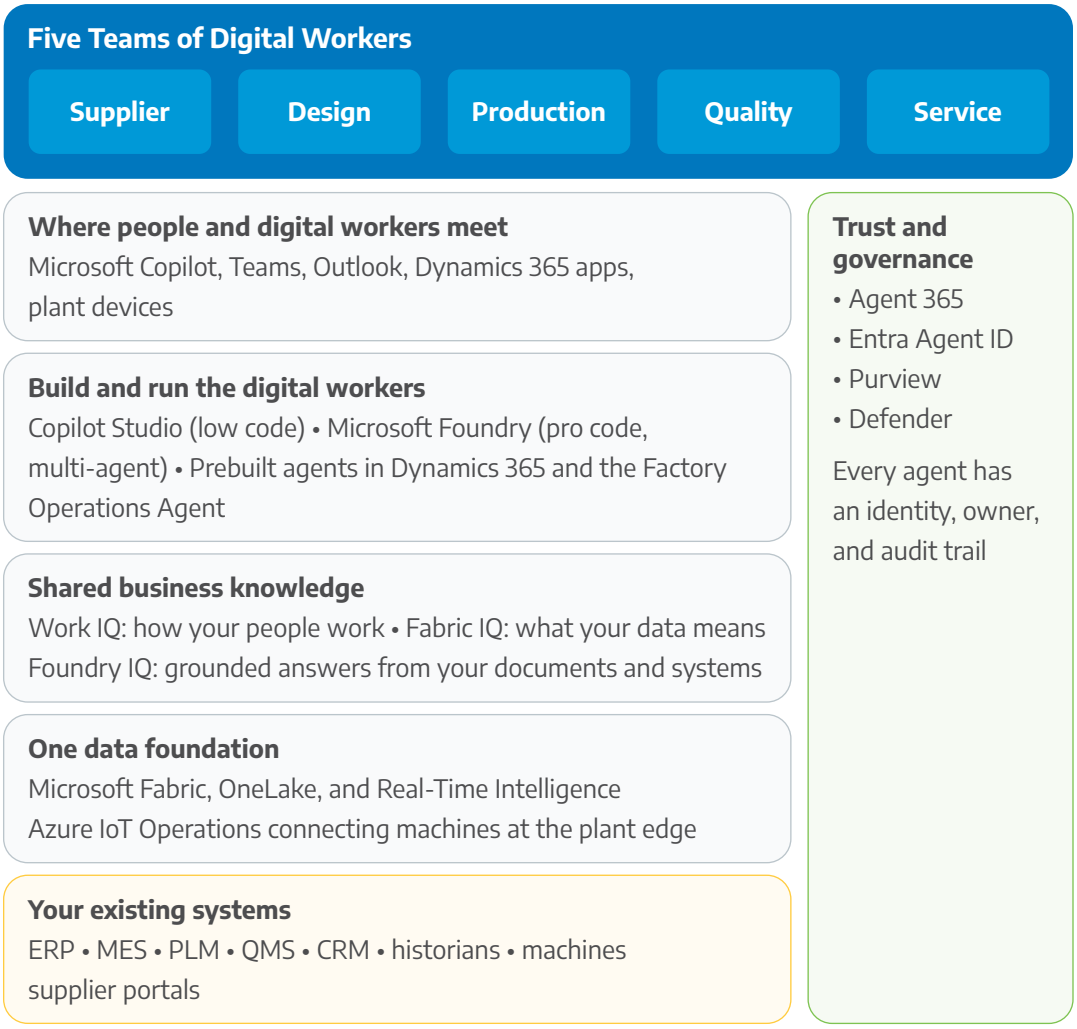
Microsoft Alignment

MICROSOFT CAPABILITY	ROLE IN THIS USE CASE
Dynamics 365 Customer Service agents	Prebuilt case management, customer intent and knowledge management agents for intake, triage, and answers
Dynamics 365 Field Service and the Scheduling Operations Agent[15]	Work orders, dispatch, and AI schedule optimization as the day changes
Copilot Studio and Dynamics 365 Contact Center	Customer-facing agents on your website, portal, chat, and phone
Azure IoT and Fabric Real-Time Intelligence	Connected-product telemetry that powers predictive service
Microsoft Foundry and Foundry IQ	Build the diagnostics agent and ground it in manuals, service bulletins, and repair history
Dynamics 365 Sales and Microsoft 365 Copilot	Renewal and upgrade opportunities and account prep for sales and service teams
Purview, Defender, and Entra	Protect customer data and secure customer-facing agents and their access

The Platform Underneath

Start with one use case. Every next one reuses the same foundation.

Every use case runs on the same Microsoft foundation, so the second use case costs less and goes faster than the first.



Your people meet digital workers in the tools they already use. The agents are built in Copilot Studio or Microsoft Foundry, draw shared business meaning from the three IQ layers,[16] and run on one governed data foundation fed by the ERP, MES, PLM, and quality systems you run today—rather than replacing them. Governance spans every layer: Agent 365, Entra Agent ID, Purview, and Defender make sure each digital worker is registered, has its own identity, and leaves an audit trail.[17]

Answering the Hard Questions

Every manufacturing leader asks the same five questions about digital workers, and they are the right questions. Here are straight answers.

1. "Are our data, IP, and plant safe?"

> **The short answer:** A governed digital workforce is safer than the AI your people are already using on their own.



78% of AI users already bring their own AI tools to work.

- **The risk you already have is shadow AI.** Microsoft's 2024 Work Trend Index found that 78% of AI users bring their own AI tools to work.[18] An engineer pasting a drawing or supplier pricing into a consumer chatbot is the real exposure.
- **Your data stays yours.** In Microsoft Copilot, prompts, responses, and organizational data are not used to train foundation models, and Copilot only surfaces data a user already has permission to see.[19]
- **Every digital worker has an identity and a manager.** Entra Agent ID gives each agent its own identity and least-privilege access. Agent 365 registers and monitors every agent. Purview applies your sensitivity labels and data-loss rules, and Defender watches for threats such as prompt injection.
- **Agents read from the plant floor; they don't run it.** Digital workers read machine and MES data and act in business systems such as ERP and maintenance. They don't write to PLCs or control loops, and decisions that matter go to a person for approval.
- **Everything is auditable.** Every agent action is logged, which is more traceable than the email threads and spreadsheets it replaces.
- **Some data can't leave the building.** For ITAR, CUI, or crown-jewel IP, sensitive steps can run on local models, such as NVIDIA GB10 systems deployed through CNXN Helix Vertical AI Jumpstart Services, while everything else runs in your Microsoft tenant.

2. "Won't tokens become a runaway cost?"

> **The short answer:** Measure a digital worker against the cost of the work it does, not against zero. On that basis, most tasks cost cents.



The cost of GPT-3.5-level AI fell more than 280-fold in under two years.

- **Do the math per task.** Illustrative example: an agent that uses 20,000 tokens to chase a late PO and update the record costs about six cents at a blended $3 per million tokens. The same task takes a buyer 15 minutes, or $15 at a $60 fully loaded hourly rate. Your model mix and labor rates will differ; the gap rarely closes.
- **The price of intelligence is collapsing.** Stanford's AI Index 2025 reports that the cost of GPT-3.5-level performance fell from $20 to $0.07 per million tokens between November 2022 and October 2024, more than 280-fold.[20]
- **Right-size the model for each step.** Small, inexpensive models handle routing, extraction, and summaries. Larger models are reserved for hard reasoning, and plain code does the math.

- **Make spend predictable.** Dynamics 365 and Copilot Studio agents can run on prepaid capacity or pay-as-you-go.[15] Budgets and quotas in Azure cap spend, and a dashboard tracks cost per completed task.
- **Run steady, high-volume work locally when it pays.** For workloads that run around the clock, a fixed-cost, on-premises system such as a GB10 turns per-token spend into a one-time purchase.
- **Compare it to the cost of the problem.** Unplanned downtime alone costs the world's largest companies about 11% of revenue.[6] One avoided line-down event pays for a very large number of tokens.

3. "Why not just hire more people?"

> **The short answer:** You can't hire fast enough, and your scarce people shouldn't spend their days on work a digital worker can do.

- **The people aren't there.** 1.9 million U.S. manufacturing jobs could go unfilled through 2033.[1]
- **Digital workers take the work people don't want.** Chasing confirmations, searching for documents, reconciling systems, and writing reports burn out good people. In the NBER study of 5,179 support agents, AI assistance also improved employee retention.[12]
- **New hires get better faster.** In the same study, newer and less experienced workers gained 34% in productivity, because the AI spread the habits of the best performers.
- **Coverage without overtime.** Digital workers cover nights, weekends, every plant, and every time zone and scale up for a launch, a recall, or peak season and then scale back.
- **Know-how stays when people retire.** What your veterans know becomes part of the digital worker that coaches the next generation.
- **It is not either/or.** People own judgment, relationships, and accountability. Digital workers prepare, follow up, and keep score. Your best people become managers of digital workers.



Analysts estimate 80–90% of business data is unstructured.

4. "We already have ML, SPC, MES dashboards, and engineering tools. Why LLMs and agents?"

> **The short answer:** Keep them. Agents don't replace your proven tools; they use them, and they take on the work those tools were never built to do.

- **Most of your knowledge isn't in a table.** Analysts estimate 80–90% of business data is unstructured:[21] service notes, 8D reports, supplier emails, specs, and warranty narratives. Traditional ML and SPC need clean, structured inputs; language models read documents, text, and images as they are.
- **Dashboards show what happened in one system; agents explain why across all of them.** An agent can pull MES, quality, maintenance, and supplier data together to answer, "Why did line three miss rate?" in minutes.
- **Insight is not action.** An SPC alarm or a predictive maintenance score doesn't open the work order, check spares, find a window, tell the supervisor, and update the customer. Agents close the loop from signal to action, where most analytics stall.

- **Rules break; agents adapt.** Rules-based automation fails when a supplier changes its email format. Language models handle the variation.
- **Faster to stand up.** A custom ML model for each problem takes data scientists months. Foundation models arrive pretrained and are grounded in your data, so the first digital worker can go live far sooner.
- **The right tool for each step.** Deterministic math stays deterministic; agents orchestrate.

TASK	BEST TOOL	WHY
Calculate control limits and Cpk	SPC engine	Deterministic math must be exact and repeatable
Predict a bearing failure from vibration data	Time-series ML model	Purpose-built models excel at numeric patterns
Optimize a production schedule	Scheduling solver	Finds the best plan within hard constraints
Read 400 supplier emails and update the POs	Agent with a language model	Unstructured text in endless formats
Explain why OEE dropped across MES, quality, and maintenance logs	Agent orchestrating the tools above	Cross-system reasoning in plain language
Draft the 8D in the customer's format	Agent with a language model	Writing grounded in evidence and past cases
Decide whether to ship a lot under deviation	A person	Judgment and accountability stay human

5. "Can we trust the answers, and will this get past the pilot?"



Every use case starts with a business owner, a baseline, and a target.

> **The short answer:** Yes, when every digital worker is grounded in your data, checked by people, and owned by a business leader with a number to hit.

- **Grounded, not guessing.** Agents answer from your own documents and systems through Foundry IQ and Fabric IQ and show their sources so people can check them.
- **Math stays in math tools.** Calculations run in deterministic systems such as SPC, ERP, and solvers; the language model explains and acts on the results.
- **People approve what matters.** Agents propose; people approve changes to orders, schedules, specs, and customer commitments until a task has earned more autonomy.
- **Tested before trusted.** Microsoft Foundry's evaluation tools score an agent's accuracy before go-live and keep scoring it after.
- **Pilots fail when they start with technology.** MIT research found 95% of generative AI pilots fail to move beyond experimentation,[22] and 56% of CEOs in PwC's 2026 Global CEO Survey report getting nothing from their AI efforts.[23] Every use case in this paper starts the other way: a business owner, a measured baseline, and a target.



Start with one use case, prove it on your data, and then grow the team.

Next Steps with CNXN Helix®

Start with one use case; prove it on your own data; then grow the team of digital workers from there. CNXN Helix Center for Applied AI and Robotics[24] exists to help manufacturers find where AI pays off in their environment and put it to work.

Where to Start

IF THIS IS WHAT KEEPS YOU UP AT NIGHT...	START WITH
Line-down events from late or short parts; buyers buried in email	Use Case 1: Supplier Management
Late design changes, repeat field failures, slow time to market	Use Case 2: Product Design and Closed-loop Feedback
Unplanned downtime, missed rate, slow ramp-up for new operators	Use Case 3: Production
Customer complaints, overdue 8Ds, rising cost of quality	Use Case 4: Quality Management and Customer Corrective Actions
Second truck rolls, service backlogs, flat aftermarket revenue	Use Case 5: Customer Management and Field Service

How an Engagement Works

1. **Pick the use case.** A working session with your line-of-business leaders and the Helix team to choose the use case, define the digital worker's job, and agree on the two or three numbers that prove success.
2. **See it in action.** A walkthrough of the use case so your team can picture the digital workers in their own day.
3. **Prove it on your data.** A focused pilot with one or two digital workers, connected to your real systems, measured against your baseline, with your people approving every decision that matters.
4. **Scale the team.** Add digital workers to the use case, extend to more plants and lines, and then move to the next use case on the same foundation.

About CNXN Helix

CNXN Helix is Connection's Center for Applied AI and Robotics, bringing together AI expertise, technology, services, and an extensive partner ecosystem to help organizations turn AI possibilities into practical business outcomes. Whether you're exploring your first AI use case or looking to scale existing initiatives, CNXN Helix can help you determine what comes next.

Ready to hire your first digital worker?

Talk to your Connection Account Team to choose your first use case and see how CNXN Helix puts digital workers to use in your business.

CNXN HELIX
CENTER FOR APPLIED AI AND ROBOTICS

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we solve IT

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Enterprise Solutions 1.800.369.1047

www.connection.com/ai ■ www.cnxnhelix.com

Statistics are published results from the sources below; individual results vary. Microsoft product names reflect availability as of October 2026; some agents named here were in preview at the time of writing.

1 Deloitte and The Manufacturing Institute, US manufacturing could need as many as 3.8 million new employees by 2033 (2024). https://www2.deloitte.com/us/en/pages/about-deloitte/articles/press-releases/us-manufacturing-could-need-new-employees-by-2033.html

2 McKinsey, Transforming procurement functions for an AI-driven world (October 2025). https://www.mckinsey.com/capabilities/operations/our-insights/transforming-procurement-functions-for-an-ai-driven-world

3 McKinsey Global Institute findings on supply chain disruption losses, via Consulting.us (2020). https://www.consulting.us/news/4743/billions-in-profits-evaporate-due-to-supply-chain-disruptions

4 Microsoft Learn, Follow up on purchase orders using the Supplier Communications Agent. https://learn.microsoft.com/en-us/dynamics365/supply-chain/procurement/supplier-com-agent-follow-up

5 McKinsey, Using AI to supercharge R&D: takeaways from the R&D Leaders Forum. https://www.mckinsey.com/capabilities/operations/our-insights/operations-blog/using-ai-to-supercharge-r-and-d-takeaways-from-the-r-and-d-leaders-forum

6 Siemens, The True Cost of Downtime 2024. https://assets.new.siemens.com/siemens/assets/api/uuid:1b43afb5-2d07-47f7-9eb7-893fe7d0bc59/TCOD-2024_original.pdf

7 Reliability, Predictive maintenance ROI benchmarks: what the studies show (citing McKinsey). https://reliamag.com/maintenance-and-reliability/predictive-maintenance-roi-benchmarks-what-the-studies-show/

8 ISM, The Monthly Metric: Unscheduled Downtime (August 2024). https://www.ismworld.org/supply-management-news-and-reports/news-publications/inside-supply-management-magazine/blog/2024/2024-08/the-monthly-metric-unscheduled-downtime/

9 Microsoft Industry Blog, Factory Operations Agent and Factory Safety Agent. https://www.microsoft.com/en-us/industry/blog/?p=120829

10 Reliability, cost of quality benchmarks (citing ASQ). https://reliamag.com/?p=266280

11 Quality Digest, AI visual inspection brief (citing McKinsey). https://www.QualityDigest.com/pdfs/Mariner-3-1-22.pdf

12 NBER, Generative AI at Work (Brynjolfsson, Li and Raymond, 2023). https://nber.org/papers/w31161

13 Microsoft, Forrester study finds 346% ROI when modernizing service operations with Dynamics 365 Field Service (February 2024). https://www.microsoft.com/en-us/dynamics-365/blog/business-leader/2024/02/05/forrester-study-finds-346-roi-when-modernizing-service-operations-with-dynamics-365-field-service/

14 Manufacturing Dive, coverage of the Deloitte and Manufacturing Institute talent study (2024). https://www.manufacturingdive.com/news/manufacturing-labor-shortage-2033-deloitte-mi-report-2024/713133/

15 Microsoft Learn, Set up the Scheduling Operations Agent. https://learn.microsoft.com/en-us/dynamics365/field-service/soa-setup

16 Cloud Wars, Microsoft debuts Work IQ, Fabric IQ and Foundry IQ. https://cloudwars.com/ai/microsoft-debuts-work-iq-fabric-iq-and-foundry-iq-a-unified-intelligence-layer-for-the-ai-powered-enterprise/

17 Forrester, Microsoft Ignite 2025: Living the Frontier Lifestyle. https://www.forrester.com/blogs/microsoft-ignite-2025-living-the-frontier-lifestyle

18 Reworked, Microsoft and LinkedIn release the 2024 Work Trend Index. https://www.reworked.co/the-wire/microsoft-and-linkedin-release-the-2024-work-trend-index-on-the-state-of-ai-at-work/

19 Microsoft Learn, Data, privacy and security for Microsoft 365 Copilot. https://learn.microsoft.com/microsoft-365-copilot/microsoft-365-copilot-privacy

20 Stanford HAI, AI Index 2025: State of AI in 10 Charts. https://hai.stanford.edu/news/ai-index-2025-state-of-ai-in-10-charts

21 Qlik, The untapped potential of unstructured data (citing MIT Sloan). https://qlik.com/us/resource-library/the-untapped-potential-of-unstructured-data

22 Fortune, MIT report: 95% of generative AI pilots at companies are failing (August 2025). https://fortune.com/2025/08/18/mit-report-95-percent-generative-ai-pilots-at-companies-failing-cfo/

23 PwC, 2026 Global CEO Survey. https://www.pwc.com/gx/en/news-room/press-releases/2026/pwc-2026-global-ceo-survey.html

24 Connection, Connection launches Helix Center for Applied AI and Robotics (December 2023). https://ir.connection.com/node/16291

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