



From COBOL to Cloud-Ready: How AI Reverse Engineering modernized a legacy transportation system





About the Customer

A leading U.S.-based freight transportation company, established in the mid-1950s, operating one of the country's largest privately held fleets. With thousands of trucks moving across North America, the company boasts their agents drive more than 370 million miles a year. They employ nearly 10,000 personnel. Focused on empowering businesses with reliable, scalable, and end-to-end transportation solutions, they continue to play a pivotal role in keeping supply chains moving efficiently.



Industry

Transportation
and Logistics



Global Presence

United States

Business challenges

Over the decades, the legacy transportation management system (TMS) due to its age, complexity, and fragmented knowledge base began to limit scalability and operational agility. As the business grew, the system's rigidity and heavy customizations made modernization unavoidable.

Our client was working very hard to overcome several core challenges:

- 40-year-old legacy tech stack (COBOL, converted Java, unconstrained DB) creating major maintenance and support hurdles.
- Deeply customized processes making standard off-the-shelf TMS solutions unsuitable.
- Outdated and poorly organized documentation with limited coverage of actual system functionality.
- Fragmented system knowledge across business and IT due to employee churn and lack of a single SME.



Aspire Systems Solution

- Manual workflows and nightly batch dependencies, contributing to inefficiency and multiple past failed modernization attempts.
 - Resistance to process and UX changes driven by long-term reliance on legacy workflows.
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They wanted to do more, move faster, and deliver a smoother experience for their customers, but years of legacy systems and manual workarounds kept getting in the way. Here are some of the impactful solutions we delivered:

- Cloud-native microservices architecture with independently scalable services for optimal performance.
- Custom-built TMS solution tailored precisely to specialized business strategy and processes.
- Our proprietary AI-powered SDLC platform SoftSpell (consisting of ReqSpell and CodeSpell) was used to reverse-engineer the legacy system.
 - ReqSpell- which can extract, organize and manage requirements from unstructured data- was used to mine critical information from legacy documents.
 - CodeSpell captured the underlying logic from the source code and used automation to generate production-ready code in minutes.
- Apache Camel integration platform enabling real-time data exchange with business systems.
- Paperless digital workflows were introduced for valuation processes and exception approvals.



- System of record implementation of master data to prevent transactional data loss.
 - Near real time map view for tracking shipments.
 - Live sync with department of energy for fuel surcharge maintenance.
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Results

- Slashed project costs by up to 40% with our AI-led SDLC platform SoftSpell.
- Process documentation was reverse-engineered using ReqSpell and CodeSpell, capturing rules, validations, and workflows with a 30–40% productivity boost.
- Accelerated new client onboarding cycle from 3 weeks to 48 hours, while preserving customer-focused processes.
- Rapid implementation of system enhancements shortened new release cycles from 4 months to 3 weeks.
- Reduced invoice processing timelines from average 4.5 days to 2 days, while driver and agent claims also dropped from 12% to <1%.
- 20–25% reduction in overall development effort using SoftSpell.
- Live sync with the Department of Energy for fuel surcharge cut 4–6 hours of manual effort to under 5 minutes, delivering at least 4 hours of weekly productivity gain.
- Achieved low defect leakage with only 116 defects identified across 2650 story points delivered.
- Faster risk detection and resolution through real-time monitoring dashboards and automated exception alerts.



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