



INTRODUCTION: The HL7 International EHRS-FM (EHR System Functional Model) outlines important features and functions that should be contained in an EHR system; where, through the creation of functional profiles, this model provides a standard description and common understanding of functions for healthcare settings, such as a US-Realm (country) Profile and Federal Agency Sub-Profiles; where, DoD-and-VA Sub-Profiles can include each agency's mission needs, goals, objectives and specific test-criteria

To date, HL7 has developed or is developing **profiles** for areas such as

- emergency care,
- long term care,
- child health,
- behavioral health
- Record Management and Evidentiary Support (RMES)
- US Meaningful Use objectives and test criteria
- eight public health sub-profiles.

This presentation recommends the creation of a US Realm (country) Profile including

- US legislative mandates, such as ARRA, HIPAA, CLIA and
- US Department of Health and Human Services regulations, such as
 - HL7 V2.51 messaging standards,

- CDA/CCDA documents
- CMS's Meaningful Use

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Agenda (3 Separate Parts / Briefs)

Part 1: Executive Summary

Part 2: EHRS-FM Considerations

Part 3: Informatics and Other Considerations



Part 2 and 3 available separately

- 1. Executive Summary and Acronyms** (20 slides)
- 2. EHRS-FM Considerations** (30 slides)
 - EHRS-FM Background and Overview
 - (1) Example: HL7 Population Health & the Public Health Functional Profile
 - (1) EHRS-FM Meaningful-Use Functional-Profile Methodology
 - (1) Potential US-Realm EHRS-FM-FHIR-FHIM plus DoD-and-VA Sub-Profiles
 - (4) US-Realm Profile Vision, Methodology, Value, Next Steps
 - (1) Questions & Discussion
- 3. Informatics and Other Considerations** (15 Slides)
 - (2) Data Management Needs
 - (4) EHRS-FM, FHIR and FHIM content and DoD-VA Shared-Data Example
 - (5) Gartner CPR generations and Evidence-Based-Medicine (EBM) Requirements
 - (3) S&I Framework Use-Case Simplification and NIST Tooling Strategy

For additional details, see the notes pages; slide number 2

The goal of the Electronic Health Record (EHR) Work Group is to support the HL7 mission of developing standards for *EHR data, information, functionality, and interoperability*; where, that includes

- Functional-and-Information Requirements for Electronic Health Records (EHR) and systems (EHRS),
- Functional-and-Information Requirements for Personal Health Records (PHR) and systems (PHRS),

An objective of the EHR Interoperability WG team is to create a clear, complete, concise, correct and consistent '2017 EHR System Function and Information (EHRS-FIM) R3.0 in Sparx Systems Enterprise Architect tool; **where, a DoD-VA EHRS-FM-FHIR-FHIM can address the structural-consistency issues identified by the VA negative '2013 R2 ballot.**

A second objective of the EHR Interoperability WG is to produce a Meaningful-Use profile for '2014 R2.0 & planned '2017 R3.0

The objective of the Resource Management Evidentiary Support (RM-ES) project team, within the EHR WG is to provide expertise on records management, compliance, and data/record integrity and related to governance to support the use of medical records for clinical care and decision-making, business, legal and disclosure purposes.

NOTE: EHRS-FM does NOT imply a specific architectures or workflows; but, profiles can be architecture & workflow specific.

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MISSION: DoD-and-VA Data Sharing



HIT GOAL: **Continuity-of-Care across the care-continuum**, including Quality-of-Care, Patient-Safety, Care Efficacy-and-Efficiency

OBJECTIVES: **Support patient-care and benefits-adjudication**, by getting the right-Information to the right-person at the right-time.

1. **Fit-for-Purpose Data**, when-and-where it is needed by clinicians provided-by agile, aligned and interoperable systems.
2. **Data-Quality** ensured-by standards-based "Informatics-Factory" Interoperability-Specifications, Implementation Guides and Test Criteria.
3. **Project Management Accountability and Audit Readiness** using EHR System Functional Model (EHRS-FM) to baseline, roadmap, categorize and configuration manage DoD-VA Data-Sharing architecture.
4. **Monitoring-and-Reporting Dashboard** for/by IPO-and-GAO using HL7 Service Aware Interoperability Framework (SAIF) Enterprise Compliance and Conformance Framework (ECCF).

For additional details, see the notes pages; slide number 3

Background:

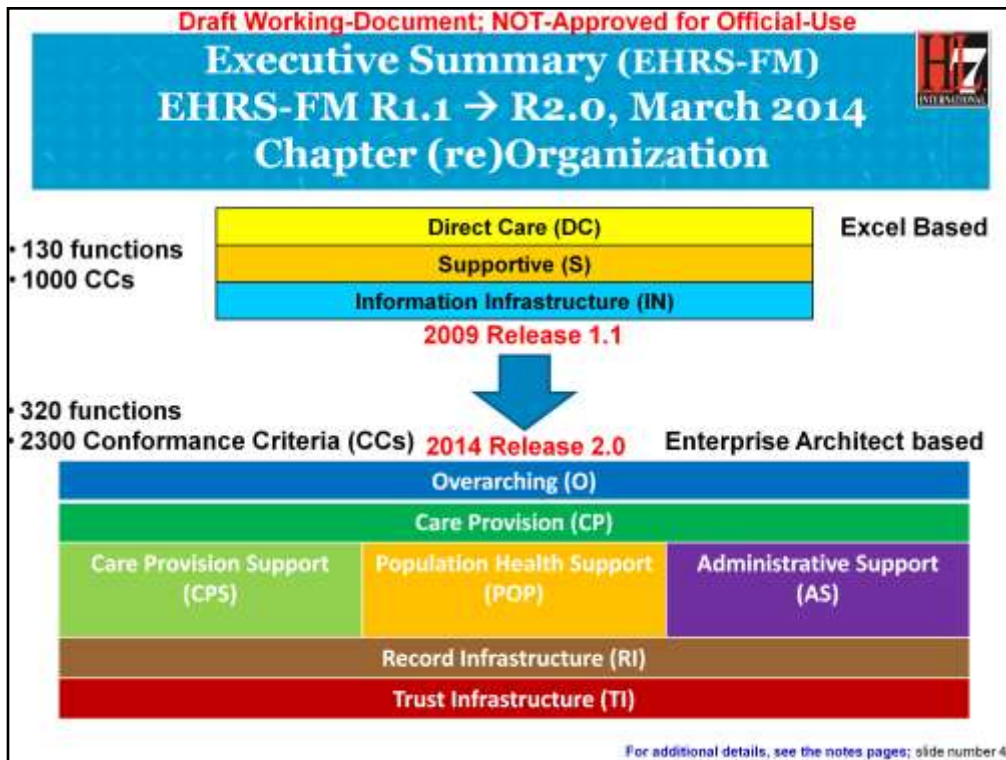
- In '2009, The VLER (Virtual Lifetime Electronic Record) program was initiated by the President to enable the DoD and VA and their partners to proactively provide the full continuum of services and benefits to Servicemen and Veterans made possible by effective, efficient, and secure standards-based information sharing; where, the '2009 ARRA-HITECH (American Recovery and Reinvestment act included Health Information Technology for Economic and Clinical Health) legislation funded the IPO (Interagency Program Office), ONCHIT (Office of the National Coordinator for Health Information Technology) managed nwhin (Nation-Wide Health Information Network) gateway and DoD-VA integrated EHR System (iEHR) initiative. Goals were set for "the utilization of an EHR for each person in the United States by 2014 and the development of a nationwide health information technology infrastructure that allows for the electronic use and exchange of information."
- From '2009 through the end of '2012, the IPO, nwhin Connect and iEHR approaches were explored and lessons were learned; where, IPO focus evolved to monitoring and reporting to congress and the ONC evolved nwhin connect to eHealth Direct.
- In '2013, and the DoD and VA Secretaries changed the Healthcare IT mission from integrated to interoperable EHR systems; where, the Health IT Goal focuses on **continuity-of-care across the care-continuum**, including Quality-of-Care, Patient-Safety, Care Efficacy-and-Efficiency; and where, the '2014 National Defense Authorization Bill mandates the IPO and GAO to monitor and Report on DoD and VA Data-Sharing interoperability to congress, as a prerequisite for DoD-and-VA receiving incremental funding.

Health IT Must Make Clinical Operations Effective and Efficient:

1. The Health IT objective is to **Support patient-care and benefits-adjudication**, by getting the right-Information to the right-person at the right-time; where this objective breaks down into:
2. **Getting Fit-for-Purpose Data**, when-and-where it is needed by clinicians provided-by agile, aligned and interoperable systems.
3. **Data-Quality** ensured-by standards-based "Informatics-Factory" Interoperability-Specifications, Implementation Guides and Test Criteria.

This brief recommends using EHR System Functional Model (EHRS-FM) as the baseline to

- **Project Management Accountability and Audit Readiness**; where, roadmap, categorize and configuration manage DoD-VA Data-Sharing exchange-architecture.
- **Monitoring-and-Reporting Dashboard** for/by IPO-and-GAO using HL7 Service Aware Interoperability Framework (SAIF) Enterprise Compliance and Conformance Framework (ECCF)."

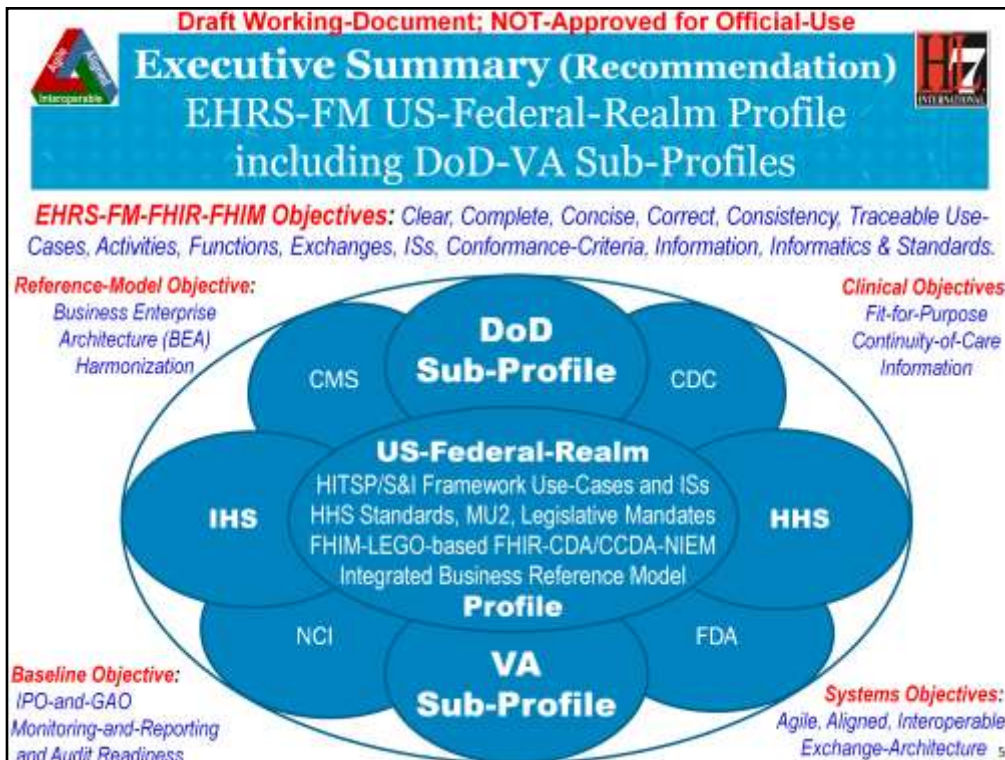


The DoD and VA have supported the development of the HL7 EHR System Functional Model (EHRS-FM) for over ten years; where, release-2 was published in March 2014.

- A US-Federal-Realm EHRS-FM-FHIR-FHIM profile, which includes DoD and VA Sub-Profiles can be developed to address Agency concerns-and-needs; where, the profiles can
- Include a Business Architecture framework of Use-Cases, Processes, Activities, Information Exchanges, Standards, Meaningful-Use metrics and a Common Information-and-Interoperability Framework (CIIF) of Information-Models and Terminology-Services;
- Provide Knowledge-Management Traceability and an Interoperability-Dashboard among Legislative, Business, Information, Behavior, System-Implementation Perspectives;
- Provide a high return-on-investment for Agency support to HL7; FHIM, HITSP, S&I Framework and Agency informatics-research; where, the profiles can be a
 - Standardized and peer-reviewed reference model for DoD, VA and partner interoperability;
 - Baseline for IPO-and-GAO monitoring-and-reporting and Agency test-and-certification.
 - Harmonization and Configuration-Management umbrella for FHIM, FHIR, S&I Framework;

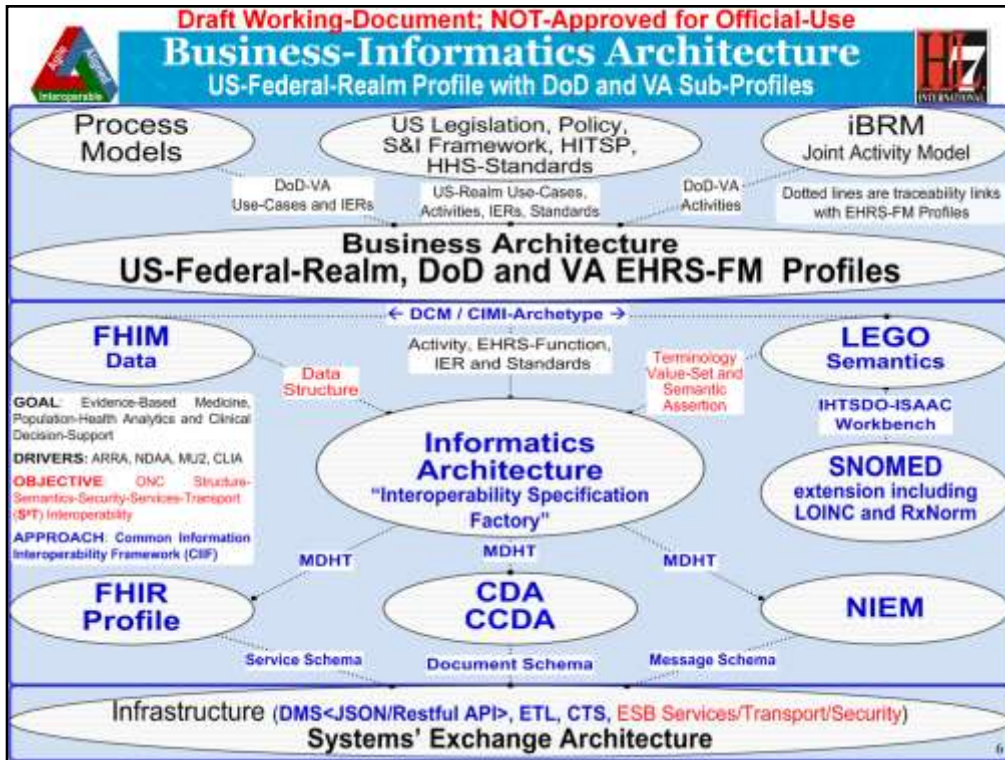
BENEFITS; where the EHRS-FM can

1. Facilitate describing end-user values such as patient safety, quality outcomes and efficacy and efficiency in terms of standard EHR-S functions' conformance criteria.
2. Promote a common understanding of EHR functions; where, developers, vendors, users and other interested parties can plan-and-evaluate EHRS requirements-specifications for acquisition, development, test and certification.
3. Provide the necessary framework to drive the requirements and applications of next level standards, such as EHR content, coding, information models, constructs and interoperability for information portability between sub-systems of and across EHR-Ss.
4. Establish a standards-based method by which each realm (country) can apply these EHR functions to care settings, uses and priorities
5. Inform those concerned with secondary use of EHR data and national infrastructure what functions can be expected in an EHR System



Value Proposition: EHRS-FM Profiles can document, make transparent for National peer-review the US, DOD and VA Data Management Mission Needs defined by legislation, IPO-and-GAO Monitoring-and-Reporting mandate and the DoD-and-VA Data-Sharing and business and system-exchange Architectural-Alignments.

- **EHRS-FM-FHIR-FHIM** Profile can be a *Reference Function-and-Information Model* for IPO-and-GAO monitoring-and-Reporting and Agency Test-and-Certification
 - Including EHRS functions mapped-to DoD-VA Integrated Business Reference Model (**iBRM**) activities
 - Including EHRS functions mapped-to DoD-VA Agency Business Process Models
 - Including EHRS functions mapped-to DoD-VA Requirements, including Information Exchange (**IE**)
- **HITSP and S&I Framework** provide *Reference-Enterprise Use-Cases and ISs*
- **Meaningful Use Stage 2** provides *Reference-Enterprise Quality-Indicators*
- **FHIM** provides a *Reference-Enterprise Information-Architecture*
- **LEGOs** (Lightweight Expression of Granular Objects) facilitates clinical evidence-based medicine, population analytics and decision support
- **DoD-VA-HHS Health Standards Profile (HSP)** provides an *Enterprise Standards Architecture*
- **DoD-VA Information Exchanges** linked to HSP provides an *Enterprise Exchange-Architecture*
- **FHIM-LEGO-Based FHIR Profile** is an *Enterprise Interoperability Architecture* including
 - Data Management Services (DMS), CDA/CCDA documents and NIEM messages
- *ONC/FHA can expand this strategy to harmonize with other applicable agencies*



This slide shows the content of the Informatics Architecture and how it can be made traceable to the Business Architecture and Systems Exchange Architecture, using the RHRS-FM.

DATA-SHARING DRIVERS: VLER, ARRA, NDA, MU2, CLIA

INFORMATICS GOAL: Evidence-Based Medicine, Population-Health Analytics and Clinical Decision-Support

INTEROPERABILITY OBJECTIVES: Consistent Structure-Semantics-Security-Services-Transport Models

APPROACH: Common Information Interoperability Framework (CIIF) using Informatics Architecture Acceleration (ISAAC)

- IE Content-and-Semantics can come from Federal Health Information Model (FHIM) elements bound to SNOMED, LOINC, RxNorm terminology within a structure, called LEGO (Lightweight Expression of Granular Objects) containing a SNOMED semantic assertion-and-classifier; where, LEGOs enable construction of meaningful information exchanges-of computable-medical-information in support of analytics, evidence-based-medicine and decision-support applications that can enhance the quality, safety and efficacy of patient-care.
- IE Structure can be specified by Model Driven Health Tool (MDHT) transformations of logical LEGOs into implementable HL7 Fast Healthcare Interoperability Resources (FHIR), CDA/CCDA document and National Information Exchange Model (NIEM) message schemas.
- IE Security, Transport, Services, Workflow are generally managed as a part of a system's infrastructure and service agreements
- Record Management and Evidentiary Support (RM-ES) constraints can be in accordance with scope-of-practice, organizational-policy and US law.

Lightweight Expression of Granular Objects (LEGOs) are based on the Simple Information Model (SIM) Framework

Organizes clinical information in a maximally reusable way

Designed to resolve the long-standing tension between "terminology models" and "information models"

The terminology plays the central role, and the information model is reduced to a bare minimum container.

Where, the SIM approach is

Constructed around SNOMED CT taxonomy, with Extensions

Deployed alongside a description logic classifier (e.g., EL++)

Allows clinical statements of arbitrary complexity to be constructed as needed

Preserves the ability to aggregate and analyze the clinical information later

LEGO model instantiated as an XML Schema (polymorphic Object)

Key feature is an assertion structure composed of:

Observable element in the form of an assertion

SOLOR (SNOMED, LOINC, RxNorm) pre-or-post coordinated expression

Expression representing the subject of the assertion (i.e., the "question" or "what is being observed")

Qualifier element

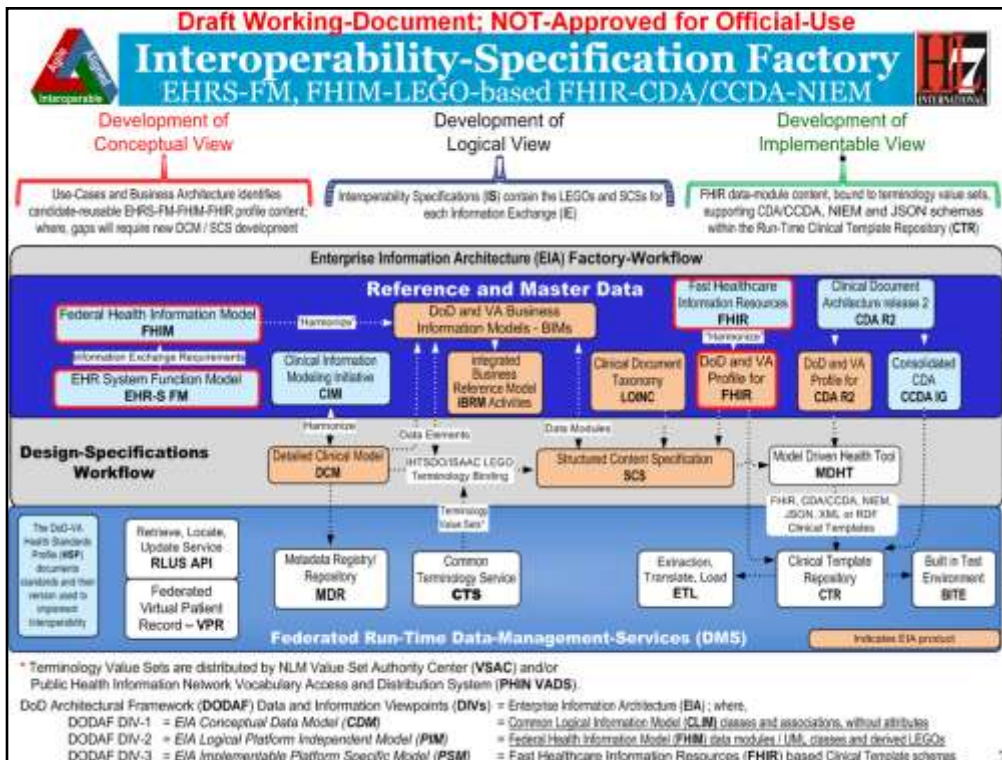
How the observable-assertion is acquired (e.g., by interview or physical exam or an HL7 "null flavor")

Value element (e.g., Boolean or numeric value)

The value of the expression in the observable (i.e., the "answer" or "observation result")

Timing element (optional interval)

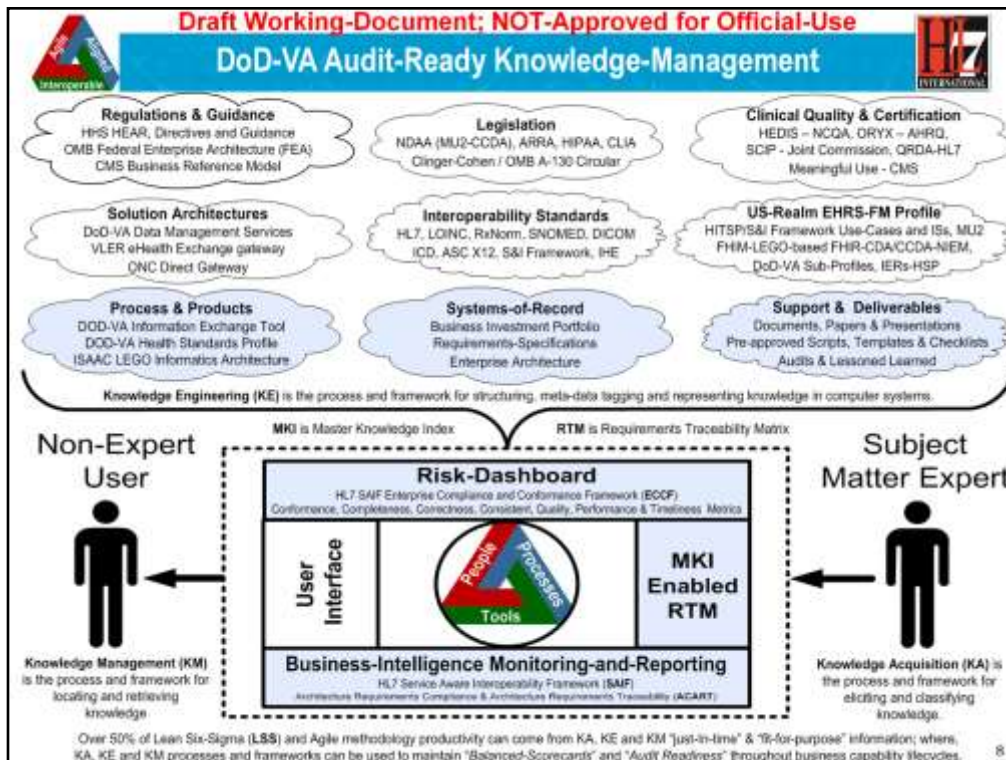
Period of time during which the assertion was valid



This slide shows how Informatics tools and concepts can be integrated into a factory-like process to develop Interoperability Specifications and Implementation Guides to support a run-time environment.

Informatics Architecture Acceleration (ISAAC) Lightweight Expression of Granular Objects (LEGOs) for Semantic Interoperability

- EHR-S-FM functions can organize Information Exchange Requirements (IERs)
- IHTSDO/ISAAC Open-Tooling Framework (OTF) eclipse-plugin for SNOMED CT, with extended EL++ classification can transform FHIM classes or Detailed Clinical Models (DCMs aka CIMI Archetypes), using highly-reusable SOLOR (SNOMED, LOINC, RXnorm) pre-or-post coordinated terminology value-sets into Lightweight Expression of Granular Objects (LEGOs), defining a bottom-up Informatics architecture for the construction of IER Interoperability Specifications.
- Based on the IHTSDO Observables Model, LEGO self-contained units of knowledge transform patient data into a normalized SCS; where, the SCSs are the foundation for the large-scale exchange of computable medical information in support of analytics and decision support applications that can enhance the quality, safety, efficacy of patient care.
- IHTSDO/ISAAC workbench can combine LEGO pieces into complex Structured Content Specifications (SCS); where,
- MDHT (Model Driven Health Tool) can transform these SCSs to FHIR profiles for DoD-VA Data Management Services (DMS), NIEM messages, CDA/CCDA documents.

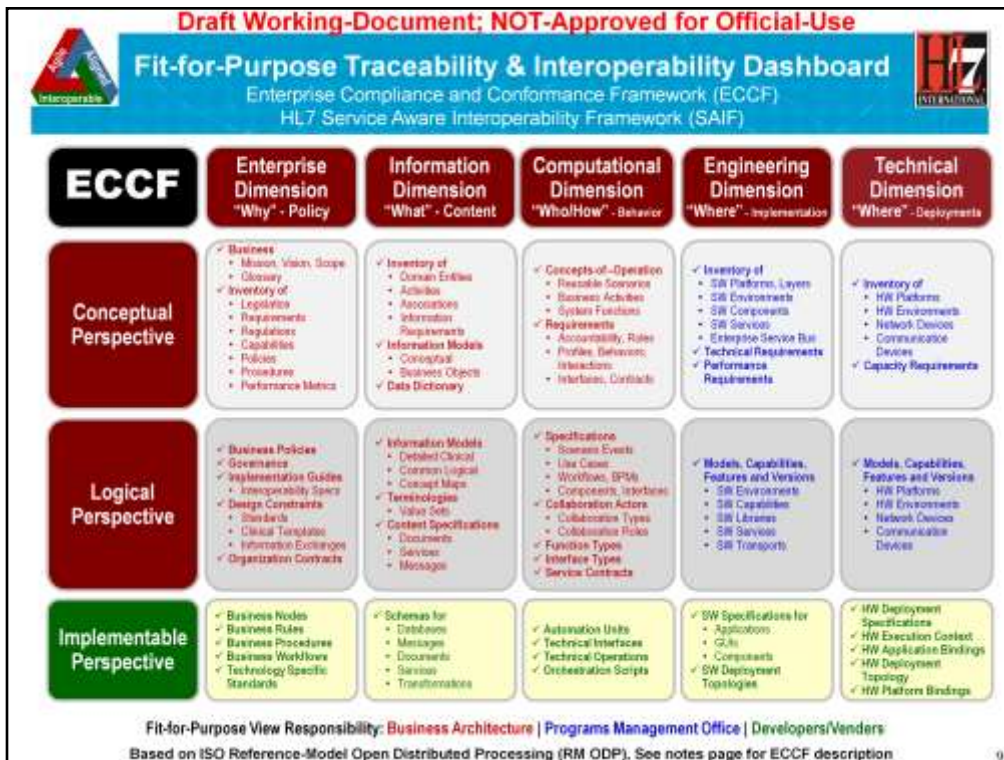


This slide shows how a Master Knowledge Index (MKI) version of a Requirements Traceability Matrix (RTM) can provide traceability to a US-Realm EHRs-FM-FHIR-FHIM Profile with DoD-and-VA Sub-Profiles can include traceability; where, the MKI can be kept simple in Excel or extended to support architectural analysis using Protégé, using the standard W3C Resource Description Framework (RDF):

- HITSP/S&I Framework/Agency Use-Cases (**UCs**), Interoperability Specifications (**ISs**), Agency integrated Business Reference Model (**iBRM**), Business Process Models (**BPM**), requirements and Health Standards Profile (**HSP**) are maintained; where, UCs describe and constrain business entities, processes, activities and Information Exchange (**IE**) and ISs define IE content structure-semantics-transport-security-services and (optional) workflow; and where,
- EHRs functions can be mapped to UC business processes-and-activities, clinical-guidelines/best-practices, Agency requirements and IEs, Meaningful-Use objectives-and-criteria, Quality Reporting Document Architecture (**QRDA**), legislative-mandates, and DoD-VA-HHS Healthcare Standards Profile (**HSP**).

Knowledge management can prevent staff and projects from constantly reinventing the wheel, can provide a baseline for progress measurement, can reduce the burden on expert availability and attrition, can enable visual thinking and make evidence-based analytics tangible, and can effectively manage large volumes of information to help stakeholders have better and faster outcomes. Knowledge management can help solve many common business problems and can increase effectiveness by improving:

1. **Business Decisions** by facilitating access to expertise and evidence-based analytics.
2. **Efficiency and Productivity** by having timely access to knowledge
3. **Innovation** through wider and borderless access to knowledge
4. **Access to Know-How** by capturing explicit and tacit knowledge
5. **Stakeholder Satisfaction** by focusing on mission-oriented outcomes.
6. **Quality** with cross-functional collaboration and knowledge-reuse
7. **Audit Readiness** by managing business capability lifecycle traceability



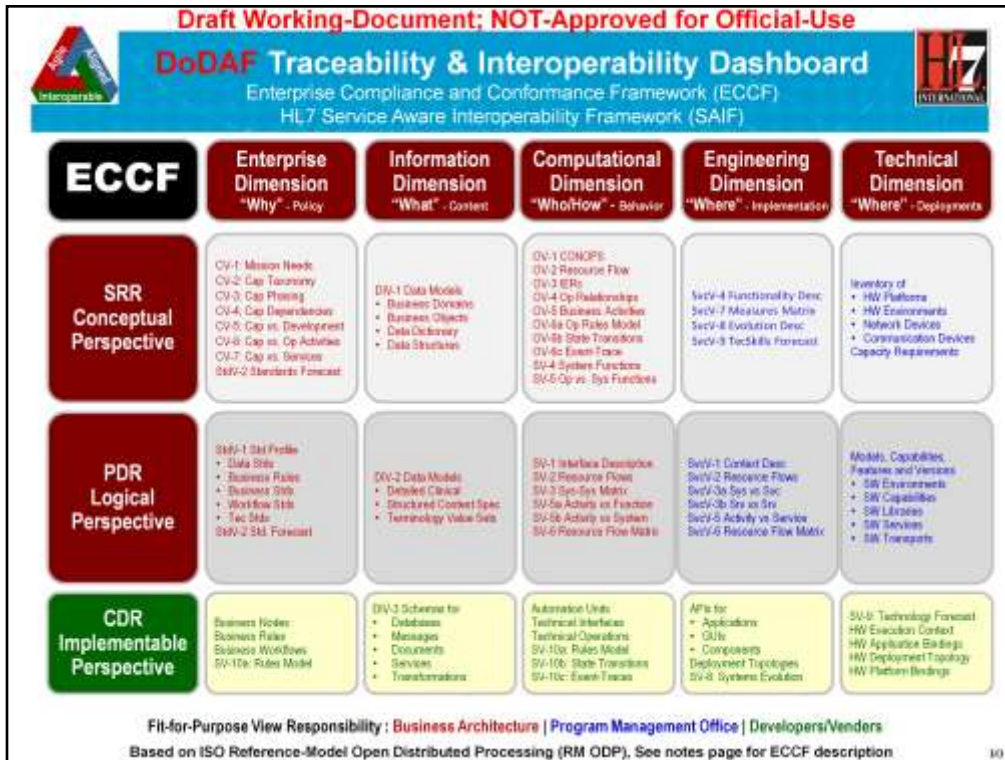
This slide shows how the HL7 Service Aware Interoperability Framework (SAIF) and its Enterprise Compliance and Conformance Framework (ECCF) can be used as an interoperability dashboard; where fit-for-purpose architectural views would be assessed and risk-managed.

The DoD, VA and IPO's ECCF's goal is to ensure Working Interoperability (WI) among stakeholders;

- **Working Interoperability** is an instance of two "trading partners" — human beings, organizations, or systems, successfully exchanging data or coordinating behavior to accomplish a defined task, such as .population analytics, Evidence Based Medicine or Decision Support.
- The ECCF's *purpose* is to manage the traceability among architectural artifacts and implementations of those requirements-specifications.
- The *objective* of a fully qualified ECCF is to be a clear, complete, concise, correct, consistent and traceable interoperability specification, which is easy-to-use.
- An ECCF can be a **Risk-Assessment Framework**, which supports **Configuration-Management Baselines** throughout a business-capability lifecycle.
- An ECCF is used to specify information exchange interoperability and implementation Requirements-Specification conformance statements for documents, messages and services.
- An ECCF provides a template, called a **Specification Stack (SS)**, for specify business objects, components, capabilities, applications and systems organized as a matrix of
 - Perspective columns (Enterprise, Information, Computational, Engineering and Technical) and
 - Abstraction rows (Conceptual, Logical and Implementable).

The HL7 SAIF ECCF shows a super set of common architectural-artifacts. All the listed artifacts may NOT be required by the DoD-VA EHR-FM profile; other artifacts may be included. Within each cell

1. You manage traceability within columns and consistency across layers.
2. ECCF asserts, as true or false, that a set of conformance assertions are met within an implementation of a Specification Stack (SS); where,
3. The ECCF identifies risks potential needing mitigation across the organization's Business Capability Lifecycles.



DoDAF V2.0 focuses on architectural "data", rather than on developing individual "products". In general, data can be collected, organized, and stored by a wide range of architecture tools developed by commercial sources. It is anticipated that these tools will adopt the DoDAF Meta Model (DM2) Physical Exchange Specification (PES) for the exchange of architectural data. Conformance ensures that reuse of information, architecture artifacts, models, and viewpoints can be shared with common understanding.

DoDAF conformance is achieved when:

- The data in a described architecture is defined according to the DM2 concepts, associations, and attributes.
- The architectural data is capable of transfer in accordance with the PES.

DoDAF 2.0 Views

AV-1: Overview and Summary Information.,

AV-2: Integrated Dictionary

CV-1: Vision, **CV-2:** Capability Taxonomy, **CV-3:** Capability Phasing

CV-4: Capability Dependencies,

CV-5: Capability to Organizational Development Mapping,

CV-6: Capability to Operational Activities Mapping, **CV-7:** Capability to Services Mapping

DIV-1: Conceptual Data Model,

DIV-2: Logical Data Model,

DIV-3: Physical Data Model

OV-1: High-Level Operational Concept Graphic,

OV-2: Operational Resource Flow Description

OV-3: Operational Resource Flow Matrix

OV-4: Organizational Relationships Chart

OV-5a: Operational Activity Decomposition Tree, **OV-5b:** Operational Activity Model

OV-6a: Operational Rules Model,

OV-6b: State Transition Description,

OV-6c: Event-Trace Description

PV-1: Project Portfolio Relationships,

PV-2: Project Timelines,

PV-3: Project to Capability Mapping

StdV-1: Standards Profile,

StdV-2: Standards Forecast

SV-1: Systems Interface Description,

SV-2: Systems Resource Flow Description

SV-3: Systems-Systems Matrix,

SV-4: Systems Functionality Description

SV-5a: Operational Activity to Systems Function Traceability Matrix,

SV-5b: Operational Activity to Systems Traceability Matrix

SV-6: Systems Resource Flow Matrix,

SV-7: Systems Measures Matrix

SV-8: Systems Evolution Description,

SV-9: Systems Technology & Skills Forecast

SV-10a: Systems Rules Model,

SV-10b: Systems State Transition Description,

SV-10c: Systems Event-Trace Description

SvcV-1: Services Context Description,

SvcV-2: Services Resource Flow Description

SvcV-3a: Systems-Services Matrix,

SvcV-3b: Services-Services Matrix

SvcV-4: Services Functionality Description,

SvcV-5: Operational Activity to Services Traceability Matrix

SvcV-6: Services Resource Flow Matrix,

SvcV-7: Services Measures Matrix

SvcV-8: Services Evolution Description,

SvcV-9: Services Technology & Skills Forecast

SvcV-10a: Services Rules Model,

SvcV-10b: Services State Transition Description,

SvcV-10c: Services Event-Trace Description



DoD, VA and IPO Next Step

VA, DoD & IPO request ONC/FHA to sponsor an HL7 US-Federal-Realm EHR-S-FM Profile with DoD-and-VA Sub-Profiles

- **Harmonization of EHR-S-FM-FHIM-FHIR-LEGOs** supporting
 - CDA/CCDA and NIEM Information Exchanges
 - FHIR-based Data Management Services (**DMS**)
- **Traceability framework** for IPO-and-GAO Monitoring-and-Reporting required by the FY14 funding authorization bills; where, *audit-readiness* Knowledge Management (**KM**) can help ensure timely DoD-and-VA funding.

For additional details, see the notes pages: slide number 11

BENEFITS of a US Realm (country) Profile and DoD and VA Sub-Profiles; where the profiles can

1. Facilitate describing end-user, US national, DoD and VA values such as patient safety, quality outcomes, efficacy and efficiency in terms of standard EHR-S functions' conformance criteria.
2. Promote a common understanding of DoD-and-VA EHR clinical and administrative user's specific needs; where, developers, vendors, IPO, GAO, Congress, the White House and other interested parties can plan-and-evaluate EHR requirements-specifications for acquisition, development, test and certification.
3. Provide a common Informatics-Framework to manage consistent Interoperability-Specifications, Implementation-Guides and applications of next-level standards for EHR message, document and service content, coding, information models and terminology binding, reusable constructs-and-profiles, resulting in data-sharing interoperability across EHR-Ss and organizations.
4. Establish a standards-based method by which the EHR functions describe typical US, DoD and VA care settings, workflows and data
5. Inform those concerned with secondary use of US, DoD and VA HER-data and US National and/or Federal Agency infrastructure what functions can be expected in EHR-System and data-exchange-architectures; where, a US-Realm (country) profile can include the Federal Health Information Model (**FHIM**), HHS mandated standards, implementation guides, objectives and criteria.

Governance Concerns

1.ONC should sponsor, IPO should manage the overall effort and the ICIB should govern the effort.

2.Does ONC/DoD/VA/IPO/NIST or GAO resource the following?

- A. US-Realm EHR-S-FM Profile
 - 1) **Meaningful-Use** criteria Inclusion-and-maintenance
 - 2) **ARRA, NDAA, HIPAA, CLIA** etc. conformance-traceability inclusion-and-maintenance
 - 3) **HITSP & S&I Framework Use-Case Simplification** inclusion-and-maintenance
 - 4) **FHIM, EHR-S-FM and FHIR** harmonization-and-maintenance
 - 5) **LEGO** harmonization-and-maintenance with FHIM
 - 6) **FHIR Profile** from FHIM and LEGOs creation-and-maintenance
 Use-and-maintenance of ISAAC-and-MDHT Tooling
- B. DoD-and-VA Sub-Profiles
 - 1) **iBRM and Use-Cases** harmonization, maintenance-and-inclusion
 - 2) **Data-Sharing IERs'** Interoperability-Specifications maintenance-and-traceability
 - 3) **HARB Information Exchange Tool** maintenance
 - 4) **HARB Health Standards Profile (HSP)** and IER-to-HSP mapping maintenance
 - 5) **Investment Portfolio, systems' architecture, test and certification** traceability
- C. <optional> **Other agencies** (e. g., IHS, FDA, HHS, CDC, CMS, NCI) Sub-Profiles

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THANK YOU

Questions and Discussion

Separate Parts / Briefs

Part 1: Executive Summary (This Brief)

Part 2: EHR-FM Considerations

Part 3: Informatics and Other Considerations



For additional details, see the notes pages; slide number 12

CALL FOR PARTICIPATION!

HL7 EHR WG Weekly Calls

(770) 657-9270 Code: 510269#

- Rec Mgmt/Evidentiary Support: Mon 12 Noon ET
- EHR Interop WG (Release 3): Tues 1PM ET
- EHR Interop WG (Meaningful Use): Tues 2PM ET
- **EHR Work Group (Plenary): Tues 3PM ET** ← status of all workgroups given here
- Personal Health Record WG: Wed 12 noon ET
- EHR Usability WG: Wed 3PM ET

Acronyms	
AHRQ	Agency for Healthcare Research and Quality
AIA	Agile, Aligned and Interoperable
AKA	Also Known As
ANSI	American National Standards Institute
API	Application Program Interface
BA	Business Architecture
BEA	Business Enterprise Architecture
BJP	Business Justification Package
CC	Conformance Criteria aka Requirements
BPW	Business Process Models
CDR	Critical Design Review
CEN/TC251	European Committee for Standards for Health Info. and Comms.
CCDA	Consolidated CDA
CDA	HL7 Clinical Document Architecture
CDISC	Clinical Data Interchange Standards Consortium
CIMI	Common Informatics Modelling Initiative
CMS	Centers for Medicare and Medicaid Services (formerly HCFA)
CP	Care Provision
CPS	Care Provision Support
CT	Clinical Terminology
DC	Direct Care
DCM	Detailed Clinical Model
DHMSM	Defense Health Management Systems Modernization
DHA	US Defense Health Agency
DoD	US Department of Defense
DoDAF	DoD Architecture Framework
DMS	Data Management Service
DSTU	Draft Standard for Trial Use
EA	Enterprise Architecture
ECCF	Enterprise Compliance and Conformance Framework
EBM	Evidence Based Medicine
EHR	Electronic Health Record
EHRIS	Electronic Health Record System
EHRIS-FM	EHR System Functional Model
ETL	Extraction, Transformation and Load (into schema)
FDA	US Federal Drug Agency
FHA	US Federal Health Agency
FHIM	FHA Federal Health Information Model
FHIR	HL7 Fast Healthcare Interoperability Resource
FIM	Functions and Information Model
FP	Functional Profile
GAO	US Government Accounting Office
GS1	Global Standards One
HDD	3M Health Data Dictionary
HEAR	HHS Enterprise Architecture Repository
HEDIS	Healthcare Effectiveness Data and Information Set
HITSP	Health Information Technology Standards Panel
HL7	Health Level Seven
HHS	Health and Human Services
HSP	DDD-VA-HHS Health Standards Profile
HW	Hardware

For additional details, see the notes pages; slide number 13

Document Change History

1. Mar 12, 2014-A First Draft [Steve Hufnagel]
2. Mar 13, 2014-B Remove HDD [Mike Lincoln],
 - Added ISAAC/LEGO [Catherine Hoang]
3. Mar 14, 2014-C Added Isaac, SIM & LEGO slides [John Carter]
 - Added Enterprise Information Architecture [Steve Hufnagel]
4. Mar 15, 2014-D Added Executive Summary Section [Steve Hufnagel]
5. Mar 17, 2014-E Added Knowledge Engineering (KE) [Steve Hufnagel]
 - Added Data Management Strategy (DMS) [Steve Hufnagel]
6. Mar 18, 2014-F Added Isaac/LEGO details [Keith Campbell]
7. Mar 19, 2014-G Added Gartner CPR generation Levels, EBM (Nona Hall)
 - Added iBRM & iPRM [Ian Kamorowski], Added Executive Summary slide [Greg Staudenmaier], Added NIST Tooling Strategy [Gary Dickinson]
8. Mar 20, 2014-H Removed cover-page collaboration list [Ian Kamorowski]
 - Modified tone to be objective [Catherine Hoang], Added S&I Framework and ECCF slides [Steve Hufnagel]
9. Mar 24, 2014-I Split Executive Summary into 3 slides [Steve Hufnagel]
10. Mar 25, 2014-J Moved SAIF ECCF to Executive Summary [Nona Hall]
 - Added DoDAF ECCF to backup [Nona Hall]
11. Mar 26, 2014-K Added Executive Summary Diagram [Steve Hufnagel]
12. April 3, 2014-L Incorporated Business Architecture feedback [Bob Bishop, Steve Taaffe, David Baas, David Reed]
13. April 15, 2014-M Broke brief into 3 parts (Executive Summary, EHRIS-FM, Informatics)
 - Added DoD-VA Clinical Mission at front [Paul Tibbits], Added Governance Issues at end in notes pages [Paul Tibbits], Moved Talking Points Slides to Notes Pages [Nona Hall], Moved Lego description to Part 1 [Steve Hufnagel]



Acronyms



IBRM	Integrated Business Reference Model	ONC	Office of the National Coordinator
IE	Information Exchange	OTF	Open Tooling Framework
IER	Information Exchange Requirements	PHR	Personal Health Record
IEHR	Integrated Electronic Health Record	PHRS	Personal Health Record System
IG	Implementation Guide	PHS	Population Health Support
IHTSDO	International Health Terminology Standards Development Organization	ORYX	JCAHO quality initiative to accredit hospitals and long-term care facilities
IS	Interoperability Specification	PDR	Preliminary Design Review
IHS	Indian Health Service	QIO	Quality Improvement Organization
IHTSDO	International Health Technology Standards Development Organization	QRDA	Quality Reporting Document Architecture
IN	Information Infrastructure	R1 R2 R3	Release-1 Release-2 and Release-3
IPD	Interagency Program Office	RI	Record Infrastructure
ISAAC	Informatics Architecture Acceleration	RLUS	Retrieve, Locate, Update Service
IT	Information Technology	S&I	Standards and Interoperability
JSON	Javascript Object Notation	SAIF	HL7 Service Aware Interoperability Framework
LEGO	Lightweight Expression of Granular Objects	SCIP	Surgical Care Improvement Project
IPO	DoD-VA Interagency Program Office	SCS	Structure Content Specification
ISO	International Standards Organization	SDO	Standards Development Organization
ISO/TC215	ISO Technical Committee (TC) on health informatics	SIM	Simple Information Model
JCAHO	Joint Commission on Accreditation of Healthcare Organizations	SLA	Service Level Agreement
KE	Knowledge Engineering	SNOMED	Systematized Nomenclature of Medicine-Clinical Terms
LEGO	Lightweight Expression of Granular Objects	SOLOR	SNOMED, LOINC, RXNorm
LOINC	Logical Observation Identifiers, Names and Codes	SRR	System Requirements Review
MDHT	Model Driven Health Tool	SW	Software
MHS	US Military Health System	TC	Technical Committee
MU2	Meaningful-Use stage-2	TI	Trust Infrastructure
NCI	US National Cancer Institute	UC	Use Case
NCQA	National Committee for Quality Assurance	VA	US Veterans Affairs Agency
NEM	US National Information Exchange Model	VLER	Virtual Lifelong Electronic Record
NIST	US National Institute of Standards and Testing	WG	Work Group
		XML	Exchange Markup Language