ITC INFOTECH

Business-friendly Solutions

FHIR-BASED INTEROPERABILITY CHALLENGE: AN ASSESSMENT ON HEALTHCARE PAYERS AND PROVIDERS READINESS

INTRODUCTION

We know that Health Level Seven (HL7) is graduating to Fast Healthcare Interoperability Resources (FHIR) Standards. FHIR is a next generation standard framework created by HL7 and a successor to HL7 v2.x, v3 and CDA. It is based on RESTful protocols. Authentication is provided by open-source OAuth2 standard. Payload security is handled by HTTPS. This is good news as it liberates, facilitates and ensures that Health Plans and Payers, Hospitals and Medical centers, Labs and Pharmacies, EMRs and HIEs + Medical Imaging will now securely exchange patient and clinical data currently stored in diverse systems, locations and formats. The outcome of FHIR implementation on top of HL7 will be to provide point-of-care access to patient information. It will drive superior medical decision-making, diagnosis, treatment and disease management. Data interoperability will also give rise to business models that are adaptive and aligned with the tenets of accountable care. In addition, hopefully, it will also support smoother costing and financial transactions/ billing between providers, patients and payers.

Sharing multi-site clinical data has remained a challenge because of a lack of accessibility, standardization, plus complex data governance and regulatory/ legal requirements such as Protected Health Information (PHI) and Health Insurance Portability and Accountability Act (HIPAA) laws. However, the challenges of data interoperability have been resolved by other industries such as banking. We have been withdrawing cash across states and countries by using the VISA and Mastercard network. The simplicity and convenience of Any-Time-Money (ATMs) was only possible due to technology and security of data interoperability. If our Banking fraternity (equally regulated) could do it, so can the healthcare industry. Thankfully, technology is ready to help HealthCare Payers take a leap-of-faith. But now, from compliance perspective, it is also mandated by Centers for Medicare and Medicaid Services (CMS) / HHS to showcase interoperability readiness from July 1, 2021.

ARE YOU READY?

The CMS / HHS / state regulators mandate will ensure the bi-directional flow of data. Pluggable applications and off-the-shelf programming APIs will simplify usage. The deadline for publishing APIs that allow members to access their own data or grant consent to others is fast approaching. Implementing and maintaining open APIs to support Medicare Advantage Enrollees, Medicaid and CHIP Managed Care beneficiaries and FFE-QHP enrollees must be in place by July 1, 2021 (see Figure 1: Our Understanding – Interoperability Requirements for Payers).

Our Understanding - Interoperability Requirements for Payers

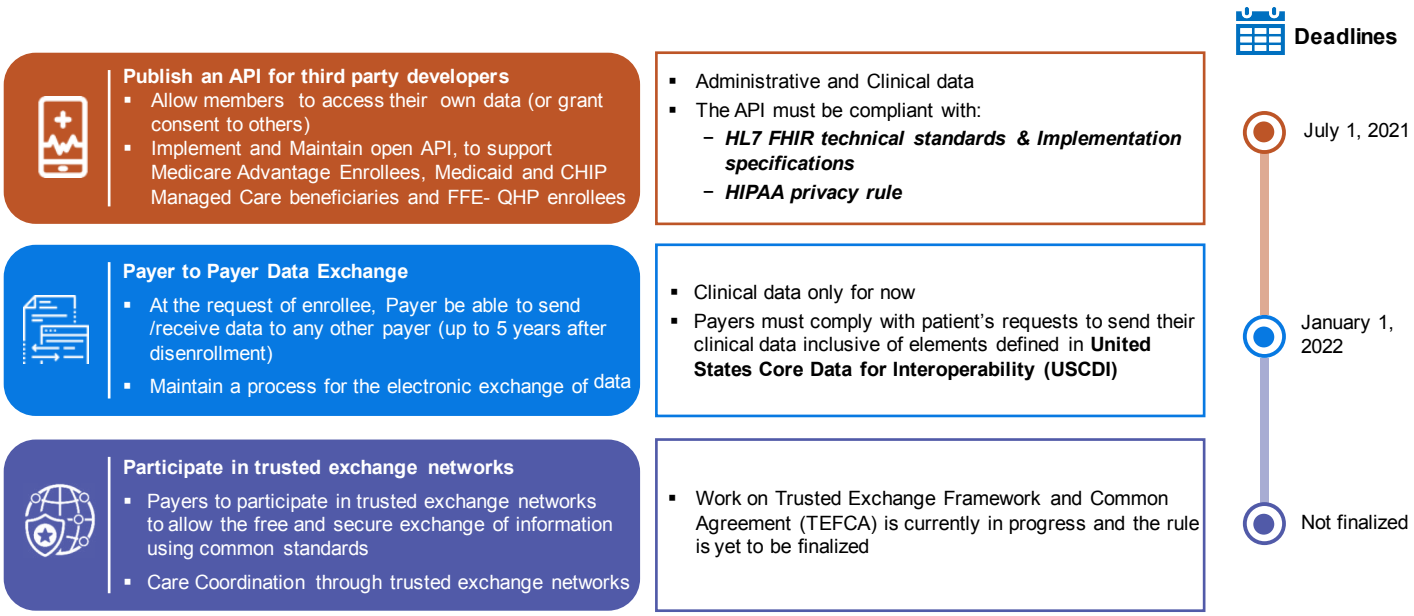

Figure 1

Assessing the ability to achieve seamless Payer to Payer/ Payer to Provider interoperability as expected by CMS is the first step for Payer organizations in the journey to FHIR implementation.

The goal for payers should be to transform data exchange to next generation standards between themselves and other entities such as providers, patients, regulators and organizations authorized to provide data analytics (See Figure 2: Our Understanding – Interoperability Requirements for Payers for the future state of data exchange).

Our Understanding - Interoperability Requirements for Payers

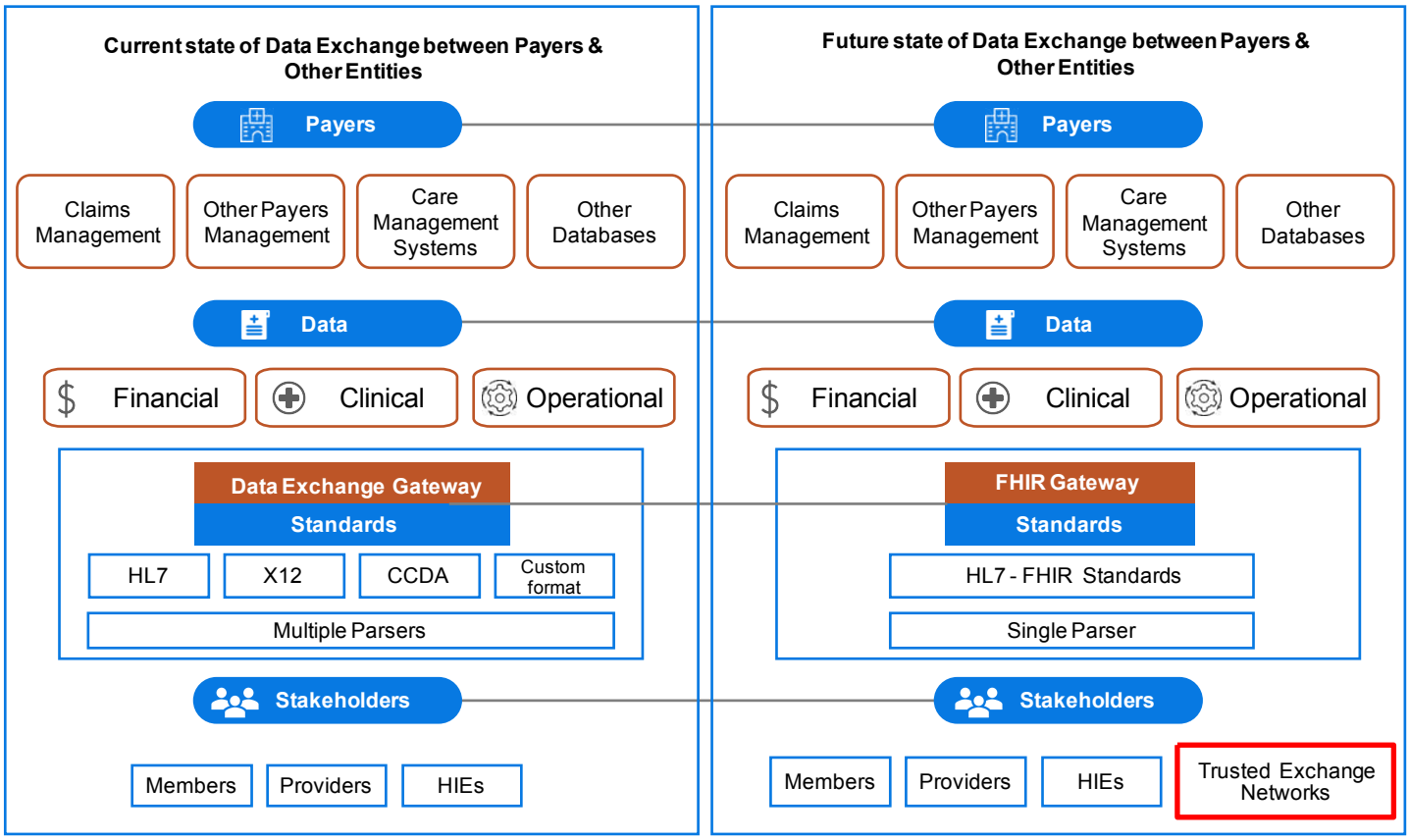

Figure 2

ADOPTING A FEATURE-RICH, TAILOR-MADE SOLUTION

One of the simpler (and more efficient) paths to successful FHIR is to leverage the fully managed, enterprise-grade Azure API for FHIR. The service can be provisioned by domain specialists like ITC Infotech in less than 5 minutes. It supports FHIR STU3 and FHIR R4—which are the latest specification published by HL7—and enables payers to access and use health data from disparate sources. The data is isolated and protected with layered, in-depth defense and advanced threat protection in accordance with industry compliance standards. Some of the top advantages of using the FHIR-Azure cloud solution along with ITC Infotech's expertise include:

- **Azure AD protection and Role Based Access Control (RBAC)**, allowing access to data at scale
- **Audit log tracking** for access, creation, modification, and reads within each data store
- **Secure compliance in the cloud** -- ISO 27001:2013 certified, supports HIPAA and GDPR, and built on the HITRUST-certified Azure platform
- **Robust data security** using OAuth 2.0 and Azure Active Directory for Azure API security
- **Global availability and protection of data** (including historic bulk data) with multi-region failover

- **Substitutable Medical Applications and Reusable Technologies (SMART) on FHIR** functionality that allows medical applications to be written once and run across diverse healthcare systems
- **Free up operational resources** that can then focus on generating actionable insights from data
- **Real time member data availability** like claims and encounter data
- **Web and mobile integration support**
- **Enriched data** that can be used for predictions, care coordination and fraud analytics
- **Tools, templates, connectors and accelerators for faster implementation** related to ingesting streaming data from the Internet of Medical Things, transforming legacy health data into FHIR, redaction of 18 HIPAA defined identifiable attributes (e.g. names, addresses) under HIPAA Privacy Rule, representation of FHIR data in Power BI, etc.

10 QUESTIONS TO ANSWER TO BASELINE YOUR PREPAREDNESS FOR FHIR-INTEROPERABILITY

1. Is your solution SaaS and cloud-based?

Your solution should be SaaS and cloud-based. ITC Infotech's FHIR solution comes in two flavors:

- **Cloud based:** Completely secured and runs on a platform with more than 40 certifications required for security, compliance and regulations
- **Deploy anywhere:** You can choose to deploy on any cloud-based or on-premise infrastructure, based on where a majority of your data lies

2. Is your FHIR-interoperability solution platform agnostic?

The interoperability solution should be agnostic in relation to the existing technology used to manage Enrollment/ Claims/ CM/ CRM/ Finance/ HR/ EMR/ Enterprise Data Warehouse, etc. If not, you may spend millions without results. ITC Infotech's FHIR interoperability solution can be deployed anywhere, along with its cloud counterpart.

3. Are you able to connect to different data sources?

Data Management is the key and should be focused to provide:

- **Data contextualization** – the ability to organize data into a structured form
- **Data ingestion** – the ability to acquire/capture data from different sources with different standards
- **Interoperability** – the ability to access/interact with the structured data
- **Marketplace** – the ability of your applications to be integrated into the platform solution
- **Platform management** – the ability to create instances of the platform for creating solutions
- **Secure data access, management and exchange** – the ability to access, store, and retrieve the structured data
- **Workflow orchestration** – the ability to orchestrate data movement

4. How is your data stored, staged and extracted on cloud?

This is central to ensuring data persistence while meeting compliance and performance requirements. Your data is not stored in a multi-tenant database and it remains private to you, the ownership of data remains with you and archival, purge, back-ups are governed by your organization's policies.

5. Are you using open source cloud FHIR stateless APIs?

There are pros and cons involved in using open source cloud FHIR stateless APIs related to operations, management and compliance. These should be carefully weighed with the assistance of a technology expert with domain expertise.

6. Is your API and ETL management able to handle load and performance?

API and ETL management are the heart of an interoperable solution. What and how you use API and ETL to deliver FHIR solutions has a deep impact on outcomes.

7. How secure will your data on cloud or on premise be? What is your security management SOP?

Is it possible to plug-in the entire security context and authenticate through a different security context? Again, easier said than done, so talk to us

8. Do you have a firm handle on the required integration layers?

This refers to the need for integration between cloud, data center and data platform hosted on premises and/or public/ private/ hybrid cloud.

9. How do you authorize users to access your data?

Members (and their systems) need applications that provide access to your data. What is the authentication mechanism? How secure are you from a jail break scenario?

10. How will you do Member Match to avoid PHI / HIPAA violations?

Are you using 5 Point match algorithm that is a combination of FN, LN, DOB, Gender/Demographics, SSN, Medicaid, Medicare Beneficiary Identifier (MBI)? Can SSN/ ZIP be used? Hopefully you aren't doing it. So, should MBI and/ or Medicaid Client Identifying Number (CIN) be used? Hint: Use algorithm and Artificial Intelligence to identify the exact member.

PREPARING FOR FHIR INTEROPERABILITY: HOW ITC INFOTECH CAN HELP

Faultless FHIR-based interoperability implementation begins with a thorough understanding of the new regulations and how they work with existing regulations governing medical data and its usage. It involves developing a strategy, milestones and acquiring niche skills—only after which the solution can be implemented (see Figure 3: Guidance FHIR Architecture for Interoperability by ITC Infotech for details) to unlock powerful organizational capabilities and experiences and open the doors to a future that holds the promise of new possibilities.

GUIDANCE FHIR ARCHITECTURE FOR INTEROPERABILITY BY ITC INFOTECH

ITC Infotech's FHIR Solutions

- Modular
- Plug & Play
- Platform Agnostic
- SMART support
- Highly Secured
- 47 Compliance Certifications

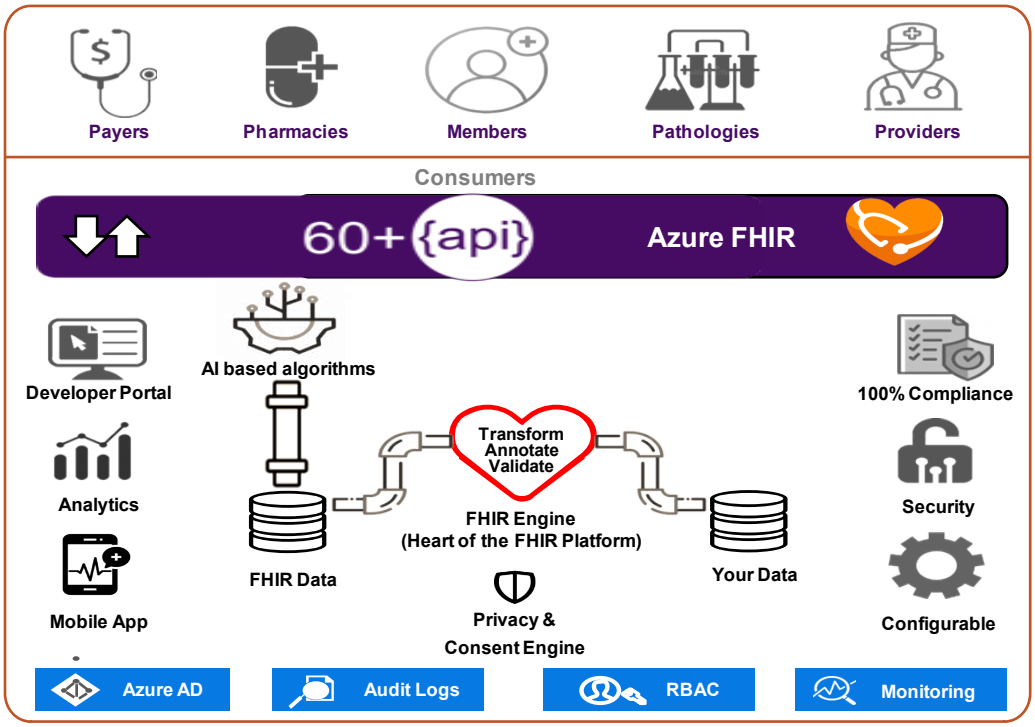

Figure 3

There are 145 resources types that FHIR supports.[1] Servers and APIs need to be in place; devices and workflows have to be planned for; and computational resources estimated. This is a complex task that calls for domain and technological expertise for precise and reliable implementation.

[1] https://www.hl7.org/fhir/resourcelist.html

AUTHOR PROFILE

Manish Jaiswal is Head of HealthCare & Life Sciences at ITC Infotech. He is an MBA with 24 years of global experience in Digital HealthCare. He has successfully built, sold, farmed, managed and delivered Digital Consulting, Digital Operations and Digital Technology solutions to Insurance, HealthCare, Life Sciences, ISVs and Outsourcing firms. Prior to joining ITC Infotech, he was responsible for building the practice ground-up for Cognizant HealthCare BU for North East and The New England Markets (PHS). He is a thought leader and has deep relationships with stakeholders of all 4Ps of HealthCare i.e. Payers, Providers, Pharma and Platform companies.

Manish K Jaiswal
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Ashish Srivastava has more than 22 years of global industry experience in delivering enterprise architecture Digital Transformation, IT Strategy and IT Transformation in Healthcare, Travel & Hospitality Industries. He is an author with books published by McGraw Hill and many technology blogs. In his current role he serves as Partner - Technology and Global Alliance.

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Suresh Lakshmanan 22 years of extensive experience in Healthcare Provider, Payer (Health Insurance) and Life sciences (Pharma and Clinical Research) industry performed practice/Account/Delivery management, managing multi-disciplinary teams of varying sizes and complex programs of work with the expertise in driving delivery and solutions, business growth, opportunity management, Response management, Practice Marketing, Business development support and Center of Competency.

Suresh Lakshmanan
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About ITC Infotech

ITC Infotech is a leading global technology services and solutions provider, led by Business and Technology Consulting. ITC Infotech provides Business-friendly Solutions to help clients succeed and be future-ready, by seamlessly bringing together digital expertise, strong industry specific alliances and the unique ability to leverage deep domain expertise from ITC Group businesses. The company provides technology solutions and services to enterprises across industries such as Banking & Financial Services, Healthcare, Manufacturing, Consumer Goods, Travel and Hospitality, through a combination of traditional and newer business models, as a long-term sustainable partner.

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