

Driving 2X Efficiency with AI-Driven Development in Tyre Manufacturing Operations

A Wisconsin-based **tyre manufacturer** was experiencing rising operational complexity across dealer support and workforce management. With distributed manufacturing units, an extensive dealer ecosystem, and a hybrid workforce, existing systems struggled to keep pace with operational demands.

While foundational platforms such as ERP, CRM, and HR systems were in place, they operated in silos; resulting in inefficiencies, delayed response cycles, and limited scalability.

Recognizing that incremental improvements would not deliver meaningful impact, the organization partnered with PalTech to redefine how systems are built and operated, transitioning toward an **AI-driven development model** that embeds intelligence across workflows.

Business Challenges

Disconnected Dealer & Customer Support

Support interactions across dealers, distributors, and end customers lacked contextual continuity; leading to inconsistent responses, longer resolution times, and high manual dependency.

Workforce Complexity Across Operations

HR teams were managing employees across plants, warehouses, and field operations, along with contract and gig workers; resulting in fragmented policy access and operational inefficiencies.

Lack of Intelligence Layer

Despite system investments, the enterprise lacked:

- Context-aware decisioning across workflows
- Scalable automation frameworks
- A unified layer to connect data, systems, and actions

Solution Implemented

PalTech approached the transformation through **AI-driven development**, addressing both:

- **How systems are built**
(development acceleration, faster iteration)
- **How systems operate**
(context-aware, intelligent workflows)

As part of this approach, PalTech leveraged **Claude** as a **supporting AI capability**, to accelerate development cycles and enable intelligent interactions where required; while retaining architectural control, governance, and orchestration within PalTech's solution design.

Unified Support Intelligence for Dealers and Customers

PalTech designed a conversational support layer to unify interactions across the dealer and customer ecosystem.

- Built and iterated support workflows using **AI-assisted development practices**, significantly reducing build cycles
- Enabled context-aware query handling across warranty, product specifications, and service requests
- Implemented **retrieval-based knowledge access** over product manuals and policy documentation
- Integrated with CRM and order management systems for real-time resolution

Outcome:

Improved response consistency, faster resolution times, and reduced manual intervention across support operations.

Intelligent Workforce Operations (Plant + Field + Contract)

PalTech restructured HR operations into a unified, conversational access layer spanning all workforce segments.

- Developed a **“Chat with Data” interface** enabling natural language access to HR policies, compliance guidelines, and workforce data
- Automated onboarding workflows, document access, and query resolution
- Enabled contextual responses tailored to plant workers, field staff, and contract labor
- Integrated HR systems to allow real-time data access and workflow execution

Outcome:

Higher self-service adoption, reduced HR workload, and improved access to compliance and safety information.

Technology Stack

- **AI Enablement:** Claude (used selectively for development acceleration and runtime intelligence)
- **Development Approach:** AI-driven development with human-in-the-loop validation
- **Architecture:** API-first, microservices-based design
- **Data Layer:** Unified data fabric across HR, CRM, and dealer systems
- **AI Architecture:** Retrieval-based intelligence (RAG)
- **Integration Layer:** Event-driven architecture with secure system orchestration
- **Experience Layer:** Embedded conversational interfaces
- **Governance:** Role-based access, auditability, and AI guardrails

AI-Driven Development & Governance Strategy

At the core of the transformation was a shift to **AI-driven development as an operating model**, not just a toolset.

PalTech enabled:

1. Accelerated Development Lifecycle

- Leveraging AI-assisted coding to **reduce development and integration timelines by up to 2X**
- Faster prototyping and iteration of workflows and interfaces
- Reduced engineering effort across build and deployment cycles

2. Context-Aware Intelligence Across Workflows

- Embedding intelligence directly into support and HR workflows
- Enabling systems to respond based on **context, history, and role-specific relevance**
- Moving from static workflows to **adaptive, decision-aware systems**

3. Enterprise-Grade AI Governance

- Establishing guardrails for AI usage across development and runtime layers
- Ensuring **compliance, auditability, and controlled access to enterprise data**
- Standardizing AI patterns for scalable and secure adoption

This approach ensured that AI was not deployed as isolated use cases, but as a **governed, scalable capability embedded across the enterprise**.



Business Outcomes

- **Up to 2X improvement** across development speed, operational performance, and cost efficiency
- **30 - 40% reduction** in support workload across dealer and customer channels
- **25 - 35% improvement** in resolution turnaround time
- **40% increase** in HR self-service adoption
- Reduced dependency on manual workflows across plant and field operations

AI-Native Operations at Scale

This engagement repositioned AI from an experimental capability to a **core operational lever**.

PalTech enabled the organization to:

- Adopt **AI-driven development as a standard practice**
- Embed **context-aware intelligence across critical workflows**
- Establish **governed, scalable AI adoption frameworks**

The result is a tyre manufacturing enterprise operating with **integrated, adaptive intelligence** - where systems evolve with business needs, and operations are driven by **context, speed, and precision**.

Contact Us



www.pal.tech



info@pal.tech