

US Office of National Coordinator (ONC)
Standards and Interoperability (S&I) Framework

Cross Initiative Use Case Simplification

A Report to HL7 EHR WG

7 May 2013

Cross Initiative Effort to...

- Compile and Distill Components from All S&I Initiatives
 - For easy reference, organization, comparison
 - 13 Use Cases with 33 Multi-Step Scenarios
- Convey Uniform and Integrated Patterns of:
 - Patient Flow – with Patient as Actor
 - Provider (Work/Process) Flow – with Provider as Actor
 - Information Flow – including System as an Actor
- Show:
 - Event Steps with Actions taken – by Actors in Roles – to support individual health and provide healthcare
 - Health record entries resulting from Actions taken
- Show Commonalties, Patterns of Repetition/Re-Use
 - Both Current and Potential

Key Objectives

- To identify a set of **Core Components** broadly applicable to
 - and *re-usable* in subsequent specification of – **Use Cases**
- Broadly stated, Core Components are **Requirements, Events, Actions, Actors, Roles and Data Objects**, that we:
 - Find in common across Use Cases, Scenarios and Events;
 - Might re-use in a new Use Case Scenario.
- To establish/maintain a **Core Component Registry**
- To allow each Use Case Initiative to select Core Components applicable to their needs
- To identify new candidates for Core Components as each Use Case Initiative reaches consensus
- To identify candidates for **Implementable Data and Software Constructs**

Generally...

- Use Case has
 - One or more Scenario(s) with
 - One or more Event(s) with
 - One or more Action(s).
- Use Case Scenarios describe (resolve to):
 - A set and sequence of Actors taking Actions;
 - A progression of steps.
- Actors may be
 - Individuals, organizations or systems.

Component Selection

Components selected from S&I Initiative Use Cases ↓	Is it...			Potentially Computable for...											
	In Common?	Re-Usable?	Computable?	Identity	Accountability	Permission, Consent	Access, Data Use	Performance/Fulfillment	Capture, Provenance	Content: Struct/Unstruct	Coding, Classification	Completeness	Signature	Audit	
Requirements	Y	Y	Y		•			•							
Actors, Roles	Y	Y	Y	•	•	•	•	•				•	•	•	
Events, Actions	Y	Y	Y	•	•	•	•	•				•	•	•	
				→ As standards-based software services											
Data Objects, Elements	Y	Y	Y		•	•	•		•	•	•	•	•	•	
				→ As standards-based data objects, messages, documents...											

S&I Simplification - Analysis Status - 7 May 2013 - Core Matrix Version 2.44 (Working Draft)								Consensus Core Matrix	
Incorporation of Use Case Initiatives in S&I Simplification Core Matrix									
Initiative	Initial Analysis Phase - Core Matrix					CEDD	AHRQ		
	Analysis Type	Common Requirements	Common Actors, Systems, Roles	Scenarios, Event Steps	Common Actions	Common Data Objects, Elements	US Health Information Knowledgebase		
Transitions of Care (TOC)	Retro	COMPLETE	COMPLETE	COMPLETE	COMPLETE	Data Requirements Compiled	REGISTERED	v1	
Lab Results Interface (LRI)								v2.1	
Longitudinal Coordination of Care (LCC) 1								TBD	
LCC 2		In Progress						TBD	
Lab Orders Interface (LOI)		COMPLETE	COMPLETE	COMPLETE	COMPLETE	Compiled	REGISTERED	v2.1	
Provider Directory (PD) - Digital Certificate									
PD - Electronic Address									
esMD 1 - Electronic Submission of Medical Documentation, Provider Profiles Authentication									
esMD 2 - Structured Content of Electronic Medical Documentation Request (eMDR)		Concurrent	COMPLETE	COMPLETE	COMPLETE	COMPLETE	Compiled	REGISTERED	v2.1
esMD 3 - Author of Record Level 1									
esMD 3 - Author of Record Level 2	Concurrent?	In Progress						TBD	
esMD 3 - Author of Record Level 3		Future							
Query Health (QH)		COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE	Compiled		REGISTERED
Data Segmentation for Privacy (DS4P)									
Public Health Reporting (PHRI)	Awaiting Consensus								
HeD 1 - Health eDecisions - Clinical Decision Support (CDS) Artifact Sharing									
HeD 2 - CDS Guidance Service	In Progress						TBD		
RESTful Health Exchange (RHEX)	Concurrent?	TBD							
Automated Blue Button									
Structured Data Capture									
Electronic Certificate	Retro	N/A				Compiled	REGISTERED	N/A	

Core Matrix

[\(LINK to Core Matrix Spreadsheet v2.4\)](#)

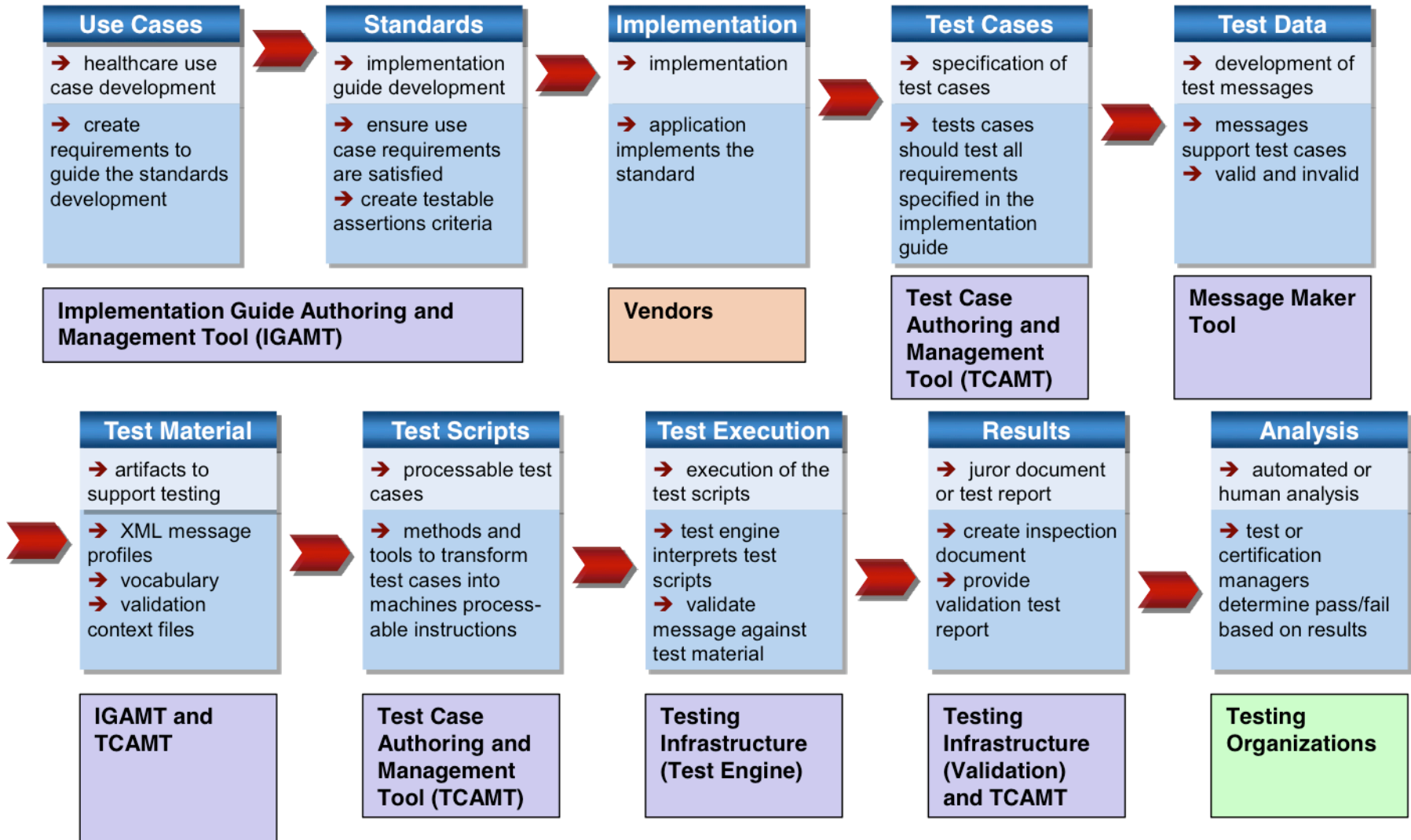
- Status – of S&I Initiative Analysis
- Key – Contents of All Tabs
- Assertions – Basis for Initial Requirements
- * Common Requirements
- * Common Actors
- * Scenarios, Events – w/Action examples
- * Common Actions
- * Common Data Objects

- * [Re-usable Components](#)

Cross Initiative – S&I Simplification – “Core” Values Collaborations

Key Objectives = Coordinate, Leverage, Re-use			
Cross S&I Initiatives	w/AHRQ	w/NIST	w/HL7 EHR WG, DOD MHS
<ul style="list-style-type: none"> • Found existing <u>Re-Use</u> instances • Identified Core Candidates – for <u>Re-Use</u> • Restated requirements to make fulfillment explicit: who, when • Propagated Components among Initiatives, as examples: <ul style="list-style-type: none"> • Identity, consent/permissions, access, data/record management and exchange, query, audit, signature... 	<ul style="list-style-type: none"> • Populated (ISO 11179-based) AHRQ-USHIK Repository with Components from S&I Initiatives and Core Matrix 	<ul style="list-style-type: none"> • Explored Cross Industry Examples of uniform Use Case Development Approaches and Tooling 	<ul style="list-style-type: none"> • Linked Actions to functions of EHR/PHR System Functional Models (ISO/HL7 10781, 16527) • Explored Simplification constructs in emerging HL7 EHR Functional and Information Model
<ul style="list-style-type: none"> • Explored Requirements for <u>Use Case Authoring Toolkit</u> 	X	X	X
<ul style="list-style-type: none"> • Explored Drill Down to <u>Computable/Implementable Components</u> for Data, Actions 	X	X	X

What will the tools address?



Progression

[\(LINK to Progression Spreadsheet\)](#)

- To Date
 - S&I Simplification + AHRQ
 - Core Matrix + USHIK Registry
- Future
 - S&I Use Case Requirements Phase with Use Case Authoring Tool (UCAT)
 - S&I Use Case Harmonization Phase with NIST Tools
 - Standards Selection
 - Implementation Guide (Tools)
 - Testing (Tools)

S&I Framework – Cross Initiative – S&I Simplification

Ingredients – UCAT Prototype

Source	Contribution
NIST	Cross Industry Perspective, SmartGrid Project (2010)
S&I Simplification	Consensus Approved Core Simplification Matrix (.xlsx)
S&I	Use Case Requirements Template (.docx)
S&I Lab Results Initiative (LRI)	Consensus Approved LRI Use Case Requirements Template (.docx)
HL7 EHR WG	ISO/HL7 10781/16527, EHR/PHR System Functional Models
AHRQ	ISO 11179 USHIK Registry of S&I Simplification Components

Use Case Authoring Tool (UCAT) Prototype

Developed by:
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S&I Framework – Cross Initiative – S&I Simplification

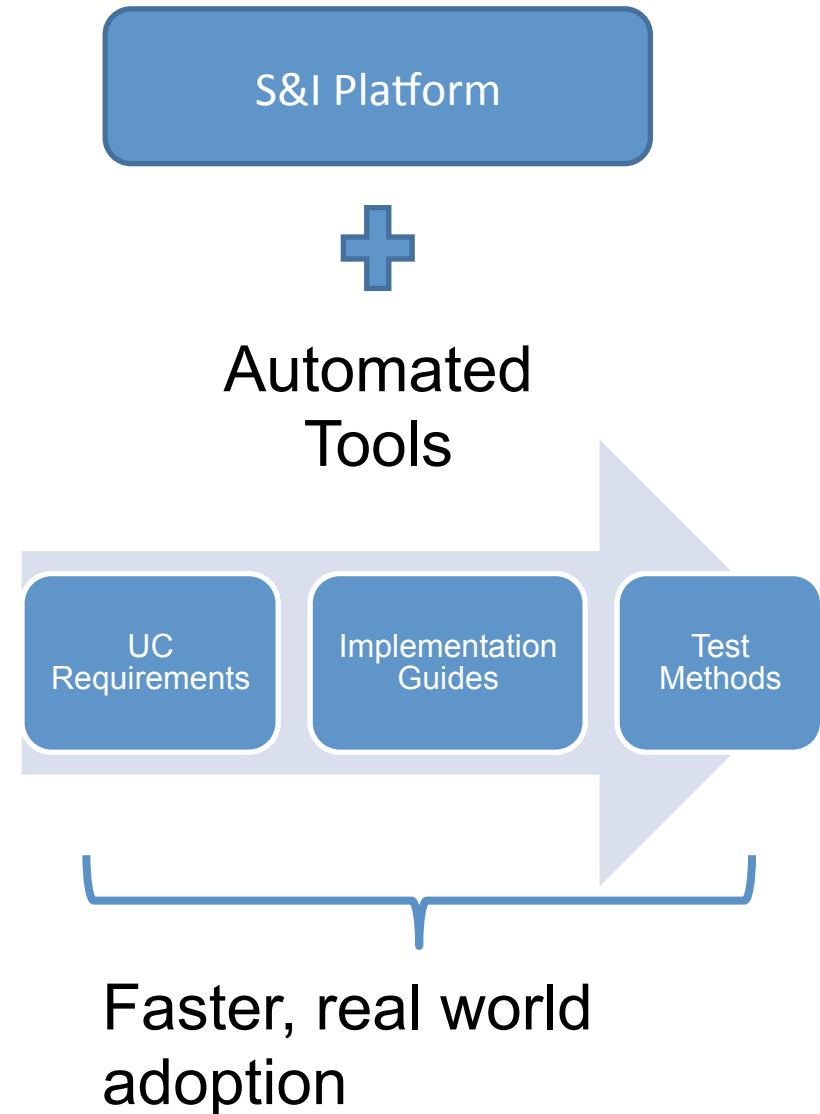
Use Case Hierarchy

Generally	UCAT Prototype – Example		
An <u>Initiative</u> ...	Lab Results Interface (LRI) Initiative		
Has one or more <u>Use Cases</u> ...	1) Lab Results Interface		
With one or more <u>Scenarios</u> ...	1) Send/Receive/View Test Results		
With one or more <u>Events (Steps)</u> ...	1) Send	2) Receive	3) View
With one or more <u>Actions</u> . (Simplification Examples)	<ul style="list-style-type: none"> • Identify Patient, Provider, Lab System • Originate/Attest/Retain - Lab Results Report • Verify - Lab Results Report • Set Data Access Permissions • → Transmit - Lab Results Report 	<ul style="list-style-type: none"> • Identify (EHR) System • → Receive/Retain - Lab Results Report 	<ul style="list-style-type: none"> • Identify, Authenticate Provider • Check User Data Access Permissions • Access/View - Lab Results Report

S&I Framework – Cross Initiative – S&I Simplification

Benefits

- Capture Once, Re-Use Many Times
 - Each Re-Use Instance = x 1 Savings
 - Facilitate Cross S&I Initiative Coordination
 - Facilitate Cross Agency/Domain Coordination
 - Unlocking Value of S&I (maximizes re-use, return)
- Experience Shows:
 - AHIC/HITSP: 4 Years, 17 Use Cases/Initiatives (4+/year)
 - S&I: 2 Years, 13 Use Cases/Initiatives (6+/year)
 - With UCAT: target 1 or 2 per week depending on similarity to previous use cases
 - With IGAT, With Test Methods?



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Caryn Just / Ed Larsen	Accenture / S&I Support Staff

Links/Contacts

- US Office of National Coordinator (ONC)
Standards and Interoperability (S&I) Framework Wiki
 - <http://wiki.siframework.org>
- S&I Simplification Wiki
 - <http://wiki.siframework.org/Cross+Initiative+-+S%26I+Simplification+WG>