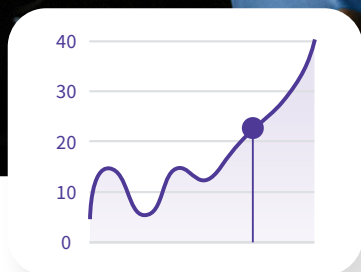
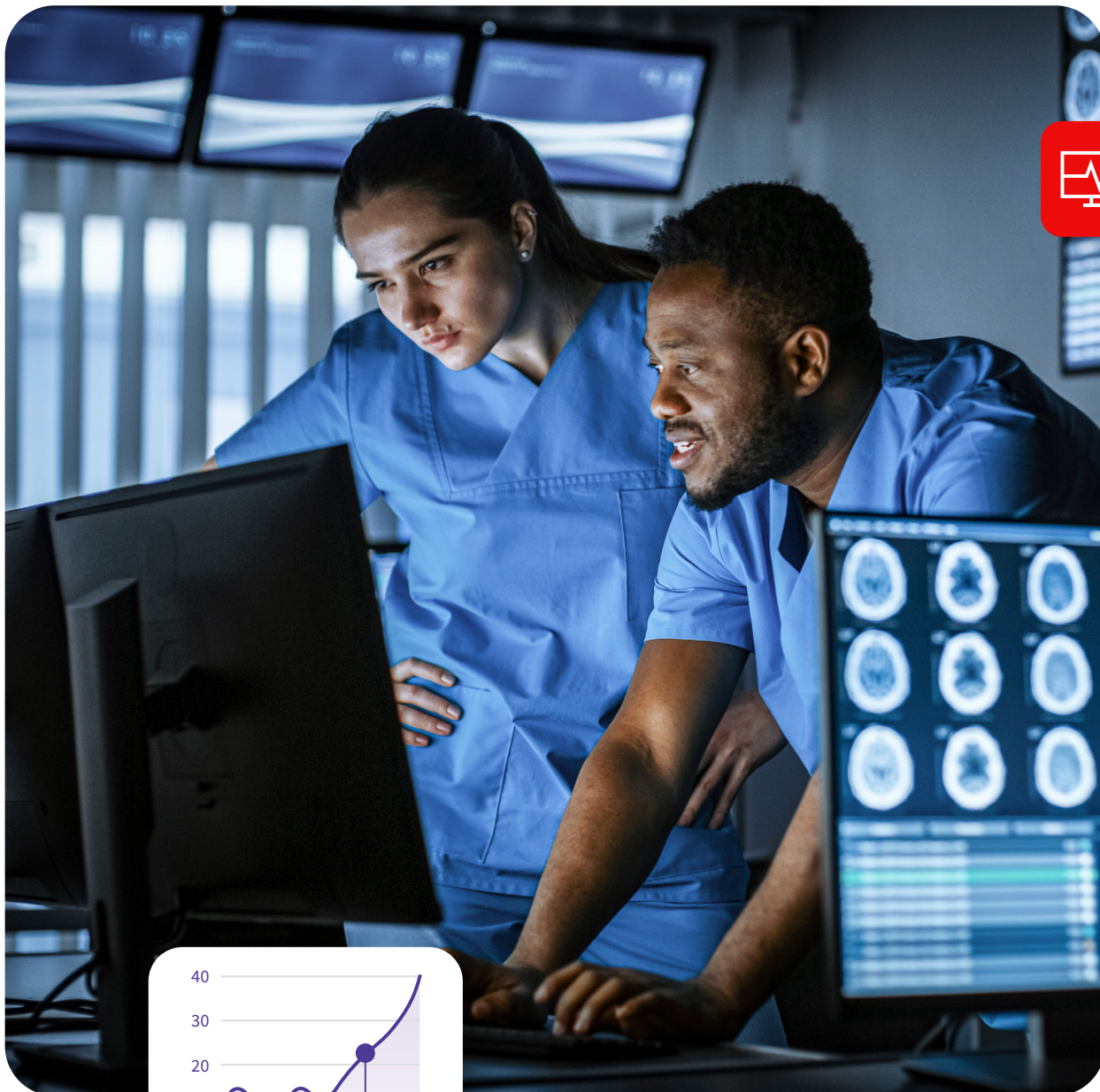


# Rethinking healthcare interoperability: From engines to platforms



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# Executive summary

As care delivery becomes more distributed and healthcare data flows across an expanding ecosystem of providers, payers, and patients, interoperability has become both more essential and more complex. Traditional integration approaches, built around moving messages between systems, cannot keep up with this reality. Organizations need data that is standardized, governed, and usable across clinical, operational, and financial workflows, not just transmitted from one endpoint to another.

Many organizations have responded by prioritizing system connectivity, yet even those that can move data often struggle to get value from it. In 2023, 70% of non-federal acute care hospitals exchanged data at least sometimes, yet only 43% did so routinely, and just 42% integrated external data into care processes ([NCBI, 2023](#)). These gaps highlight a broader challenge: Current integration tools excel at connectivity but fall short when organizations need trustworthy, analytics-ready, semantically consistent data.

A modern interoperability platform does more than route messages, it standardizes and enriches data, applies governance, enables API-first data access, and supports real-time, event-driven workflows. This shift transforms interoperability from a technical task into a strategic advantage.

This white paper explores why the transition is accelerating, how interoperability platforms differ from traditional interface engines, and how adopting a platform model enables scalable, data-driven transformation.

# How are interoperability platforms and interface engines different

Interface engines have long powered healthcare integrations by routing HL7 v2 messages, performing basic transformations, and maintaining point-to-point connections. They remain reliable for moving transactional data, but they were built for a world where interoperability meant simply getting messages from one system to another.

Today's requirements extend far beyond message exchange. Interface engines focus on syntax—they can convert formats and deliver feeds—but they do not create shared meaning across systems, manage APIs at scale, or provide the governance needed for enterprise-wide data use. Their capabilities end at connectivity.

Interoperability platforms take a fundamentally broader approach. Instead of just moving messages, a platform establishes a unified data layer that standardizes information using common terminologies and shared models. It supports modern integration patterns, such as FHIR® APIs, bulk data access, and event-driven workflows, and embeds governance features like consent management, auditing, and data provenance. Platforms can also persist data, making it reusable for analytics, automation, population health, reporting, and artificial intelligence (AI).

Critically, platforms are built for ecosystem-wide exchange. They enable secure, consistent data sharing across providers, payers, labs, public health agencies, and patient-facing applications. In this model, an interface engine becomes one component within a larger architecture: The engine handles legacy messaging, while the platform ensures that data is standardized, governed, and ready for advanced use.

Put simply, an interface engine ensures a message moves. An interoperability platform ensures the data becomes usable, trustworthy, and scalable across the enterprise. This distinction explains why many organizations still struggle to turn data exchange into true data usability, and why a platform approach has become essential.



# The business problems interoperability platforms solve

Even with systems connected, many healthcare organizations still struggle to use their data to improve care, operations, or innovation. Message-centric tools move information, but they don't create the unified, trustworthy data foundation required for higher-value use cases. As a result, organizations have access to data, yet can't consistently unlock its potential.

This creates a widening opportunity gap across the organization. Fragmented, inconsistent data slows digital initiatives, limits real-time decision-making, and forces teams to rebuild mappings or pipelines for every new project. As care models expand and analytics, automation, and AI become more central to operational performance, organizations relying solely on interface engines fall increasingly behind.



Interoperability platforms close this gap by enabling organizations to:

- **Bring information together across systems and care settings**, allowing data to be reused instead of rebuilt for every initiative
- **Support enterprise-wide and cross-enterprise workflows**, making high-quality information available where and when it's needed
- **Scale new capabilities quickly**, including digital applications, partner integrations, analytics, automation, and AI
- **Reduce operational friction** by eliminating redundant data preparation and minimizing one-off integration efforts
- **Adapt faster to new clinical, regulatory, and consumer expectations** without expanding integration complexity

Where interface engines maintain connections, interoperability platforms unlock what those connections make possible, giving organizations the agility and data readiness required to innovate, compete, and deliver better experiences across the care continuum.

# Core capabilities of a modern interoperability platform

A modern interoperability platform establishes a durable, enterprise-grade data foundation that supports interoperability as an ongoing capability rather than a series of integration projects. By unifying integration, semantic normalization, governance, and scalable access patterns, a platform enables healthcare organizations to operationalize data across clinical care, operations, analytics, and innovation.

While traditional engines were built for connectivity, interoperability platforms are designed to ensure data is consistent, governed, and ready for use across clinical, operational, and analytical workflows.



## Comprehensive standards and protocol support

Healthcare environments are inherently heterogeneous. A modern platform supports a broad range of legacy and emerging standards, including HL7 v2, FHIR, CDA, DICOM, X12, and API-based exchanges, within a single, cohesive architecture. This allows organizations to integrate existing systems while incrementally adopting new interoperability models without creating parallel integration layers or technical silos.



## Semantic interoperability and enterprise data normalization

True interoperability requires shared meaning, not just shared transport. Interoperability platforms apply common data models and standardized clinical terminologies, such as SNOMED CT, LOINC, ICD, and RxNorm, to normalize data across sources. This semantic consistency enables the reliable reuse of information across workflows and reduces the persistent downstream effort required for reconciliation, manual mapping, and data cleansing.



### API-first data access and ecosystem enablement

Modern healthcare depends on secure, scalable access to data. Interoperability platforms provide API-first access patterns, including FHIR read, write, subscription, and bulk data operations. These capabilities support application development, patient- and provider-facing experiences, partner integrations, and digital health ecosystems, while decoupling innovation from underlying source systems.

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### Event-driven architecture and workflow orchestration

Timely action depends on timely data. Interoperability platforms support event-driven architectures that process information in real time and trigger downstream workflows as clinical or operational events occur. This enables automation across care coordination, utilization management, operational processes, and patient engagement, moving organizations beyond batch-based integration toward responsive, context-aware workflows.

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### Embedded governance, consent, and security controls

As data is reused and shared across internal and external stakeholders, governance becomes foundational. Modern platforms embed controls for identity-aware access, consent enforcement, auditing, data lineage, privacy, and provenance. These capabilities ensure that data is trusted, traceable, and exchanged in alignment with organizational policies and regulatory requirements, even as use cases expand.

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### Analytics, automation, and AI readiness

Interoperability platforms persist standardized, governed data in forms suitable for secondary use. This enables population health initiatives, quality measurement, operational reporting, real-time analytics, automation, and AI-driven insights, without requiring teams to rebuild data pipelines for each new initiative. As a result, data exchange becomes a continuous source of value rather than a one-time transaction.

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### Cloud-native scalability and ecosystem connectivity

Healthcare data volumes and exchange networks continue to grow. Interoperability platforms leverage cloud-native, elastic architectures to scale securely and efficiently while supporting connectivity across providers, payers, labs, public health agencies, and digital health partners. This approach enables growth without proportional increases in integration complexity or operational burden.

Together, these capabilities elevate interoperability from infrastructure plumbing to strategic enablement. Rather than simply connecting systems, a modern interoperability platform creates the data readiness, resilience, and scalability required to support coordinated care, regulatory change, and continuous innovation, positioning organizations to lead as healthcare ecosystems evolve.

# Introducing Infor Cloverleaf: A modern interoperability platform

Infor™ Cloverleaf is a unified interoperability platform designed to support seamless data exchange across healthcare organizations of any size. It establishes a robust, scalable foundation that simplifies integration and supports a wide range of enterprise interoperability needs.

## Key highlights:



### FHIR bridge and API-first interoperability

Real-time HL7 to FHIR transformation, secure data normalization and de-identification, and scalable API-based exchange across legacy and modern systems.



### Intelligent workflows and compliance automation

Da Vinci-compliant ePA (CRD, DTR, PAS, CDex), plus event-driven and multi-system workflows that span providers, payers, and digital health applications.



### Enterprise data layer for aggregation, governance, and insights

Store and standardize FHIR data, manage API endpoints, enforce enterprise data governance, and power analytics, AI/ML, and automated decisioning.

## The result:

Infor Cloverleaf embodies the principles of a modern interoperability platform: It standardizes and governs data, supports semantic and standards-based exchange, and scales to meet enterprise and ecosystem-wide needs. Organizations gain a true interoperability foundation, reducing integration complexity, enabling advanced analytics, and unlocking actionable insights across the care continuum.

# Building the foundation for modern healthcare

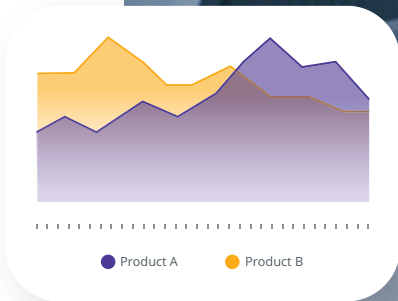
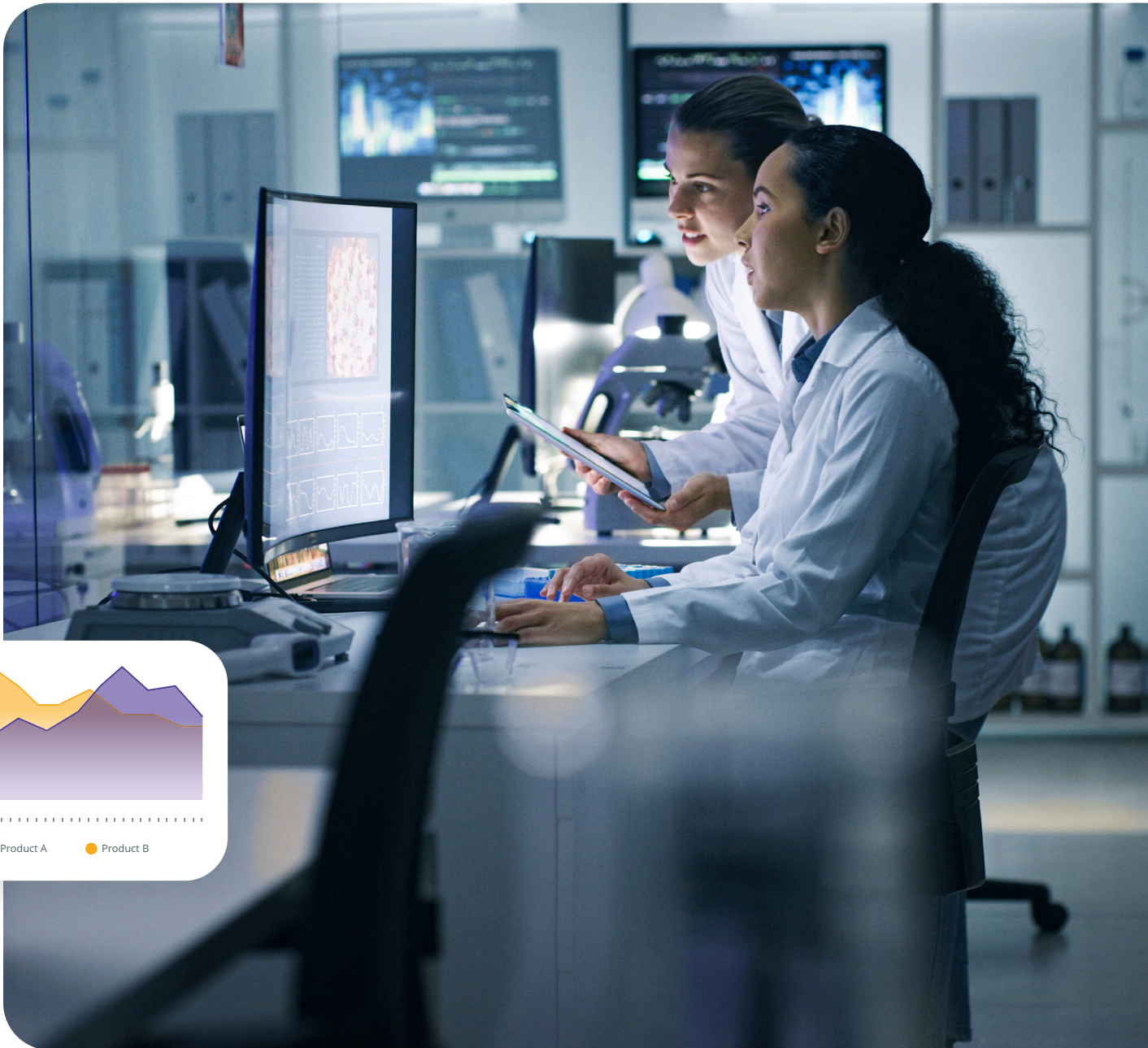
Healthcare today and beyond demands more than point-to-point integration. Organizations need a comprehensive interoperability platform that supports semantic interoperability, patient-centric data management, open APIs, privacy and consent management, and advanced analytics.

Adopting a platform approach enables healthcare organizations to:

- Seamlessly connect providers, payers, labs, public health agencies, and patients
- Deliver patient-centered care with real-time, actionable data
- Support emerging care models, including telehealth and AI-driven workflows
- Adapt to evolving standards and regulatory requirements
- Scale securely on cloud infrastructure



Integration engines remain important, but they function best as components within a broader platform. Platforms like Infor Cloverleaf provide a secure, cloud-native layer over existing infrastructure, offering a smooth, cost-effective path to modern interoperability while preserving prior investments. By adopting a platform approach, organizations create a future ready data foundation that reduces integration costs, supports innovation, and ensures compliance with evolving mandates. In this model, interoperability becomes an engine for transformation, not just a technical requirement.



## About Infor

Infor is a global leader in business cloud software products for companies in industry-specific markets. Infor builds complete industry suites in the cloud and efficiently deploys technology that puts the user experience first, leverages data science, and integrates easily into existing systems. Over 67,000 organizations worldwide rely on Infor to help overcome market disruptions and achieve business-wide digital transformation.

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