

Case Study

# Healthcare Research Platform

AltexSoft Helps Healthcare Technology Provider Build  
Medical Research Mobile Platform

Healthcare, R, Vue.js, Java, and Swift



# Background

Our client, a California-based healthcare technology company, provides pharmaceutical and other medical companies with an ePRO (electronic patient-reported outcome) platform. The platform allows organizations to conduct clinical trials among volunteers and patients testing drugs and diagnostic equipment.

The product consists of two main parts: 1) a web console used to assemble and customize tests that includes questionnaires, data from wearables, and other diagnostic devices, 2) iOS and Android mobile apps that are installed on user phones and operate these tests.

AltexSoft provided engineering services for both the web and mobile sides of the product.



# Challenges

The engagement entailed building some modules from the ground up and refactoring the others:

**1.**

Build a research reporting tool

**2.**

Enable data export from mobile devices to an SAS environment

**3.**

Refactor iOS and Android application code

**4.**

Refactor the web console front-end code

# Value Delivered

## 1. Convenient reporting tool for data analysis.

The ePRO platform collects large amounts of data with many variables. To make the further research analysis accessible to scientists, AltexSoft engineers built a data reporting tool that supports data visualization and specific queries to retrieve needed research records. This greatly simplifies the readability and understanding of collected records.

## 3. Comprehensive iOS/Android refactoring and optimization.

The existing mobile applications were largely outdated and required elaborate code refactoring that would ensure code stability and speed. For instance, the iOS application combined both **Objective-C** and **Swift** code. The AltexSoft mobile team rebuilt all modules using Swift. Additionally, the Swift code itself needed partial refactoring to align it with modern Swift standards.

## 2. Export of patient data for SAS using R language.

As organizations partnering with our client use [SAS](#) Healthcare Analytics solutions, AltexSoft's engineering team has developed an automatic data export instrument that made patient-reported data coming from smartphones available to SAS operation. The engineers used **R language** for the conversion script that exported data into the **.xpt** format. The converted datasets were further transmitted to client's servers. Additionally, all collected data was structured according to **CDISC** standards (Clinical Data Interchange Standards Consortium).

## 4. Web console refactoring and optimization.

The existing front-end of the web console used an outdated **jQuery** library and an old version of **Bootstrap**. JavaScript engineers at AltexSoft fully rebuilt the web console using the **Vue.js** framework and updated Bootstrap. This ensured product optimization and further scalability.

# Approach and Technical Info

The project was handled in a time-and-material engagement model. The team consisted of a software architect, a DevOps specialist, Java engineer, iOS engineer, two JavaScript engineers, a quality assurance specialist, and a project manager.

The technology stack included **R language, Vue.js, Java, and Swift.**

The duration of the project was 5 months with the total scope of work done in about two man-years.

# Healthcare Reserch Platform

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