



# Solving Lab Interoperability at Scale

How Pegasus One Helped a Diagnostics Company Automate EHR Integration and **Improve** Result Turnaround **by 45%**



# The Challenge: Fragmented Lab Data and Inefficient EHR Integration

Healthcare technology is quickly evolving, and diagnostics companies are facing a growing interoperability crisis. Legacy systems in labs often struggle to communicate with broader healthcare networks, which can delay patient care and diagnostics.

Labs rely on Laboratory Information Systems (LIS) that operate on proprietary standards. Because of this, there is no support for modern data exchange systems such as FHIR (Fast Healthcare Interoperability Resources). FHIR is the future of healthcare technology, but integrating it with Electronic Health Record (EHR) systems across different healthcare providers is a significant challenge.

Lab operations rely heavily on outdated methods to send results to clinics and hospitals, including manual data entry, HL7 v2 flat files, and even faxed PDFs. Clinicians are waiting much too long for lab results, and this slows care decisions and patient care.

On top of that, because these methods are not standardized, each new EHR integration requires bespoke development work. These labs are facing increased costs and delayed go-live dates without a modern take on integration. It's time to evolve.

## **At Pegasus One, we believe successful technology begins with the end in mind.**

Too many healthcare providers invest in technology that doesn't deliver. At Pegasus One, we deliver outcome-driven technology solutions that streamline workflows, ensure compliance, and help you deliver the best patient experience possible.



# How Pegasus One Delivers Speed, Scale, and Strategic Advantage

Pegasus One uses a scalable, standards-based approach to lab-to-EHR integration. Rooted in modular, modern architecture, this solution uses:

- **HAPI FHIR Middleware:** Pegasus One begins with a FHIR-native middleware layer that is built on HAPI FHIR. This creates a centralized routing engine that can interface with most modern EHRs straight out of the box.
- **Smart Mapping Engine:** To minimize the need for custom code and simplify data normalization, Pegasus One leveraged a reusable mapping engine. This converted proprietary LIS outputs into FHIR-compliant DiagnosticReport and Observation resources.
- **Middleware API Gateway:** A secure, scalable API gateway enables modular onboarding, allowing new EHR endpoints to be seamlessly integrated with minimal configuration.

This scalable solution allows for rapid, repeatable deployment across multiple clinical sites and EHR platforms.



# The Results of Pegasus One's FHIR-Native Integration Architecture

For one diagnostic company, Pegasus One enabled an immediate and measurable transformation.

- 45% Reduction in Lab Result Turnaround Time: Clinicians received lab results in hours instead of days, improving timelines and outcomes. All thanks to faster data exchange.
- 70% Reduction in Manual Data Reconciliation Workload: Lab technicians and data entry teams reclaimed valuable work time by eliminating duplicate work.
- 12+ EHR Systems Integrated in Under 6 Months: This included complex integrations with Epic, Cerner, Athena, and eClinicalWorks, each delivered without needing to “start from scratch.”

Beyond these results, the company gained a future-proof foundation for AI enablement due to a successful FHIR integration. They are positioned to seamlessly deploy AI-driven diagnostics and workflow optimization tools.

# Critical Learnings for the Future

With this customer and others, each engagement delivers lessons learned.

## 01

### **Standardization Prevents Redundancy**

Centralizing lab-EHR workflows on a standards-based platform reduced project rework across future client implementations.

## 02

### **Interoperability is a Strategic Investment**

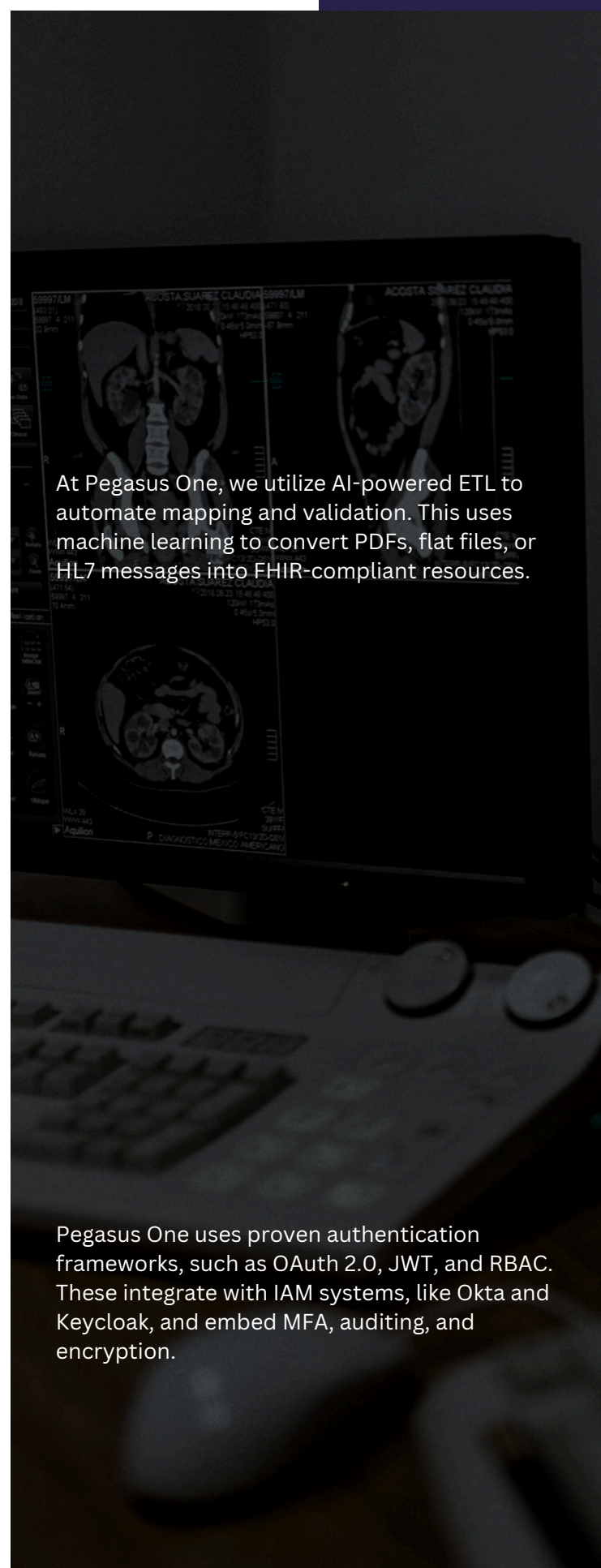
Although this project began as a technical integration, there were downstream advantages in the form of analytics readiness, scalability, and compliance.

That's why we align all integrations with US Core and other relevant Implementation Guides (IGs). This ensures cross-system compatibility and regulatory compliance.

## 03

### **Expertise Matters**

Pegasus One's deep knowledge of FHIR standards, health IT architecture, and middleware deployment was a key factor in the project's success.



At Pegasus One, we utilize AI-powered ETL to automate mapping and validation. This uses machine learning to convert PDFs, flat files, or HL7 messages into FHIR-compliant resources.

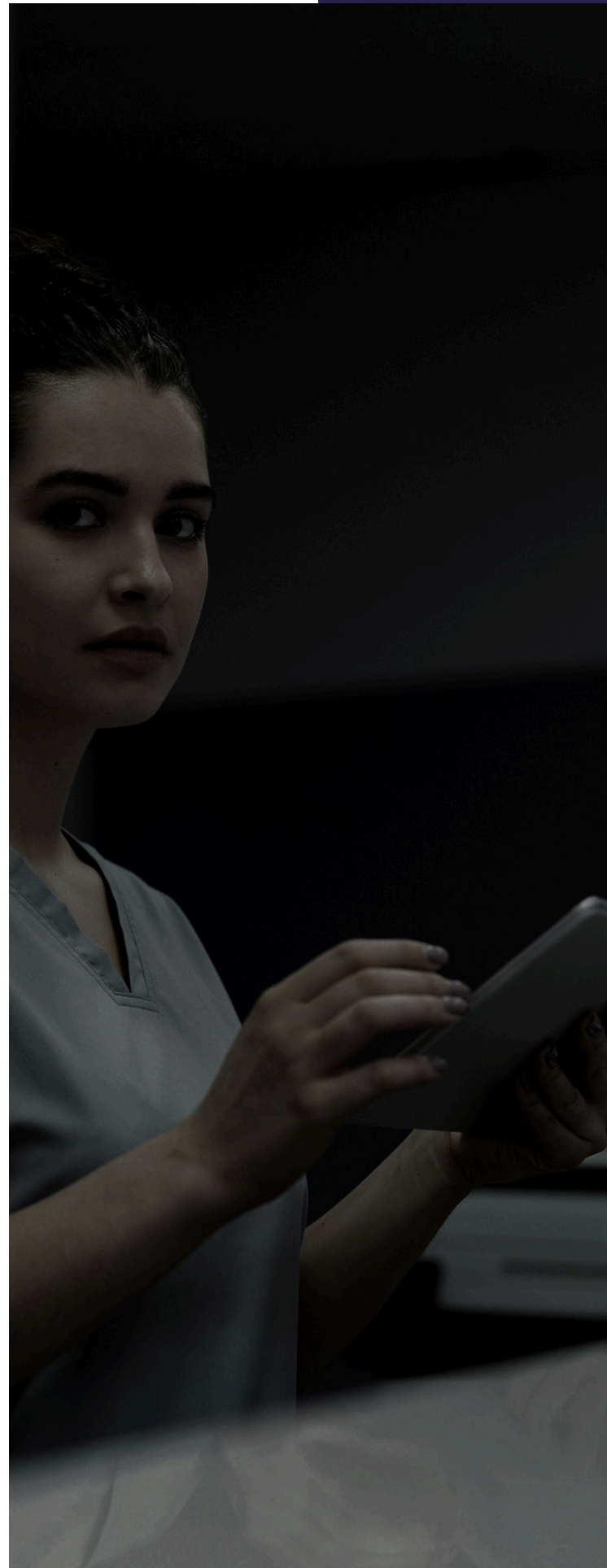
Pegasus One uses proven authentication frameworks, such as OAuth 2.0, JWT, and RBAC. These integrate with IAM systems, like Okta and Keycloak, and embed MFA, auditing, and encryption.

# A Blueprint for the Industry

While you might be tempted to jump into FHIR integration, it's critical to ensure you're prepared before you begin. Use this checklist to evaluate whether your organization is ready:

- ✔ At Pegasus One, we know that many diagnostic companies are struggling with lab interoperability. With a commitment to innovation and compliance, we are here to help.
- ✔ To get you started, fast, we offer an Interoperability Accelerator Toolkit that includes reusable components for LIS-to-FHIR mapping. Our Custom Middleware Deployment enables secure, scalable data exchange across the care continuum. Combined with end-to-end services, from LIS assessment to multi-EHR deployment, and AI-native consulting, we deliver more than just working integrations: we deliver transformative outcomes.

If you want to learn more about how to replicate this success, contact our team [[info@pegasusone.com](mailto:info@pegasusone.com)] to learn more.





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An award winning custom software development company in California

**Corporate Office:**

1440 N Harbor Blvd #900  
Fullerton, CA

[\(714\) 485-8104](tel:7144858104)

[info@pegasusone.com](mailto:info@pegasusone.com)