

The Google and InterSystems Partnership: A Foundation for AI Innovation in Healthcare



Executive Overview

Google and InterSystems have partnered to deliver a streamlined and scalable Generative and Agentic AI Platform for healthcare. This partnership empowers our mutual customers to dramatically reduce the challenges of data integration and harmonization in healthcare, delivering profound optimization in time-to-value for AI innovation.

Healthcare organizations (HCOs) are under immense pressure to innovate with AI, and Google's AI solutions demonstrate tremendous potential to transform care delivery, reduce administrative burden, and improve patient outcomes. Yet without a unified and normalized data foundation spanning clinical, claims, social determinants, and more, AI models must learn from, and operate on, incomplete, conflicting, or biased information, leading to less than optimal results and diminished return on investment.

The Google-InterSystems partnership addresses these challenges with more seamless collaboration and innovation, directly enabling customers to:

- **Build a Scalable Data Foundation:** Create a harmonized and FHIR-ready data foundation for research, operations, and clinical decision-making, leveraging the power of Google Cloud's AI Optimized Infrastructure and BigQuery for massive scale analytics.
- **Leverage Advanced AI:** Utilize leading generative and agentic AI models, including the Gemini family of models, on Google Cloud's Vertex AI platform for decision support, administrative automation, and population health initiatives.
- **Improve Interoperability and Security:** Enhance standards-based data exchange between existing systems to enable coordinated care, all while benefiting from Google Cloud's industry-leading security and compliance framework.

The healthcare industry's data complexity, compounded by disparate EHR systems, inconsistent coding standards, and identity resolution challenges, makes it exceedingly difficult to scale AI effectively without first achieving data harmonization. This paper explores how the partnership between InterSystems and Google addresses this foundational challenge, enabling healthcare organizations to unlock the full potential of Google's AI platform through a robust, scalable, and real-time data infrastructure.

Google Healthcare Data Engine Ecosystem

Google Cloud's Healthcare Data Engine (HDE) is fundamentally a healthcare industry-leading platform designed for AI-powered innovation on an immense scale. Historically, HDE functioned as a managed service heavily reliant on the FHIR (Fast Healthcare Interoperability Resources) data model, with Google Cloud managing mapping pipelines for data transformation. Its foundational strengths reside in the Cloud Healthcare API, DICOM API, and HL7 API. HDE was capable of ingesting various data formats, including bulk extracts, CSV, HL7v2 streaming, and native FHIR data, processing them through mapping and reconciliation pipelines into a Harmonized FHIR Store, with analytics then performed using SQL on FHIR in BigQuery.

In its current evolution, now formally known as the **HDE Ecosystem**, Google Cloud is building a more streamlined, scalable, and partner-friendly framework. This strategic shift aims to overcome challenges associated with complex legacy data conversion and the limited native adoption of FHIR in the industry. The HDE Ecosystem champions an open ecosystem and a **“Bring Your Own FHIR (BYOF)” model**, where specialized partners handle the intricate data conversion and mapping processes. This strategic move allows Google to concentrate on core AI and analytics capabilities. The Google Ecosystem also provides the essential framework for addressing critical data gaps such as identity management (EMPI) and terminology enablement services, which are now primarily facilitated by partners.

A cornerstone of Google's offerings includes Generative AI specifically tailored for healthcare, leveraging medically-tuned foundation models accessible through Vertex AI. These models are designed to reduce administrative burdens, unlock knowledge, deliver insights within existing workflows, and foster safe, responsible innovation with secure HIPAA-compliant storage. Furthermore, Google provides an Agentic AI Platform that integrates traditional AI with new agent experiences via its search and Gen AI capabilities, offering increased scalability and enhanced data security by processing sensitive data within local environments, thereby mitigating compliance and data breach risks. This comprehensive approach transforms raw data into a state that is “ready for impact,” significantly accelerating time-to-value for AI initiatives. Google's Ecosystem also adopts a modular design, allowing solutions like Healthcare Search to operate independently and integrate with any FHIR backend.

Think of the Google Healthcare API Ecosystem as a sophisticated air traffic control system for healthcare data. Instead of trying to manage every single plane (data point) from every tiny airfield (legacy system) itself, it provides the core navigation and intelligence systems (AI, analytics, secure APIs), while relying on specialized ground crews and airline partners (data harmonization, identity management, mapping partners) to handle the complex, real-time logistics of getting each plane ready for flight and smoothly into the main air traffic lanes, ensuring all the “planes” (data) are pristine and ready for high-level operations.

InterSystems Healthcare Technologies

InterSystems healthcare clients include care delivery, health plan, and public sector organizations that are among the largest and most recognized worldwide. InterSystems supplies these healthcare organizations with continuously evolving state-of-the-art technologies and services focused on connecting health information systems and managing health data, in particular:

- Providing standards-based integration, transformation, and mapping between the myriad systems that are part of a modern HCO with **InterSystems Health Connect**[®].
- Delivering trustworthy identity management for aligning records across the health and care ecosystem with **InterSystems EMPI**[™].
- Harmonizing, aggregating, normalizing, and de-duplicating diverse, dispersed, multisource health data to create comprehensive, curated longitudinal health records, including EHR, claims, social determinants of health, device, wearable, customer relationship management (CRM), and other health and consumer data types with **InterSystems HealthShare Unified Care Record**[®] (InterSystems HealthShare).

InterSystems customers utilize these technologies for a wide range of use cases, including care management, contracting support, product line optimization, point-of-care, and transition-of-care scenarios. They also apply them to analytics serving both populations (e.g., cohort selection) and individuals (e.g., clinical risk scoring). In any of these scenarios, having clean, harmonized data is essential.

InterSystems has extensive experience in healthcare interoperability for on-boarding data in virtually any inbound format. Similarly, harmonized longitudinal health record data can be made available outbound in virtually any format, most notably the FHIR format specific to Google's HDE platform.

InterSystems HealthShare allows Google to rapidly onboard highly curated data from the many sources where it exists in large healthcare enterprises, perfectly complementing Google HDE. InterSystems has an unwavering focus on solving integration, interoperability, and healthcare data harmonization challenges. Google HDE leverages these capabilities to optimize current healthcare workflows using its groundbreaking Vertex AI Platform and Agentic AI services. Among other benefits, InterSystems HealthShare, integrated with Google HDE, empowers our mutual customers to create a FHIR-enabled 'Digital Twin' for each patient, which is then kept up to date in real-time.

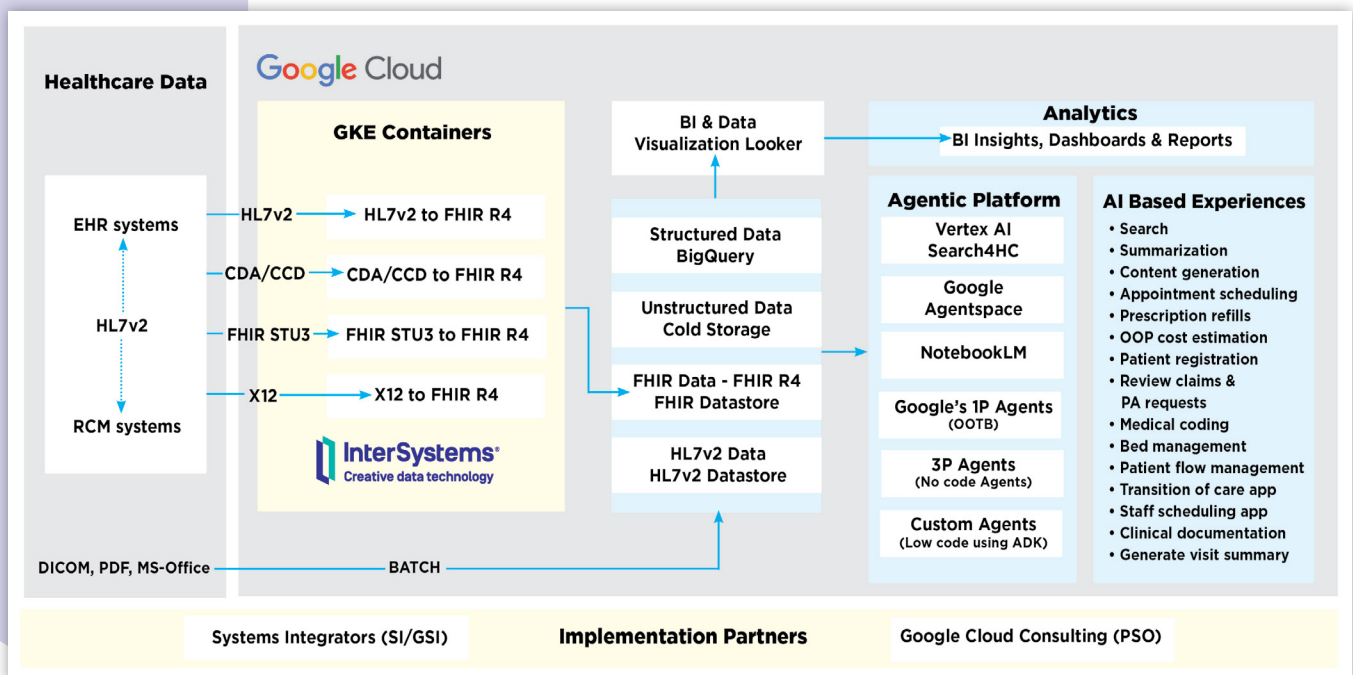


Figure 1: Data Pipeline for Innovation and AI

InterSystems Health Data Model

Central to the [HealthShare Unified Care Record](#) is a robust person-centric data model with a design informed by decades of experience working with providers, health plans, software developers such as Epic and the largest health information exchanges around the world. The model is essential to assembling comprehensive, harmonized, multi-source longitudinal records that unite data from across the entire health ecosystem.

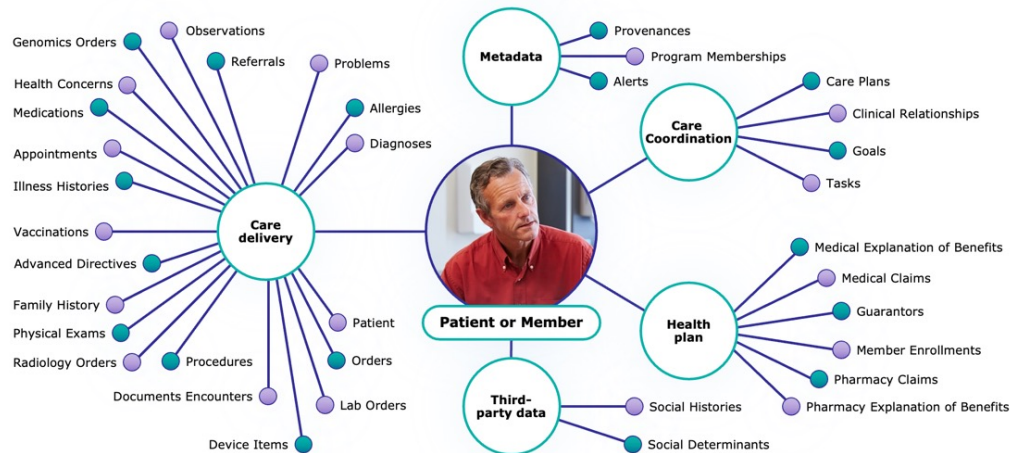


Figure 2: Comprehensive, extensible health data model

It offers designated “landing spots” for care delivery, claims, document and social determinant data. Crucially, it’s also easily extensible to accommodate virtually any other type of data that needs to flow into Google’s HDE.

The Capabilities to Power Data and AI Initiatives

InterSystems has a full suite of robust, enterprise-grade, massively scalable capabilities to help populate longitudinal health records and power data and AI initiatives. Customers can adopt the entire suite or pick and choose those that address their specific requirements.

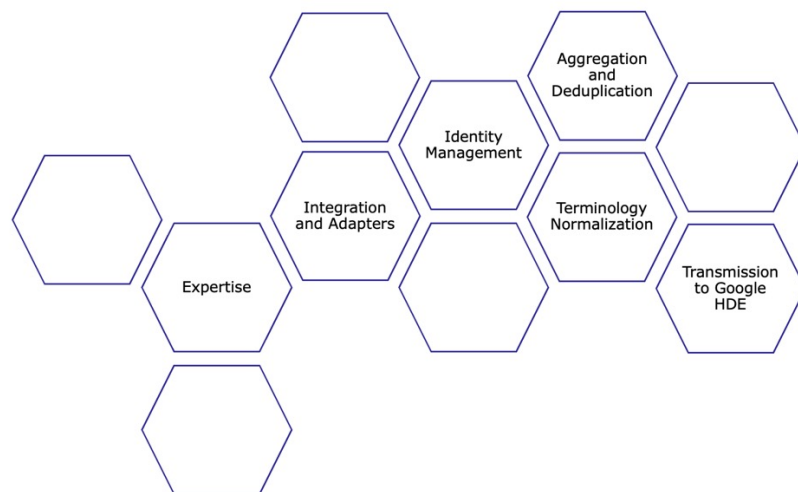


Figure 3: Suite of capabilities

Expertise

The concept of interoperability standards conjures up images of universal “plug and play.” The reality is that every vendor interprets those standards differently. InterSystems certified experts have extensive in-depth experience working with EHR vendors, their products, and the way they handle data. Their best-practice knowledge for accessing data, images, and documents from EHRs includes using a combination of standards-based interfaces and vendor-specific know-how. That expertise is crucial for accessing data that may not “come across the wire” via a traditional standards-based interface. This often requires calls to vendor-specific REST/SOAP protocols or using SQL SELECT statements with the vendor’s relational data base. InterSystems can also provide the expertise to help you bulk-load entire data base extracts from EHRs, to its HealthShare Unified Care Record.

Integration and Adapters

[InterSystems Health Connect](#) is the industry leading integration engine and interoperability platform for connecting your systems and securely transmitting clinical, business and operational data. It includes an extensive set of monitoring and alerting tools to allow for real-time visibility into the health of all connections, and logic for moving data both into and out of HealthShare’s data model.

Adapters include:

- Standards-based adapters (e.g., HL7, FHIR, IHE/CCD/CDA, X12, DICOM)
- Vertical-agnostic adapters (e.g., SOAP/REST, XML/JSON, FTP/SFTP/FTPS)
- Tools for working with proprietary formats like fixed-width or delimited file formats

InterSystems library of transformation adapters supports standards-based data exchange and pairs with the EHR-specific adapters available in the InterSystems Accelerator Program. The company also offers visual and intuitive data transformation tools for mapping non-standard data such as flat files, XML, and JSON to reduce the burden of onboarding new sources.

This combination of EHR data extraction options, expertise, and capabilities enables Google HDE to work with the multitude of different EHR vendors across the healthcare continuum, always staying within the boundaries of the vendor’s supported data access methods.

Identity Management

Once connected to the requisite various data sources, the next challenge is ensuring patient and member identities are resolved across the many input feeds. [InterSystems EMPI](#), a next-generation enterprise master person index, provides a comprehensive suite of probabilistic, heuristic, and deterministic matching algorithms, combined with referential matching. This ensures the highest degree of matching accuracy when patient data arrives from multiple inputs without a shared identifier.

Among its many features, InterSystems EMPI also offers:

- A web-based worklist for manual resolution of boundary cases
- Duplicate detection and resolution
- Task assignment and associated workflows
- Robust reporting capabilities
- Sophisticated field-matching algorithms (fuzzy matching, soundex/phonetic algorithms, transposition algorithms)
- The “Golden Record” capabilities expected of a modern, enterprise-grade master person index
- Referential matching capabilities to incorporate highly accurate third-party data sources, such as credit bureau data into the matching process

InterSystems EMPI helps HCOs improve care quality and business performance by eliminating duplicate records and overlays. It provides a single source of truth for identity data that is accurate, complete, and up to date to maximize the value of analytics and AI initiatives.

Aggregation and Deduplication

With data arriving in many different formats from hundreds or thousands of inputs, the key differentiator of InterSystems HealthShare Unified Care Record is its ability to consolidate everything into a single longitudinal record for each patient or member, in real-time, while also recognizing and removing duplicate versions of the same record. This is arguably the most critical capability necessary to arrive at truly “clean data.”

Most interoperability “solutions” fall far short of this goal, simply retrieving documents or performing batch database extractions from each source system and forcing the user or application to tediously work through each document or data set one-by-one. This process consumes significant time and resources.

A critical element of “clean data” is the application of intelligent de-duplication algorithms, ensuring the unified record is distilled into its most usable format. HealthShare delivers default de-duplication rules specific to the various data entities, e.g., allergies, medications, diagnoses, providers. The default algorithms are extensible to handle site-specific de-duplication needs. The end result is that Google’s HDE is populated with rich, de-duplicated healthcare data, without customers having to create their own de-duplication functionality.

The ability of HealthShare to aggregate data from all sources and then compile this into a unified, normalized, and de-duplicated record in real-time is the “secret sauce” that enables truly breakthrough innovation to occur on top of clean data. The tight integration with Google’s HDE environment ensures that Google’s HDE has unified health data, maintained in real-time, whether sourced from dozens, or even hundreds, of disparate upstream systems.

Terminology Normalization

HealthShare terminology management capabilities help organizations standardize, normalize, and map their multi-source data to industry standards. This improves data quality and enables better decision-making. It is crucial for achieving semantic interoperability and ensuring that information can be reliably shared and understood across different systems and organizations.

Transmission to Google HDE

InterSystems and Google team up to provide real-time data transmission from InterSystems to Google HDE. This ensures that all updates to the harmonized InterSystems HealthShare Unified Care Record are available to Google HDE in real-time, every day, all day. The end result: Google's HDE and its many powerful features can work with a pristine data set, all with minimal time and energy investment from Google HDE customers. This frees them up to innovate, rather than spending time figuring out how to cleanse and harmonize data from upstream sources.

Conclusion

The collaboration between Google and InterSystems marks a significant step forward in healthcare data infrastructure. The partnership addresses one of the most pressing challenges in healthcare IT: Fragmented and Inconsistent Data. By combining InterSystems proven capabilities in interoperability, identity resolution, and data harmonization with Google Cloud's broad suite of AI-enabled analytics and search capabilities and secure infrastructure, healthcare organizations can now unlock the full potential of AI with clean, unified, and actionable data on a proven, enterprise-grade cloud platform.

The partnership is the result of observing Google and InterSystems mutual customers successfully using InterSystems technology in conjunction with Google's Healthcare API product suite. Google and InterSystems have formalized the solution and made it available through a bring-your-own-license (BYOL) model. Google Cloud Marketplace availability in North America is expected in Q1 2026, with global rollout to follow.

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