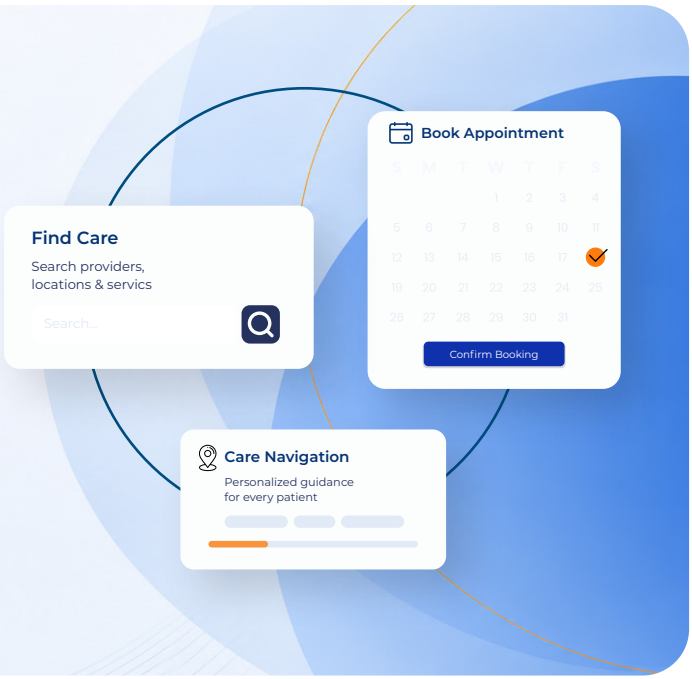
Building an AI-Powered Patient Access Platform for a Leading Healthcare Technology Provider



About the Client

Our client is a US-based healthcare technology company focused on transforming how patients access healthcare services. Its platform enables health systems to streamline patient discovery, appointment scheduling, care navigation, and provider coordination, creating a seamless digital front door for patients seeking care.

As the business expanded across multiple healthcare networks, the client faced increasing pressure to deliver faster, more intuitive patient experiences while reducing the operational burden on healthcare staff. They required an engineering partner with deep healthcare domain expertise to modernize critical patient access workflows, integrate AI into operational processes, and build a scalable platform capable of supporting future product innovation.

PalTech was engaged to accelerate product engineering, optimize healthcare workflows, and help create a more intelligent, AI-enabled patient access experience.

Business Challenges

As patient volumes grew and healthcare delivery became increasingly digital, the client's existing workflows struggled to scale efficiently. Patients often encountered fragmented experiences while searching for providers, navigating care options, and booking appointments, resulting in longer completion times and increased abandonment across the care journey.

On the operational side, administrative teams continued to rely on manual coordination for scheduling, routing, and patient communications. These repetitive processes consumed valuable staff time, limited operational efficiency, and made it difficult to respond quickly to changing provider availability and patient demand.

Data inconsistency compounded these pressures. Conflicting scheduling data across systems caused inaccurate availability and booking failures, provider operational updates were not reliably reflected across systems, and inactive provider locations continued to surface in patient booking workflows — forcing teams into manual reviews of contradictions that further increased administrative overhead.

The client also needed a platform architecture capable of supporting future AI capabilities while integrating seamlessly with existing healthcare systems, ensuring interoperability, security, and enterprise-grade performance without disrupting ongoing operations.

PalTech's Solution Approach

PalTech partnered closely with the client's product, engineering, and business stakeholders to understand the complete patient access lifecycle—from the moment a patient initiated a care request through appointment confirmation and follow-up.

Rather than focusing on isolated feature development, the engagement began with a comprehensive assessment of existing workflows, user journeys, operational dependencies, and platform architecture. This enabled the team to identify process bottlenecks, eliminate unnecessary handoffs, and redesign critical workflows around automation and intelligent decision-making.

The solution was delivered iteratively, allowing new capabilities to be introduced alongside existing systems while maintaining compliance with healthcare interoperability standards and minimizing disruption to business operations. This approach provided the client with a scalable foundation that could continuously evolve as new AI-driven capabilities were introduced.

Solution Delivered

AI-Driven Patient Access Experience

PalTech developed an intelligent patient access layer designed to simplify how patients interact with the platform from their very first touchpoint. Instead of navigating disconnected workflows, patients were guided through a unified digital experience that supported care discovery, guided intake, intelligent routing, and appointment selection based on their needs and provider availability.

By embedding AI into the patient journey, the platform reduced friction across multiple stages of care access while helping patients reach the most appropriate care setting faster and with greater confidence.

Intelligent Workflow Automation

To eliminate booking failures caused by inconsistent scheduling data, PalTech built an AI-powered conflict detection engine that used NLP-driven analysis to examine provider profiles, scheduling configurations, and location datasets to surface contradictions before they impacted patient bookings. Configurable business rules validated provider eligibility, patient types, and location constraints, while automated checks identified operational inconsistencies across systems — including provider updates that were inconsistently reflected and inactive locations still surfacing in booking workflows.

Recommendations and remediation workflows guided operations and scheduling teams toward faster resolution, and a centralized governance hub provided dashboards with auditability, root-cause analysis, and remediation tracking — replacing the manual review of contradictions that previously drove administrative overhead.

Scalable AI Operations Foundation

Beyond immediate workflow improvements, PalTech engineered the platform with long-term scalability in mind. The solution established a flexible architecture capable of supporting future AI initiatives, operational analytics, and continuous product enhancements without requiring significant platform rework.

This foundation enabled the client to expand AI adoption across patient access operations while maintaining secure integration with enterprise healthcare systems and preserving the performance required for large-scale deployments.

Technology Stack

Layer	Technologies
Cloud	Microsoft Azure
Frontend	React, TypeScript
Backend	.NET Core, REST APIs
AI	Azure OpenAI, NLP, Prompt Engineering
Data	Azure SQL, Cosmos DB
Automation	Rules Engine, Scheduling APIs, Workflow Orchestration
DevOps	Azure DevOps, GitHub Actions

Business Value Delivered

- Reduced patient onboarding and appointment booking time by 35–40% through streamlined patient intake, intelligent care navigation, and automated scheduling workflows.
- Lowered manual administrative effort by up to 45% by automatically detecting scheduling contradictions and replacing manual conflict reviews with guided remediation workflows.
- Reduced booking failures by surfacing scheduling data conflicts before they reached patient-facing workflows, improving availability accuracy across provider networks and care locations.
- Improved appointment completion rates by 22% by minimizing friction across the patient journey and guiding patients to the most appropriate care pathway.
- Increased provider schedule utilization by 18–25% through accurate, conflict-free provider availability and optimized appointment allocation.
- Accelerated product delivery by 30% with a scalable, cloud-native architecture and reusable platform components that reduced development effort for future enhancements.
- Built an AI-ready, interoperable platform capable of securely integrating with enterprise healthcare ecosystems, enabling the client to scale across multiple provider networks while maintaining HIPAA-aligned compliance and high system availability.

Contact Us

www.pal.tech

info@pal.tech