

case study –

Enhancing interoperability in healthcare

Leading healthcare software provider modernizes for seamless data exchange with Resolute

Application modernization

HL7 FHIR implementation

Architecture

API development

Company

A global biotech software leader delivering innovative microbial solutions for human health and agriculture.

Customer since

2024

✓ Challenge

Modernize the software platform to meet growing interoperability and compliance demands in healthcare.

✓ Solution

Integrated HL7 FHIR support to enable seamless data exchange and ensure regulatory compliance.

✓ Results

Achieved enhanced interoperability and compliance with a flexible system, reducing future integration time and costs.



Overview

As the healthcare industry experiences rapid technological growth – with the medical technology market projected to grow at a [CAGR of 5.29% from 2024 to 2029](#) – the demand for seamless integration of diverse medical devices and software has intensified. Recognizing this, a leading healthcare technology company embarked on a modernization project in partnership with Resolute Software to enhance its platform's interoperability.

By upgrading to support HL7 FHIR and other integration standards, this company's software platform now enables healthcare providers to streamline data exchange, ease regulatory compliance, and better support complex medical environments. This modernization not only meets current industry demands but positions the company's platform as a future-ready solution, adding significant value to healthcare providers navigating an increasingly connected landscape.

A Pressing Need for Interoperability in Healthcare

The company's integrated suite of tools is used for facilities management, helping to streamline operations in catering, cleaning, portering, maintenance, and auditing with the goal of enhancing patient care. Trusted by major healthcare organizations worldwide, including numerous NHS Trusts in the UK, the platform helps to optimize hospital services for operational excellence and improved patient experiences.

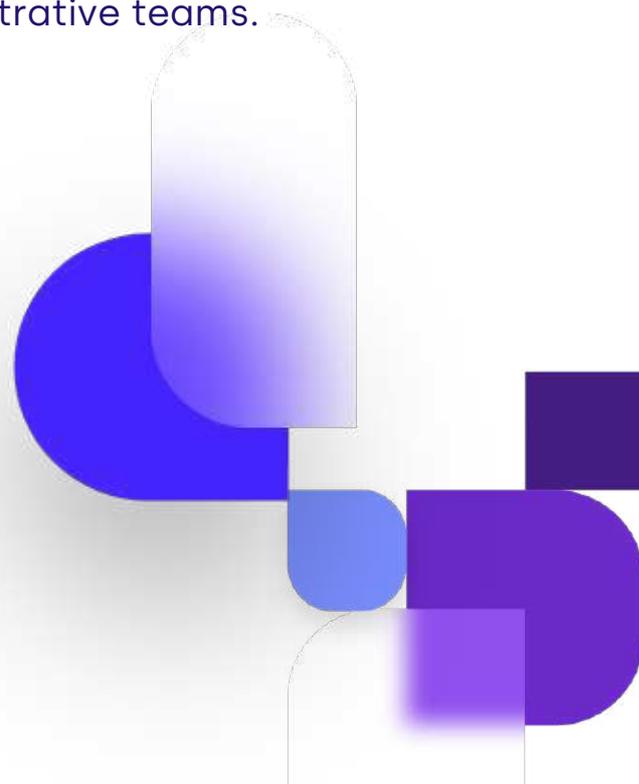
While the solution has rapidly gained traction among healthcare providers for its comprehensive automation capabilities, a [growing demand for interoperability](#) with new healthcare devices and applications required the system to evolve. Specifically, it offered limited support for the [Health Level Seven International \(HL7\) Fast Healthcare Interoperability Resources \(FHIR\) protocol](#), a standardized communication protocol that facilitates data exchange between healthcare systems and applications.



With a goal of modernizing the system to accommodate the need for a more flexible way of integrating new systems and devices, the company turned to Resolute Software, a leading software consulting firm with extensive experience in the healthcare sector.

Resolute is dedicated to advancing healthcare through specialized digital transformation solutions. Focused on compliance with standards like HIPAA, its solutions streamline clinical workflows, enhance patient care, and improve operational efficiency across healthcare settings.

Resolute's depth of **healthcare knowledge** and technical prowess made it the ideal partner to help the client navigate its modernization project, ensuring both compliance and practical support for clinical and administrative teams.



Creating a Modernized, Future-proof Integration Engine

HL7 FHIR improves interoperability across different healthcare systems by providing a consistent way to represent and share patient data – such as medical records, test results, and medication histories – in a structured, accessible format. The standard is built on web-based data exchange formats, such as RESTful APIs and JSON/XML, which makes it compatible with modern applications and enables seamless integration with mobile devices, cloud applications, and Electronic Health Record (EHR) systems.

By using “resources” – standardized data formats for core healthcare elements like patients, diagnoses, and observations – FHIR enables providers, payers, and researchers to share information securely and more easily, which leads to better care coordination and patient outcomes.

While the client’s platform had some integration capabilities, these were outdated and narrowly focused, and there was limited flexibility for interoperating with modern medical devices. Resolute’s development expertise and healthcare industry experience were needed to effectively expand the platform’s HL7 functionality, to accommodate new data exchange requirements.

The goal was twofold:

- 01.** Update the platform to comply with HL7 standards, including support for the latest HL7 FHIR version
- 02.** Develop an integration engine that would allow real-time, 2-way communication between the platform and external systems

Compliance with HL7 and FHIR standards would enable the client to support the broadest possible range of medical devices and healthcare software, delivering a comprehensive solution for clients while enhancing competitive advantage.

Meeting Standards and Raising the Bar to Enable Future Compatibility

Resolute's team began with a thorough analysis of the existing architecture and HL7 capabilities, identifying gaps between their current functionality and the desired state. The next step was to design an architecture for a decoupled integration engine that could support real-time data exchange, both internally within the platform, as well as externally with third-party systems.

The new integration engine was built to enable 2-way communication between the platform and other medical devices and software, based on a high-performance message bus and translators that could convert different data formats.



Key aspects of the integration engine included:

1

Real-Time Communication Protocols

Resolute implemented TCP/IP and HTTP protocols to ensure compatibility across devices and systems. This approach supported both HL7 Version 2.x (backwards compatible) and HL7 FHIR (the latest, non-backwards compatible version).

2

HL7 and FHIR Compliance

Ensuring full compliance with both HL7 Version 2.x and FHIR standards was crucial. The platform's compatibility with HL7 enabled the platform to interact with a wide range of healthcare applications and devices, from legacy systems to the latest software. FHIR support positioned the solution as forward-compatible, allowing healthcare providers to adapt as the HL7 standard continues to evolve.

3

Future-Proof, Decoupled Architecture

The integration engine was designed with a future-proof approach, enabling the client to add new data types and endpoints with minimal redevelopment. By decoupling the integration engine from the core platform, Resolute created a flexible system that could be maintained and upgraded independently, reducing time and costs for future integration needs.

Interoperability, Cost Savings, and Customer Value

Equipped with a state-of-the-art integration engine, the redesigned platform delivered significant benefits:

- ✓ **Compliance with HL7 Standards**

The new integration engine fully met the HL7 and FHIR standards, ensuring compatibility with a broad array of healthcare systems and strengthening the client's position in the competitive healthcare software marketplace.

- ✓ **Expanded Integration Capabilities**

The solution now supports 10 different HL7 data models, enabling integration with a wide range of third-party systems. Its broader interoperability will enable hospitals to integrate more devices and software, and exchange data seamlessly and securely without significant additional investment.

- ✓ **Time and Cost Savings**

With integration engine decoupled from the core platform, the client can implement new integrations within weeks instead of months or years. This approach lowers the maintenance burden, as well, since updates to the integration engine do not disrupt other platform functionalities.

- ✓ **Enhanced Customer Value**

The increased interoperability will enable seamless data exchange and ease regulatory compliance, so providers can focus on quality patient care, without worrying about regulatory issues.



Thanks to the success of this project, the client is considering additional development partnerships with Resolute, recognizing the firm's technical expertise and industry knowledge as essential to the long-term growth and adaptability of their platform.

Start Your Modernization Journey

In partnership with Resolute Software, the client successfully transformed its platform to meet the evolving needs of healthcare providers, enhancing both interoperability and regulatory compliance.

See more success stories about how we've helped health tech companies achieve their business objectives.



Modernized healthcare app provides access to patient data



Advancing telemedicine with a mobile health app's integrated risk calculator



Let's talk about your technology requirements.

Get in touch

USA

MA 01701, Framingham,
945 Concord St,

+1-617 386-9697

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