

ARTIFICIAL INTELLIGENCE

Real World Case Studies



Case Study 1: Multinational Manufacturer Accelerates Asset Inspection with Generative AI

The Problem

Decades of critical equipment inspection records were locked in non-digitized, unstructured formats. Inspection teams spent days manually searching paper records, delaying maintenance planning. Vital safety information buried in 70 years of historical data created significant operational risk.

How AI Was Used

The manufacturer partnered with C3 AI to deploy their cutting-edge Generative AI platform specifically designed for industrial applications. Engineers worked to unify 70 years of inspection documents – including handwritten notes, scanned PDFs, maintenance logs, and equipment records – from multiple disparate data sources into a single, AI-powered inspection data pipeline. The system used natural language processing and large language models to understand and index all of this unstructured historical data.

Once integrated, the platform empowered inspectors to ask questions in plain, everyday language and receive AI-generated summaries of relevant historical inspection data instantly. Instead of spending days flipping through paper records and disconnected databases, an inspector could simply type a question like "What were the last five inspection findings for turbine unit 7?" and get a comprehensive, accurate answer within seconds. The AI cross-referenced data across decades of records to surface patterns and insights that would have been impossible to find manually.

Results

80%

Reduction in Scoping Time

Planning accelerated from days to hours

100%

User Satisfaction

Complete approval for workflow acceleration

Key Takeaways

- Generative AI can unify decades of fragmented historical data to dramatically improve operational efficiency in industrial maintenance. This transforms institutional knowledge from a liability into a strategic asset.

Case Study 2: North American Steel Manufacturer Optimizes Value Chain with AI

The Problem

A North American steel manufacturer struggled with manual, siloed processes across their entire value chain. Poor demand forecasting caused excess inventory and stockouts, while inefficient raw material purchasing inflated costs. Suboptimal production scheduling created bottlenecks, leaving millions in potential savings on the table.

How AI Was Used

The steel manufacturer deployed AI across four key areas of their value chain. For demand forecasting, advanced machine learning algorithms were trained on historical sales data, market trends, commodity prices, seasonal patterns, and external economic indicators to predict customer demand with far greater accuracy than traditional methods. This allowed the company to maintain optimal inventory levels, avoiding both costly overstock situations and revenue-losing stockouts. For raw material procurement, AI-driven systems analyzed supplier pricing, quality metrics, delivery reliability, and market conditions to identify the most cost-effective purchasing strategies, automatically adjusting orders based on predicted production needs. On the production floor, intelligent scheduling algorithms processed data from hundreds of variables – machine availability, order priorities, energy costs, workforce schedules, and maintenance windows – to create optimized production plans that maximized throughput while minimizing downtime and resource conflicts across multiple facilities. Additionally, generative AI tools were deployed to assist engineers with technical documentation, helping them draft specifications, generate design variations, and optimize detailing tasks using natural language commands rather than manual processes.

Results

\$50M+

Economic Value

Total measurable
impact across all
business units

13%

Forecast Improvement

Demand prediction
accuracy increased
significantly

0.6%

Yield Increase

Production
optimization delivered
material savings at
scale

92%

Time Reduction

Production planning
time slashed through
AI automation

Key Takeaways

- Scalable AI platforms enable cross-unit integration, delivering measurable cost savings in complex manufacturing value chains. The key is treating AI as an enterprise-wide transformation, not isolated point solutions.

Case Study 3: Repsol Boosts Workforce Productivity with Microsoft Copilot AI

The Problem

Repsol's knowledge workers spent excessive time on routine tasks — summarizing meetings, managing emails, drafting presentations, and searching for information across disconnected systems. This administrative burden left little room for strategic thinking and innovation. High-value work suffered as employees were consumed by low-impact activities.

How AI Was Used

As an early adopter of Microsoft 365 Copilot, Repsol integrated generative AI directly into the productivity tools their employees already used every day. The AI was embedded into Microsoft Teams, where it automatically listened to meeting recordings, generated concise summaries of key discussion points, and extracted actionable tasks with assigned owners and deadlines — eliminating the need for someone to manually take notes. Within Outlook, the AI analyzed incoming emails, prioritized messages based on urgency and relevance, drafted suggested replies, and organized communications so employees could focus on what mattered most instead of drowning in their inboxes. For document creation, Copilot generated initial drafts of reports, presentations, and memos based on brief prompts, pulling relevant data from connected systems so employees could spend their time refining and improving AI-generated outputs rather than starting from a blank page. The implementation followed a thoughtful change management approach with pilot groups testing features first, comprehensive training programs to build confidence, and continuous feedback loops between employees and IT teams to optimize how the AI was configured and used across different departments.

Results

121

Minutes Saved Weekly

Per employee, compounding to massive organizational time savings

16.2%

Quality Improvement

AI-assisted outputs showed measurable quality enhancement

92%

Training Satisfaction

Employees highly satisfied with AI enablement programs

60%

Continued Commitment

Strong user adoption beyond initial pilot phase

Key Takeaways

- Generative AI transforms knowledge work by automating routine tasks and enhancing creativity. Success requires balancing technology deployment with comprehensive training and cultural change management.

Case Study 4: Global Chemical Manufacturer Improves Furnace Reliability with AI

The Problem

A global chemical manufacturer faced costly unplanned downtime in steam cracking furnaces – critical assets that convert hydrocarbons into essential chemical building blocks. Existing monitoring was reactive, with alerts coming only after problems began, causing lost production, emergency maintenance costs, and supply chain disruptions. The lack of predictive insight meant failures could not be prevented before they occurred.

How AI Was Used

The manufacturer deployed C3 AI Reliability on Microsoft Azure to create a sophisticated predictive monitoring system for their steam cracking furnaces. The AI platform continuously ingested real-time data from hundreds of sensors installed on each furnace – measuring temperature, pressure, flow rates, vibration, and chemical composition – and combined this with years of historical performance data, maintenance records, and operational parameters. Using machine learning models trained on this massive dataset, the system learned to forecast coking rates, which is the gradual buildup of carbon deposits inside the furnace tubes that eventually reduces efficiency and necessitates a complete shutdown for cleaning. By accurately predicting when coking would reach critical levels days or even weeks in advance, maintenance planners could schedule downtime during low-demand periods rather than facing emergency shutdowns during peak production. The AI also identified subtle correlations between operating conditions and accelerated coking, allowing operators to adjust process parameters in real time to slow carbon buildup and extend the time between required cleanings. This shifted the entire maintenance philosophy from reactive – waiting for something to break – to predictive, where the organization could plan ahead and optimize every aspect of furnace operations.

Results

1.4%

Utilization Increase

Significant improvement in
furnace availability

10+

Extended Days

Average run length increased
by over 10 days

\$45M

Annual Benefit

Projected economic value at
full scale across all furnaces

Key Takeaways

- ❑ AI-driven predictive maintenance significantly reduces downtime and increases asset utilization in critical industrial processes. The technology shifts organizations from reactive firefighting to proactive optimization.

Case Study 5: Georgia-Pacific Enhances Operator Efficiency with Generative AI Chatbot

The Problem

Georgia-Pacific's operational knowledge was scattered across thousands of documents and tribal expertise held by employees nearing retirement. Operators spent precious minutes or hours searching for answers during production issues, leading to extended downtime and production losses. The impending retirement of veteran employees threatened to create devastating knowledge gaps.

How AI Was Used

Georgia-Pacific developed an internal generative AI chatbot named "ChatGP" using Amazon Bedrock, Amazon's managed AI service. The development team fed the system with thousands of technical documents including standard operating procedures, equipment manuals, troubleshooting guides, safety protocols, and decades of historical maintenance records. The AI processed and indexed all of this information so that any operator on the factory floor could open the chatbot on a tablet or computer and ask a question in plain, natural language – for example, "Why is line 3 showing pressure fluctuations?" or "What's the correct startup sequence for the coating machine?" – and receive an instant, accurate answer specifically tailored to their equipment configuration and current operational context.

The system didn't just search for keywords; it understood the intent behind questions and synthesized information from multiple documents to provide comprehensive answers. This was particularly valuable for capturing the tribal knowledge of veteran employees who had decades of hands-on experience. Their expertise, tips, and troubleshooting instincts were documented through interviews and incorporated into the AI's knowledge base, ensuring that when these employees retired, their institutional knowledge would live on and remain accessible to every worker in the organization regardless of experience level.

Results



Accelerated Onboarding

Training time reduced from
months to weeks



Minimized Downtime

Rapid troubleshooting kept
production lines running



Preserved Knowledge

Institutional expertise
protected against retirements

Key Takeaways

- Generative AI chatbots democratize expert knowledge, improving operational continuity and workforce agility. The technology transforms tacit knowledge into accessible organizational assets that survive workforce transitions.

Case Study 6: UPS Transforms Customer Service and Logistics with AI

The Problem

UPS handles millions of packages daily across global networks and faced 52,000 customer emails per day that overwhelmed service teams despite significant staffing investments. Route planning and customer service couldn't scale to meet growing demands while controlling costs.

How AI Was Used

UPS deployed AI across three major operational areas. First, they built MeRA (Mechanism for Email Response Automation), a generative AI tool that processes and responds to the 52,000 customer emails that arrive every single day. MeRA reads each email, understands the customer's issue by analyzing the context and sentiment, accesses relevant shipment tracking data and account information, and then crafts a personalized response that matches UPS's communication standards – all without human intervention for routine inquiries.

Second, UPS uses Orion, an advanced AI-powered route optimization system that analyzes millions of delivery addresses, real-time traffic conditions, time-window constraints, package priorities, and vehicle capacity to generate the most efficient delivery routes for every driver every day. The system continuously recalculates routes as conditions change, saving millions of miles driven annually and reducing fuel consumption significantly.

Third, UPS deployed LAL (Language and Localization), an AI-powered platform that enables seamless communication and collaboration across their global workforce spanning 20 countries and numerous languages. This tool breaks down language barriers that previously created silos between international teams, allowing employees to share ideas, best practices, and innovations regardless of what language they speak.

Results

50%

Faster Email Resolution

Customer inquiries resolved in half the previous time

Millions

Miles Eliminated

Annual route optimization savings in distance traveled

Key Takeaways

- ❑ AI can simultaneously improve customer experience, operational efficiency, and workforce communication in global logistics. Deploy AI across multiple operational dimensions rather than isolated use cases.

Case Study 7: Klarna Saves \$40M Annually with AI-Powered Customer Service

The Problem

Klarna operates across 35+ markets and needed to scale customer service without unsustainable costs. Traditional models required hundreds of agents, extensive training, and 24/7 coverage across time zones. These constraints threatened Klarna's ability to expand into new markets while maintaining competitive pricing.

How AI Was Used

Klarna partnered with OpenAI to deploy a sophisticated AI assistant capable of handling the full spectrum of customer service interactions. The AI was trained on Klarna's specific products, policies, and communication guidelines so it could handle everything from simple questions like "When is my payment due?" to complex scenarios involving payment disputes, refund requests, and account issues. The assistant communicates natively in over 35 languages, meaning customers in any of Klarna's global markets receive support in their own language without the need for separate language-specific support teams.

When a customer reaches out, the AI instantly accesses their account history, transaction records, and relevant policy information to provide accurate, personalized responses. For complex cases that require human judgment, the AI seamlessly escalates to human agents with a full summary of the conversation and relevant context, so the customer doesn't have to repeat themselves.

The system also learns continuously from every interaction — when it encounters new types of questions or edge cases, the model is refined and updated so it handles similar situations better in the future. This creates a virtuous cycle where the AI gets smarter and more capable over time.

Results

2.3M

**Monthly
Conversations**

Equivalent to 700 full-
time agents

<2 Min

Resolution Time

Down from 11 minutes

Equal

Satisfaction

Matches human agent
ratings

\$40M

Annual Savings

Enabling competitive
pricing

Key Takeaways

- ❏ AI assistants can scale customer service efficiently while preserving quality and reducing costs. Success requires sophisticated language models, robust backend integration, and continuous monitoring.

Case Study 8: Intuit Scales AI to Revolutionize Financial Services

The Problem

Intuit serves millions of individuals and small businesses navigating complex financial decisions. Tax preparation involves interpreting thousands of pages of tax code, customer support requires understanding diverse financial situations, and fraud detection demands identifying suspicious patterns among billions of transactions. Manual approaches couldn't scale to meet growing customer needs while maintaining quality and affordability.

How AI Was Used

Intuit integrated AI across their entire product ecosystem rather than treating it as isolated features. In TurboTax, AI engines analyze a user's financial data — W-2s, 1099s, investment statements, and prior year returns — to automatically identify every applicable deduction and credit, complete tax forms accurately, and guide users through complex scenarios like self-employment income, rental properties, or stock options with personalized step-by-step recommendations that adapt to each individual's unique financial situation.

For customer support across all Intuit products, machine learning models power virtual assistants that understand natural language questions, access the customer's specific account data and transaction history, and provide accurate answers instantly. When questions are too complex for the AI, it seamlessly connects users to human experts with full context already prepared.

For fraud detection in QuickBooks and related financial products, sophisticated algorithms continuously monitor billions of transactions in real time, learning to distinguish between legitimate business activity and suspicious patterns. The system identifies potential fraud attempts, flags anomalies for review, and protects customers while carefully minimizing false positives that would disrupt legitimate business operations.

Intuit invested heavily in machine learning infrastructure, data quality, and cross-functional teams to build these capabilities as sustainable, enterprise-wide AI competencies rather than one-off projects.

Results

Faster

Processing Time

Significant decrease in manual tax preparation hours

Fewer

Errors

Fewer errors in calculations and forms

Higher

Satisfaction

Higher customer ratings and retention

Key Takeaways

- ❏ AI integration in financial services drives operational excellence and customer-centric innovation. The technology democratizes expert financial guidance, making sophisticated capabilities accessible to everyday consumers and small businesses.

Case Study 9: Bupa Healthcare Scales AI for Enhanced Patient Care

The Problem

Bupa faced fragmented patient data across multiple systems, manual administrative processes consuming clinician time, and reactive rather than proactive health management. Difficulty identifying high-risk patients increased operational costs and limited the quality and timeliness of care delivery.

How AI Was Used

Bupa deployed AI-powered systems to tackle their data fragmentation challenge by integrating patient records from electronic health records, insurance claims databases, wearable health devices, and patient-reported outcomes into comprehensive, unified patient profiles. This gave clinicians a complete 360-degree view of each patient for the first time, rather than having to piece together information from disconnected systems.

Machine learning models were then trained on this unified data to identify patients at elevated risk for chronic disease progression, hospital readmission, or adverse health events. The AI analyzed patterns across thousands of data points — lab results, medication adherence, lifestyle factors, demographic information, and historical health trends — to flag high-risk individuals who would benefit most from early intervention, often catching warning signs weeks or months before a crisis would occur.

Beyond risk prediction, AI algorithms also recommended personalized care pathways for each patient, suggesting appropriate specialists, optimal treatment sequences, and preventive measures tailored to the individual's specific health profile and circumstances. The system helped coordinate care across different providers and departments, reducing redundant tests, avoiding unnecessary procedures, and ensuring that every patient received timely, appropriate care.

Administrative tasks like appointment scheduling, documentation, and billing were also automated, freeing clinicians to spend more of their time on direct patient interaction rather than paperwork.

Results



Patient Outcomes

Earlier intervention
reduced complications and
hospitalizations



Admin Burden

Automation freed
clinicians to focus on
patient care



Resource Allocation

Predictive models
optimized staffing and
capacity planning

Key Takeaways

- ❏ AI enables healthcare providers to deliver personalized, proactive care while streamlining operations. Success requires robust data governance, clinical validation of AI recommendations, and careful attention to patient privacy and regulatory compliance.

Case Study 10: Zurich Insurance Revolutionizes Claims Processing with AI

The Problem

Zurich Insurance faced claims processing taking weeks or months, manual fraud detection missing sophisticated schemes while flagging legitimate claims, and labor-intensive customer communication delaying resolution. In an increasingly competitive market expecting digital-first experiences, these inefficiencies threatened Zurich's ability to compete and grow profitably.

How AI Was Used

Zurich Insurance deployed AI across three interconnected areas of their claims operation. For claims triage, computer vision and natural language processing technologies were used to analyze everything a customer submits – photographs of vehicle damage, property destruction, medical records, police reports, and repair estimates. The AI automatically categorizes the severity of each claim, estimates the likely cost based on historical data from similar claims, and routes it to the appropriate handler. For straightforward, low-complexity claims, the system can approve and process them instantly without any human involvement, dramatically speeding up resolution for simple cases.

For fraud detection, machine learning models trained on years of historical fraud patterns analyze every incoming claim for red flags – anomalies in the reported timeline, suspicious relationships between claimants and service providers, inconsistencies between the damage photos and the written description, and patterns that match known fraud schemes. The AI dramatically improved detection rates while simultaneously reducing false positives that had previously caused legitimate claims to be unnecessarily delayed and investigated.

For customer communication, AI-powered chatbots and intelligent notification systems keep policyholders informed throughout the entire claims journey. Customers can ask questions about their claim status at any time and receive immediate, accurate answers. The system proactively sends updates when the claim moves to a new stage, requests additional documentation when needed, and provides estimated timelines – all of which reduces the anxiety and frustration that customers typically experience during the claims process.

Results

Resolution

Claims resolve in days
instead of weeks

Fraud Losses

Millions in fraudulent
claims identified and
stopped

Experience

Higher customer retention
and satisfaction

Processing Costs

Less cost per claim with higher volumes handled

Key Takeaways

- ❏ AI transforms insurance by automating complex workflows and enhancing risk management. Faster, more accurate service creates competitive advantages in commoditizing markets.

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