



Gemini: A Joint Initiative of HL7 and IHE to Advance Use of FHIR for Interoperability

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Wayne Kubick, HL7 CTO



Learning Objectives

- Learn how HL7 and IHE are collaborating for interoperability
- Understand the goals of the Gemini Initiative
- Recognize the importance of standards to achieving interoperability
- Be introduced to the Gemini Medical Imaging for Cancer Care Project



Common Vision



- A world in which everyone can securely access and use the right health data when and where they need it.



- Enable seamless and secure access to health information that is usable whenever and wherever needed.



Common Mission



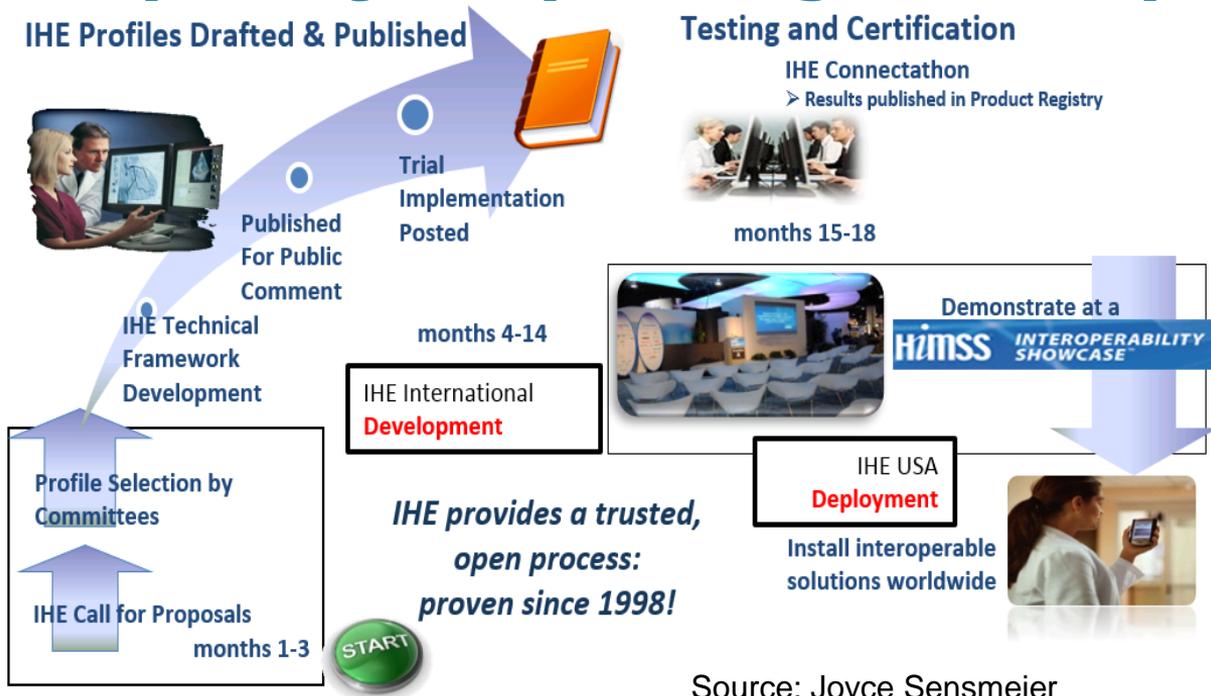
- To provide standards that empower global health data interoperability.



- IHE improves healthcare by providing specifications, tools and services for interoperability.



IHE Profile Development: A Proven 1-year Quality Management Cycle



Source: Joyce Sensmeier

HL7 ANSI-Accredited Standards Process



- HL7 work groups meet via conference call and at annual Working Group Meetings (WGMs)
- All meetings are open, run under Robert's rules, with minutes available
- STUs and Connectathons allow for ongoing testing by implementers
- ANSI rules govern openness, transparency, balance of interests, due process, appeals.



IHE Profiles are use-case based implementation guidelines, which are published in a set of documents called the IHE Technical Frameworks.

HL7 FHIR Profiles define Constraints, Extensions, Value Sets, and examples associated with a FHIR resource for a specific problem or use case

Profiles and IG's

IHE Profiles provide a common language for purchasers and vendors to discuss the integration needs of healthcare sites and the integration capabilities of healthcare IT products

FHIR Implementation Guides are sets of rules about how FHIR resources are used to solve specific problems

HL7 EHR Functional Profiles define functional requirements for use cases

Why Collaborate?

- Interoperability by definition needs all affected parties to share knowledge and work together if it is ever to become a feasible reality
- Committing to the interoperability vision thus involves placing the common good above that of any single individual or organization
- HL7 and IHE, with the support of HIMSS, can make a significant difference in achieving the vision by sharing the best of all worlds
- We're only beginning to realize what we can do – an initial step is Gemini.

Why Gemini?

- Standards development is hard; interoperability is much harder
- Hard problems require joint commitment; and competition among SDOs helps no one
- HL7 and IHE both contribute significant value to the healthcare community
 - HL7 develops core standards that underlie many healthcare data interactions; FHIR Implementation Guides also address certain critical use cases with FHIR solutions
 - IHE develops integration profiles that apply standards (often including HL7) to solve discrete business problems
- IHE and HL7 both have global reach, but not always in the same places
 - Together, we have much broader coverage
- There are clear synergies, but we could accomplish so much more!



What's Gemini?

- A joint initiative of HL7 and IHE – not a separate organizational entity
 - Operates under the Statement of Understanding between HL7 International and IHE International
- Oversight by a joint Steering Committee that includes 3 representatives from each organization
- Mission is to make further advances in interoperability by capitalizing on the advantages of FHIR and combining the relative strengths of both organizations
- Will result in the creation of new, robust, jointly-owned specifications developed under the collaboration
- Specifications will be based primarily on





HL7® FHIR® - *Fast Healthcare Interoperability Resources*

- A next generation **standards framework & platform**, built on 30 years of HL7 experience, designed for simplicity and implementation
 - R4, with normative content is now available
- Built on REST, a pattern for using web technologies to manage information (the platform used by Facebook, Twitter...) and APIs
- Content based on Resources: essential, portable modular information building blocks easily assembled into working systems
 - Like web pages directed toward computers; fast and scalable
- Flexible outputs: web, messages, documents, services
- A *technology*, a *data model*, and an active, global *community*
“*The Web, for Healthcare*” – *Grahame Grieve*





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Open healthcare APIs are now the law of the land

The new 21st Century Cures Act mandates that medical records be accessible via open APIs.

By David Chiu December 14, 2016

With a stroke of his pen, President Obama turned the landmark [21st Century Cures Act](#) into law on December 13, 2016. This extensive healthcare bill sailed through both the U.S. House and Senate with huge bipartisan majorities, by focusing on improving patient outcomes through research, regulatory changes, and funding for initiatives like Vice President Biden's "cancer moonshot".

But buried deep inside the 996-page legislation is a subsection on IT that is poised to transform the way that doctors, hospitals, insurance companies, and patients interact with medical information. In clear language, the *Cures Act* mandates the use of open healthcare APIs beginning January 1, 2018, by requiring electronic health record (EHR) systems to have:

API Management

Share





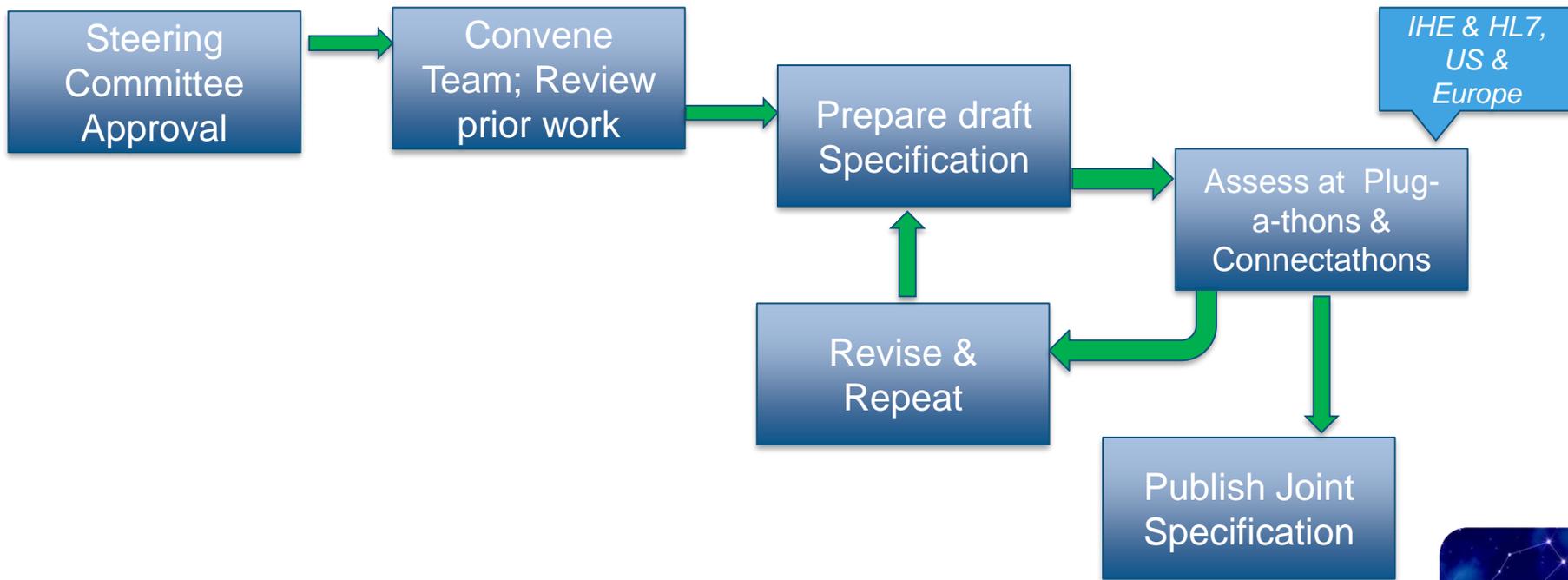
Gemini Builds on Sets of Connectathons

- HL7 FHIR Connectathons help implementers assess, test and explore new opportunities for applying the FHIR specification.
 - Testing as part of a connectathon is a pre-requisite for progressing resources and implementation guides up the FHIR Maturity Model
- IHE Connectathons (and plug-a-thons) provide a detailed implementation and testing process to enable standards-based interoperability.
 - Here systems exchange information in a structured and supervised peer-to-peer testing environment, performing transactions required for the roles that perform in carefully defined interoperability use cases (profiles)
 - Enables more formal testing of specific product solutions.





Leaping Forward through Collaboration



Some More Ambitious Objectives

- Joint opportunities to improve organizational processes for both organizations
 - Publication Tooling
 - Registry and Repositories
 - Use of FHIR Terminology Services and Value Sets in IHE Profiles
- Capitalizing on rigorous IHE testing to verify specific product solutions
- Providing clear, common advice on what profile or IG to use when
- Increasing confidence and trust in both organizations among adopters of HL7 and IHE standards
- Making more rapid advances to improve interoperability.





What Types of Projects are Gemini Candidates?

- Unmet Need where significant value can be offered by the collaboration
- Potential Multi-national or global use
- Utilizes the respective strengths of both organizations
- The project results in implementable specifications that can be advanced thru international IHE plug-a-thons and FHIR and IHE Connectathons
- Goal is to support 2-3 concurrent projects, with a 1-2 year time horizon.



Some Gemini Projects

- Endorsed: Breast Cancer Staging (HL7 Project) Work in Progress
- Approved: Medical Imaging for Cancer Care
- Under Consideration: e-Immunization
- Possible Future Consideration: Patient Care, Incorporating CDS Hooks





Joint HL7-IHE Cancer Interoperability Project

- Purpose: to demonstrate how the combined efforts of IHE and HL7 can add value to advance interoperability
- Goal: seek to make incremental progress over the course of IHE and HL7 Connectathons to develop an interoperability solution built on FHIR and profiles, culminating in a joint publication
- 2 breast cancer storyboards involving pathology, imaging, treatment and other electronic health data
- Primary HL7 work groups participating include Health Care Devices, Image Integration and CIMI
- Primary IHE domains include Radiology and Patient Care Coordination.



The e-Immunization Candidate Project

- Championed by Jürgen Brandstätter (IHE International Board Member)
- Objective: a “Best of Breed” *global* Interoperability Standard for recording, accessing and acting upon vaccinations, immunization requirements and plans
- Will try to identify a common global approach to reduce heterogeneity across nations and bring e-immunization to a wider global population
- Several countries on multiple continents have already expressed interest in participating
- For additional information, contact J.Brandstaetter@codewerk.at



A Joint Initiative of HL7 and IHE to Advance Use of FHIR for Interoperability

- Introduction to the Gemini Initiative
- Wayne Kubick
- CTO, HL7 International