

Innovation

AI-Assisted Coding Solutions



Super Major Oil and Gas Company

Modernizing Legacy System at Scale

AI-assisted software development life cycle using
GitHub CoPilot

Challenges

- High dependency on legacy SMEs for business logic extraction.
- Complex, monolithic architectures, and a lack of standardization.
- Manual, repetitive development, and deployment tasks.
- Inconsistent code quality and lengthy manual testing cycles.
- Manual deployments and environments not in sync.

Our Solution

- Reimagined and migrated legacy applications to Azure PaaS, decoupling monoliths, and enabling scalability.
- Automated business logic extraction, code generation, and unit test creation with AI tools.
- Streamlined CI/CD pipeline design and DevOps setup with intelligent automation.
- Seamless integration with modern frameworks.



Tech Stack

GitHub Copilot (Gen AI-powered development) | Azure PaaS (cloud-native migration) | NET Core, Angular (modern frameworks) | Azure DevOps, Ansible (CI/CD) Automation

Outcome Delivered

15%

Improvement in
productivity during
assessment & design

35%

Reduction in lead time
for business logic
extraction

45%

Faster CI/CD
pipeline design
cycles

30%

Increase in code
generation throughput
(NET and Angular)

40%

Reduction in unit
testing effort

20%

Reduction in bugs
post-modernization &
improved application
stability

Major Oil and Gas company

Digitizing Shipment Documents

AI-powered automation cuts retrieval time by 99% while reducing costs by 85%.

Challenges

- Large volumes of physical shipment documents require digitization.
- Slow, manual document retrieval from paper archives & data stores.
- Response times exceeding 24 hours were impacting customer service.
- High operational costs tied to document management.

Our Solution

- Digitized shipment documents using Document AI on GCP for fast and low-cost access.
- Parsed and uploaded PDFs via advanced data modelling.
- Extracted key attributes into BigQuery.
- Visualized insights using Looker Studio.
- Enabled multi-year archival and retrieval at minimal cost.



Tech Stack

Document AI on Google Cloud Platform (GCP) |
Advanced data modelling for PDF processing |
BigQuery data warehouse for attribute storage |
Looker Studio dashboard for visualization

Outcome Delivered

99%
Cut document
retrieval TAT

Eliminated
manual
paper
handling

Enabled visual
dashboards
for stored
data and
documents

100%
Digitization of shipment
documents

85%
Cost reduction and
automated search

Super Major Oil and Gas Company

Modernizing Enterprise Tax Systems

AI-driven automation and code refactoring for faster compliance and cost efficiency



Challenges

- Undocumented code and lack of business SME knowledge.
- Stringent compliance and reporting requirements (federal & state).
- Tightly coupled, complex architecture.
- Manual, time-consuming data validation and migration.

Our Solution

- Decoded business logic & transitioned codebase from PL/SQL to T-SQL.
- Developed ADF pipelines for automated data ingestion and tax calculation.
- Deployed GenAI for refactoring 47K+ lines of code and automated validation of 18M+ records.
- Automated month-end activities and enabled efficient tax calculation.
- Established a future-ready, Azure-based platform for ongoing modernization.

Tech Stack

Azure Cloud | Python (for data validation and automation) | ADF (Azure Data Factory) pipelines | GenAI for code refactoring and automation | GitHub Copilot for engineering productivity

Outcome Delivered

65%

Reduction in development time

73%

Integration testing effort saved

100%

Software quality achieved

~\$14K

Business cost saving

2,000+

Hours of business testing effort saved and ZERO defects post go-live

Engineering Software Quality with AI-Powered Intelligence

Automated testing prevented 99% UAT defects and reduced support tickets by 40%



Challenges

- Fragmented, reactive, and siloed quality engineering processes.
- Lack of a centralized repository for reusable quality artifacts.
- Limited real-time visibility into software health and KPIs.
- Ad hoc automation with low ROI and inconsistent standards.
- Late-stage quality checks leading to delayed defect detection and increased rework.

Our Solution

- Established a Testing Center of Excellence (TCoE) built on governance, process optimization, agile alignment, tooling, and workforce development.
- Implemented KPI-driven dashboards, standardized test management processes.
- Aligned testing with agile methodologies and adopted a shift-left approach for early quality embedding.
- Leveraged AI-powered automation (UFTone, Tosca) for self-healing scripts, natural language test authoring, & synthetic data generation.

Tech Stack

Azure DevOps (ADO) for test management and automation pipelines | UFTOne and Tosca for intelligent test automation | SNOW for centralized KM | Power BI for real-time QA dashboards | Jira for standardized test activity | AI/Gen AI for self-healing scripts, natural language test authoring & synthetic data generation

Outcome Delivered

Maintained
>99%
UAT defect prevention
and improved
delivery standards

Identified and resolved
5,000+
quality observations,
minimizing downstream
defects

Restored SAP
access for
4,300+
users, preventing
business
disruption

Achieved
40%
drop in support tickets
post go-live and 100%
execution of BVT & ART for
robust application stability

Oil and Gas Company

AI Visual Inspection: Faster, Smarter Quality Checks

A 71% reduction in cycle time through automated defect detection enables consistent, scalable operations.

Challenges

- Subjective and inconsistent inspection processes.
- Lack of standardization in hardware, lighting, and operator expertise.
- No track record of defects or historical data.
- Need for flexible acceptance criteria based on job type.
- Requirement for advanced data storage and insights generation.

Our Solution

- Developed an AI-based solution capable of recognizing multiple types of weld defects.
- Implemented flexible acceptance criteria tailored to specific job types.
- Designed backend services for data storage and insights generation.
- Automated weld defect analysis and reporting, including 3D profiling.
- Delivered an end-to-end solution with advanced hardware, portal, and model development.



Tech Stack

Line Laser | Realsense 435i Depth Camera |
Raspberry Pi 4b Microcontroller
Capacitive DSI Display | AI/ML models for defect
detection & analysis

Outcome Delivered

Automated
workflows
and reduced
reliance on
manual labor

Standardized,
reliable, and
repeatable
inspection
results

Enhanced
operational
accessibility
and scalability

71%
Reduction in inspection
cycle time (from 14
hours to 4 hours)

18cm/min
Scanning speed for
rapid quality checks

Energy and Chemical Producer

AI Mapping and Tagging: Accuracy at Scale

Gen AI-powered image recognition with 95% data accuracy and enhanced operational scalability

Challenges

- Need for simplified and precise mapping to define flawless boundaries around process units and systems. Automation required to link instrument tags with respective entities. High data accuracy and significant noise reduction needed. Manual data validation processes were time-consuming and error-prone. Requirement for conversion to OCR format and significant processing power for training and execution.

Our Solution

- Implemented advanced AI-based image recognition for entity detection in process diagrams.
- Employed AI-based line detection to classify and trace connections between equipment and instruments.
- Developed an OCR solution accurate text extraction from diagrams.
- Established a clear hierarchy of instruments and equipment, ensuring accurate linkage of each tag.
- Automated data storage and processing using JSON, Azure, and Vision AI for scalable operations.



Tech Stack

Advanced AI-based image recognition | AI-based line detection techniques | Optical Character Recognition (OCR) powered by AI | Data storage in JSON format | Azure, Machine Learning, and Vision AI technologies

Outcome Delivered

50-70%

Reduction in manual work for P&ID tagging

95%

Accuracy in tag management, minimizing costly downtime, and misidentification

10X

Operational scalability without increasing headcount

30-40%

Reduction in maintenance and troubleshooting times

Global Chemical Producer

Modernizing ERP AMS powered by LTM accelerators

Gen AI and Copilot-powered automation for efficiency, governance, and innovation

Challenges

- Inefficient Service Entry: Over 5,000 low-value service invoices per year are processed manually, as SAP VIM only automates materials invoices, leading to high manual effort & potential errors.
- Time-Consuming Inspection Report Grading: RBI assessments require grading ~1,000 reports per unit, taking over 10 minutes per report, straining resources.
- Cumbersome Publication Review: A six-level workflow across Tech, Business, Corporate Affairs, Legal (IP & Copyright), and VP approvals creates bottlenecks and extended cycle times.

Our Solution

- SmartAssist for SAP: Real-time ERP user assistance and accelerator by LTM SAP CoE; Gen AI-driven ticket creation, routing, and self-help to reduce frequent data-entry & authorization issues across ~5,000 users.
- Automated reading and validation of invoice and PO lines, reducing manual intervention.
- Enabled intelligent routing and exception handling to further streamline the process.



Tech Stack

SAP ecosystem + SmartAssist (GenAI tool) | SAP VIM with AI-assisted service entry processing | GitHub Copilot | Data lake & governance

Outcome Delivered

User productivity and self-service:

~30%

fewer frequent ERP issues; faster ticket creation and guided resolution via SmartAssist

Operational efficiency in inspections:

150+

hours saved per unit for RBI assessments through AI summarization

Finance throughput:

~10

minutes saved per service entry; lower overdue penalties and improved posting velocity

Fortune 1000 Public Utility

Driving Paperless Billing Adoption with AI-Powered Precision

ML-driven targeting enabled 45K new enrollments and achieved 75% customer retention while cutting costs



Challenges

- Escalating costs from rising postage and material expenses for paper billing.
- Low adoption: Fewer than 50% of customers enrolled in paperless billing, leaving significant savings untapped.
- Need for precision targeting to identify customers most likely to adopt auto-enrollment.
- Retention imperative: Ensuring new enrollees stay committed for at least 12 months to maximize ROI.

Our Solution

- Propensity Modeling: Built an ML model with 100+ predictive features to identify customers likely to adopt paperless billing.
- Continuous Optimization: Automated monthly runs with real-time feedback to improve accuracy.
- Robust Training Data: Leveraged a cohort of ~25,000 long-term engaged customers for reliable predictions.
- Actionable Insights: Delivered curated customer lists for targeted email campaigns, refining with each cycle.

Tech Stack

AWS Claude and Kendra | Machine learning models

Outcome Delivered

>75%

Stickiness
Locks-in long-term
savings with high
retention

<1%

Bounce-back
Ensures precision with
minimal campaign
fallout

45,000

New Enrollments
Reduces paper usage

Super Major Oil and Gas Company

Digitizing Maintenance Instructions with Azure AI

AI-powered automation saves 50% effort and accelerates conversion timeline from 12 months to 3 months

Challenges

- Conversion of maintenance instructions from unstructured documents into a mobile inspection digitized format.
- Highly unstructured and inconsistent maintenance instructions across PDFs, scans, and documents, varying by asset and plant.
- Heavy dependency on SMEs and technical writers to manually interpret and standardize instructions, creating bottlenecks.
- Lack of a standardized digital inspection schema, making mobile enablement and reuse across systems difficult.
- Frequent rework and long update cycles due to ambiguity, manual validation, and limited traceability of changes.

Our Solution

- Utilized Azure AI Assistance to generate Python from an unstructured document template.
- Needed prompt engineering to generate Python code that worked across changing input formats, while iteratively refining the output quality and consistency.
- Implemented Python using Azure Logic Apps with a User interface via SharePoint to upload documents & generate a final Excel output.



Tech Stack

Azure OpenAI | Python | Azure Logic Apps |
SharePoint Online | Azure Blob Storage Azure
Functions | Microsoft Graph

Outcome Delivered

50%

Effort saved in
converting 800 Integrity
Critical Maintenance
Work Instructions
(ICMWI)

Accelerated timeline
Conversion
completed in
3 months instead
of planned
12 months

Resource
optimization
Reduced
dependency on FTE
Tech Writers

Potential scope
extension to MWI &
Procedure Hub
Digitization,
unlocking
additional value

Super Major Oil and Gas Company

AI-Powered IT Operations Transformation

Agentic AI-led automation driving operational efficiency, accelerating modernization, and reducing technical debt

Challenges

- High volume of repetitive IT operations tasks increased manual effort and support costs.
- Manual ticket triaging, upgrades, and technical debt management slowed operations.
- Legacy applications required frequent modernization and compatibility upgrades.
- Limited visibility into application health increased support risks and technical debt.

Our Solution

- Developed an AI-powered IT Operations framework to automate support and modernization workflows.
- Implemented agentic workflows for ticket classification, prioritization, and routing.
- Enabled AI-assisted modernization through code analysis, upgrade recommendations, and remediation support.
- Deployed technical debt intelligence agents to identify risks and modernization opportunities.
- Established a proactive operating model with automation, intelligence, and continuous application health monitoring.



Tech Stack

Azure OpenAI | Agentic AI Framework | GitHub Copilot | Intelligent Automation | Application Modernization Accelerators | Enterprise ITSM Integration

Outcome Delivered

~8
FTE savings

Improved MTTR

Accelerated application
upgrade cycles

Enhanced application
quality
and stability

Reduced reliance on manual and repetitive
operational activities

Super Major Oil and Gas Company

AI-Powered SDLC Acceleration with GitHub Copilot Agent Skills

Domain-trained AI agents accelerate software delivery and reduce development effort across the software development lifecycle

Challenges

- Repetitive SDLC activities consumed engineering capacity and slowed delivery.
- Manual requirements, development, testing, and review processes increased effort and timelines.
- Teams needed to accelerate delivery while maintaining quality and architectural standards.
- Operational overhead reduced sprint capacity for business-critical initiatives.

Our Solution

- Developed GitHub Copilot Agent Skills trained on domain knowledge, engineering standards, and application patterns.
- Automated generation of requirements, test scenarios, and engineering artifacts.
- Enabled AI-assisted impact analysis to accelerate change assessments and reduce manual effort.
- Automated code reviews and test script generation to improve quality and validation cycles.
- Established reusable AI-driven assets to accelerate delivery across projects and platforms.

Tech Stack

GitHub Copilot | Copilot Agent Skills | AI-Assisted SDLC Automation
| Domain-Trained Engineering Intelligence | Automated Testing &
Code Review Accelerators



Outcome Delivered

Up to **30% improvement in delivery velocity** through AI-enabled acceleration across requirements, development, testing, and review activities.

~40% reduction in effort for repetitive engineering and SDLC activities, enabling better utilization of development resources.

Increased sprint capacity availability, allowing teams to focus on strategic business enhancements rather than operational overhead.

Improved quality and consistency through automated code reviews, impact analysis, and standardized engineering outputs.

Faster time-to-market for business-critical initiatives by reducing dependencies on manual SDLC processes.

Enhanced business-IT alignment through quicker conversion of business needs into implementable requirements and test scenarios.