

XENELSOFT

TECHNOLOGIES & CONSULTING SERVICES

MADAD HEALTHCARE

HEALTHCARE & PATIENT CARE CASE STUDY

Unifying Healthcare Providers, Doctors & Patients into One Multi- Tenant Digital Ecosystem

A Strategic Technology & Engineering Case Study

PLATFORM

Madad HealthCare

Healthcare Technology, Telemedicine & Multi-Tenant Provider Platforms

PROJECT TYPE

Multi-Tenant SaaS Platform

Web admin portals, Flutter mobile apps & AI-assisted medical data processing

— PLATFORM OVERVIEW

Client & Platform Overview

Madad HealthCare connects patients, doctors, and healthcare providers through a secure, cloud-based ecosystem. Built on a multi-tenant SaaS architecture, it lets each provider run independent operations — doctors, patients, appointments, and billing — while sharing one scalable infrastructure.

Platform Capabilities Delivered



Multi-Tenant Architecture

Isolated tenant data on shared infrastructure



Web & Mobile Apps

Admin portals plus doctor & patient apps



Doctor & Patient Booking

Speciality search & appointment scheduling



Telemedicine Video

Secure video consultations, in-app



AI Lab & EMR Processing

Structured insights from labs & records



Security & Access Control

JWT auth & role-based permissions



Payments & Billing

Integrated online payment processing



Notifications

Push & email reminders, automated



Analytics & Reporting

Dashboards for admins & providers

— THE PROBLEM SPACE

Business & Technical Challenge

Healthcare providers relied on disconnected systems for patients, doctors, appointments, records and payments — creating administrative overhead and inconsistent care. A single platform needed to serve many providers at once, without any of them sharing data.

01 Multi-Tenant Data Isolation

Every provider's patients, doctors and records had to stay fully isolated from every other provider on the same platform.

02 Real-Time Video Consultation at Scale

Telemedicine needed to stay reliable and low-latency across varying network conditions and devices.

03 Cross-Platform Consistency

Doctors and patients needed the same dependable experience across web portals and native mobile apps.

04 Unstructured Medical Data

Lab reports and medical histories arrived as unstructured documents, difficult to search, compare, or act on quickly.

05 Secure Payments & Notifications

Billing, reminders, and alerts needed to run reliably across every tenant without manual reconciliation.

ENGINEERING APPROACH

Platform Build — Methodology (1/2)

A structured, phased approach that layered each application on a shared, tenant-aware core.

01 Discovery & Multi-Tenant Architecture

Defined the tenant isolation model, data boundaries, and platform roadmap across all four applications.

02 Backend & API Foundation

Built the core Laravel backend and REST API layer, with JWT authentication and role-based access.

03 Admin Portal Development

Delivered the Vue.js Super Admin and Provider (tenant) Admin web portals.

04 Mobile App Engineering

Built the Doctor and Patient applications in Flutter for consistent Android & iOS experiences.

05 AI Integration for Labs & Records

Connected AI services to interpret lab results and structure unstructured medical records into usable EMR data.

ENGINEERING APPROACH

Platform Build — Methodology (2/2)

Taking the platform from feature-complete to a stable, monitored production system.

06 Video Consultation Integration

Integrated the Agora Video SDK for secure, low-latency telemedicine sessions.

07 Payments & Notifications

Connected Stripe for billing, plus Firebase Cloud Messaging and Brevo for push and email alerts.

08 Security Hardening

Audited authentication, tenant boundaries, and data-in-transit encryption across every application.

09 QA & Performance Tuning

Ran cross-device testing, load testing, and performance profiling ahead of release.

10 Cloud Deployment & Launch

Deployed the full stack to AWS with monitoring in place for a controlled production rollout.

— LONG-TERM OPERATIONS

Ongoing Platform Operations

Beyond launch, the platform is supported through continuous operational and engineering upkeep.

**Feature Enhancements**

New modules across web & mobile

**Framework & SDK Updates**

Laravel, Vue & Flutter version tuning

**OS Compatibility**

iOS & Android release readiness

**Security Hardening**

Ongoing auth & encryption review

**Cloud & Infrastructure**

AWS infra management & scaling

**Data Backup & Recovery**

Routine state persistence & backups

**Video & Notification Tuning**

Consultation quality & alert delivery

**Bug Fixes & Hotfixes**

Priority resolution SLA

**Automated QA Testing**

Regression & device matrix testing

RESULTS

Business Outcomes & Achievements

The multi-tenant consolidation delivered operational, technical, and strategic gains across the platform.

◆ Operational Benefits

- Single platform managing every provider's operations
- Simplified doctor & patient administration
- Reduced overhead with unified codebase
- Streamlined billing across tenants
- Consistent experience across web & mobile

◆ Technical Achievements

- Scalable multi-tenant Laravel & Vue architecture
- Reliable, low-latency telemedicine sessions
- AI-structured lab reports & EMR data
- Zero cross-tenant data leakage
- Consistent Flutter experience, iOS & Android

◆ Strategic Impact

- Faster onboarding for new healthcare providers
- Faster, better-informed clinical decisions
- Stronger patient engagement & retention
- Infrastructure ready for regional scale
- A platform providers can build their brand on

— WHAT MAKES IT WORK

Platform Highlights

DESIGN PRINCIPLE

Built as infrastructure, not a single app — so every new provider is an onboarding, not a rebuild.

Combining tenant-aware architecture, cross-platform apps, and AI-assisted medical data, Madad HealthCare gives every provider its own workspace on one dependable foundation.

- ✓ Complete multi-tenant architecture & strategy
- ✓ Consistent Laravel + Vue + Flutter engineering
- ✓ AI-assisted lab & EMR data structuring
- ✓ Ongoing managed platform operations
- ✓ Structured 10-phase build & delivery methodology
- ✓ Reliable real-time telemedicine at scale
- ✓ Secure, tenant-isolated data by design
- ✓ Infrastructure ready for continued scale

CLOSING NOTE

A Next-Generation Digital Healthcare Platform

As Madad HealthCare set out to serve many providers through one platform, it needed enterprise-grade architecture that never compromised on data privacy or care quality. Through a phased engineering approach, the platform now runs multi-tenant operations, real-time telemedicine, and AI-assisted medical data — with room to keep adding providers without rebuilding the foundation.

- Secure

- Scalable

- AI-Powered

- Multi-Tenant