RHAPSODY

White Paper

9 questions to ask to create a winning interoperability strategy

Health technology teams focused on growth need flexible, trusted interoperability solutions that support secure, scalable, and quality data exchange.

Executive summary

Interoperability with other systems in a health ecosystem is a critical component for any health IT application. While vendor development teams often try to architect for data management themselves, or use open-source or black box prebuilt API solutions, many find that these approaches lack the scalability and sophistication required for success in real-world environments.

Interoperability is complex for a lot of reasons. For starters, there are dozens of healthcare data standards — not to mention proprietary ones — and they're constantly evolving. While we've seen vast improvements on the standards front over time, this means there are wide variations in deployment.

There are also hundreds of EHRs and practice management systems. Even a single health system may have more than one EHR. Each implementation of the same EHR varies from site to site. The amount of data flowing through these systems is also skyrocketing. According to RBC Capital Markets[1], "every second, an exponential amount of healthcare data is generated and mined for valuable insights. **Today, approximately 30% of the world's data volume is being generated by the healthcare industry.** By 2025, the compound annual growth rate of data for healthcare will reach 36%."

With this exponential growth of data and valuable insights comes the need to expand further beyond the EHR. For instance, according to Gartner[2] "By 2026, 20% of healthcare providers will have shifted away from patient portals tethered to the electronic health record (EHR) in favor of digital front door solutions for their primary method of digital patient engagement." This data explosion leaves the healthcare terrain ripe for security threats, further complicating data flow, and making it more difficult than ever to deploy your products in your customers' ecosystems.

Regulatory requirements add additional complexity. The 21st Century Cures Act in the United States, for example, requires developers of certified health IT to publish application programming interfaces (APIs) for data exchange. Many health systems around the world are introducing guidelines and requirements to ensure a national health record can be compiled for patient access and clinical efficiency. The standards and protocols used to facilitate this vary country-to-country.

> Interoperability in healthcare means that patients can move across healthcare settings and their data follows them. Care teams using an interoperable system will have the right data in their hands at the right time to efficiently provide optimal outcomes. Accomplishing this is complex for many reasons. Data must be integrated with quality top-of-mind to ensure it is trusted and actionable. This requires identity and terminology management.

When you manage interoperability yourself, you risk challenges in scaling, onboarding customers, and maintaining a solid data foundation over time. It also means that teams focus on how to achieve interoperability instead of product and service development.

If you are a developer or product leader wondering how to approach your interoperability strategy, there are 9 key questions you should ask.

1

What does your product do, big picture?

Does your product require data exchange with an EHR or other system of record? Does it offer analytics? Will you be managing identity or terminology data?

What data do you need now? What data will you need in the future? What standards and protocols do you need the data to arrive by, and what format do you need the data in to expedite development?

The EHR may be a key data source for you, but EHRs have thousands of data fields. Which data elements do you need now, how is the data presented, and which systems should you integrate with?

As you grapple with solving these challenges for each of your customers, you may overlook tasks that are important to your product and customer success down the road. Your interoperability strategy should be flexible enough to accommodate changing conditions in the months and years ahead.

EHRs have thousands of data fields. What data exchange standards and protocols will you require? What data formats are needed to expedite solution development? You will need the flexibility to evolve over time.

2

What are your workflows?
What would you like to be able to do?

Consider your application as it exists now and how you might want it to evolve in the future to, say, meet new customer demands or expand to new geographies. You have use cases in mind and customers tend to be creative and will likely use your software in novel and unexpected ways. Flexibility is key.

Keep in mind, too, that workflows are moving outside the EHR. With this shift, to accelerate workflows and to fuel informed decisions, interfacing with one or more additional systems of record may be of paramount importance.

Supporting new use cases is inevitable. Your future growth plans may include expanding to new geographies. Adaptability is key to your success.

Case study
BioIntelliSense accelerates customer onboarding with Envoy iPaaS

About BioIntelliSense
Digital health company providing wearables and data-driven insights

Solution
Envoy integrated BioIntelliSense's JSON device data into Epic and designed the connections with scalability and flexibility in mind

Results
Quickly onboard new data sources to support a safe return to work, school, and travel; accelerate delivery of tools for clinical trials. Through connections we established, BioIntelliSense was able to pursue new use cases and integrate with 20 applications, including remote patient monitoring devices, telehealth solutions, medical grade care at home, and hospital-to-home programs.

3

# How quickly can you test and deploy interfaces?

Getting interfaces off the drawing board and into active use is one of the biggest challenges in the application development process.

Interfaces must be tested to ensure compatibility with other vendors applications. Operating systems, transmission protocols, and hardware platforms must be checked and verified.

The good news is that working with a proven interoperability partner that continuously innovates to drive down costs and drive up options allows you to outsource the bulk of testing and verification. In a managed environment, interfaces can be tested and pre-emptively vetted against changing market conditions and put you in a strong position to avoid or mitigate problems.

Get to market faster

If your product development team is tied up solving for interoperability, you could miss product release milestones. Ensuring that the testing process is as automated and foolproof as possible will free up resources for high-value tasks and position your team to exceed customer expectations.
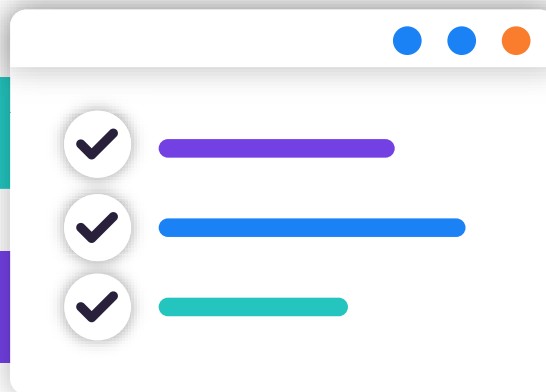
4

How will you monitor your solution?

Connecting systems is not a one-and-done activity. In addition to the version compatibility issues referenced above, other events can cause a failure. User configuration errors, malware, changes to security protocols, firmware updates, and unexpected events can cause a failure. Being able to monitor for roadblocks is critical for vendors and their customers.

Interfaces also need buffer and back-up capability, to log when failures occur and capture messages that are not processed, so that critical data can be restored. An experienced interoperability partner will continuously monitor interfaces and inform administrators of problems, discrepancies, and messages that fail to process. Your partner will also help you identify and proactively address identity data discrepancies. Manual interface monitoring is challenging—no matter how simple or low-volume an interface is expected to be—and a DIY approach can add undue and unexpected burdens to you and your customers.

Any change to data flow could impact your development timelines, data quality, and the customer experience. That's why it's important to look for an interoperability partner who makes this simpler for your team or who can do it for you.

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What is your plan for scaling?

If you haven't already, you will move from pilot programs to enterprise-scale implementations with your early customers. Most products begin in a beta test or a limited pilot-mode in a target organization and then scale up to broader use.

Initial development to support small-scale pilots is fine, but you need to be ready for enterprise-scale use.

The largest healthcare organizations want to deploy your digital health solution across dozens or hundreds of locations. How does your data management foundation handle the volume?

Additionally, many products today have a cloud-based component consisting of a single hosted instance of the software, with data aggregated across various organizations.

While your application may only be used by select individuals or smaller organizations, you should be able to scale quickly to handle increased demand.

If you hope to operate at scale in a particular client site, or across multiple sites, make sure you have an interoperability foundation that energizes your growth.

Realize customer success. The largest healthcare organizations want to deploy your digital health solution across dozens or hundreds of locations. How does your data management foundation handle the volume?

6

How will your product perform in the 'real world' of healthcare?

There are important differences between how EHRs and other systems — such as scheduling or billing programs — function on paper vs. in the real world.

Health systems may rely heavily on major EHR vendors such as Epic and Cerner, but they also tend to have "ecosystems" of more obscure applications — old versions of no-longer-supported software and custom-coded applications. As we like to say, "When you've seen one health system's IT infrastructure, you've seen one health system's IT infrastructure."

Also, each implementation of a single EHR varies site to site. The format and workflow in which specific data fields are captured in one implementation of an EHR and across EHRs varies greatly. Customers will make upgrades to their EHR(s) and change workflows, field formats, and presentation of data that have downstream impacts to interoperability.

The idiosyncrasy of health system IT stacks isn't going away. Organizations constantly adopt new technologies to innovate and launch new capabilities. Is your solution agile enough to adapt to unique IT infrastructures and emerging trends?
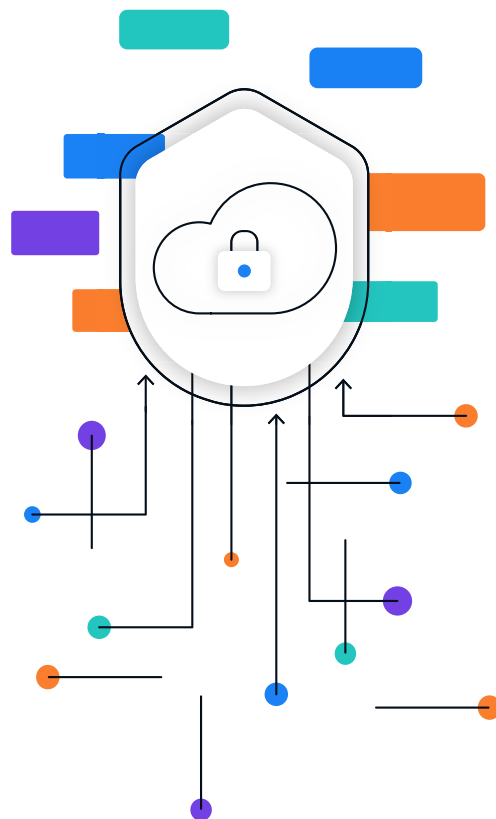
"When you've seen one health system's IT infrastructure, you've seen one health system's IT infrastructure."

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FHIR® is hot, but how will you solve issues it can't address?

FHIR is ideal for certain things, for example, making data available directly to patients and integrating with mobile and web-based applications. However, there are still many applications in use where FHIR, or even an API, is not the best fit.

ADT feeds are one example — where data is typically presented in good old HL7 V2. This messaging standard continues to work well for many types of data and will likely be employed for the foreseeable future. *(See question number 6 above about legacy systems and custom-coded applications).* The fact is many workflows and systems may not ever adopt FHIR or APIs.

How does your product protect against security vulnerabilities?

The rollout of new capabilities, processes, and workflows and the adoption of new interoperability rules means that the risk for cybersecurity breaches is high. When hackers see new systems or processes being implemented, they look for weaknesses associated with the software, as well as opportunities to develop their own zero-day attacks. Complicating matters, new interoperability rules require sharing data via APIs.

Maintaining up-to-date security and privacy protection is critical. Keeping up with the latest threats and quickly responding to them is a job best left to the experts.

As you consider integration engine solutions, it's important to note whether the engine stores any data that is exchanged through it. The Rhapsody and Corepoint integration engines do not store data, which helps decrease risk and supports global data privacy compliance. Working with an experienced, proven interoperability partner that has earned internationally recognized privacy and security certifications including ISO 27001, SOC2, CyberEssentials and CE+, GDPR, and HITRUST will allow your organization to minimize vulnerability to cybersecurity attacks and ensure customer security.

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9

How will you help drive data quality?

Ensuring the consistency and accuracy of the data your customers rely on is an ongoing challenge. With so many sources of data and fragmented approaches to data management, many organizations struggle to deliver clean, current data to those who need it. This is particularly true when it comes to the management of person data (both patients and providers) and healthcare code sets.

Much is at stake when it comes to the accuracy of this information – from the efficiency of your development team, to the quality of your product, to the overall experience your customers have using your product. When it comes to developing your interoperability strategy, how are you helping solve the data quality challenge?

As you consider the value your solutions bring to your customers, it's important to keep in mind the data quality challenges they're facing. For example:

86%

of nurses, physicians, and IT practitioners say they have witnessed or know of a medical error that was the result of patient misidentification. [1]

76%

of lab data is not mapped to the standard LOINC coding.[2]

The better your solutions help solve data quality challenges, the more successful you and your customers will be.

Sources:

[1] 2018 Mid-Year EHR Consumer Satisfaction Survey, Black Book Market Research

[2] athenahealth study, 2015

Why Rhapsody®?

Rhapsody is a Digital Health Enablement Platform that accelerates adoption of innovative digital health solutions for care providers, health tech builders, and public health teams. We do this through API enabled interoperability and identity management solutions paired with our deep healthcare expertise.

Building on the experience gained in working with more than 1,700 organizations, with a 100% focus on healthcare, and the confidence that comes with a 98% customer retention rate and top-tier NPS score, Rhapsody health solutions offer flexibility and transparency – in terms of deployment, solutions, and ability to support even the most complex data exchange challenges

For healthcare technology solutions needing quality data to support the development of data-driven solutions with advanced analytics such as machine learning and artificial intelligence, the Rhapsody Digital Health Enablement Platform delivers actionable data reliably to decrease time to market, onboard customers faster, and keep development teams focused on your core customers.

Remove roadblocks to interoperability and unlock the full value of your data.

1. RBC Capital Markets, "The healthcare data explosion," https://www.rbccm.com/en/gib/healthcare/episode/the_healthcare_data_explosion

2. Gartner, "Predicts 2023: Changing How Healthcare Provider Services and Operations Are Delivered", Barry Runyon, Sharon Hakkenness, Gregg Pessin, 5 December 2022