



# PS-TG Technical Architecture Committee (TAC)

David Meacham, Moderator



2008 MMIS Conference  
Nashville, TN  
September 14-18

Dave Walsh, Kimberly Ellison-Taylor,  
Bill Branch, Ivan Handler,  
Manny Mkrtychian, Patrick Fendt,  
Thea Hygh, Arvinder Singh,  
Bill McAuliffe





# TAC Overview

**Dave Walsh**  
**eServices Group**

2008 MMIS Conference  
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# What is TAC?

- **Collaborative effort** to apply modern Service Oriented Architecture (SOA) as the technical framework for MITA.
- **Open to all** and currently has participants from the vendor community and from States. We welcome anyone that is willing to leave their logo at the door, roll up their sleeves and help recommend the technical aspects of MITA.
- The TAC is chaired by Dave Walsh, assisted by Kimberly Ellison-Taylor and Julie Walsh. Currently, the TAC is divided into **6 work groups**.

# TAC's Goal

- **Recommend MITA Technical Architecture to CMS**
  - Follow the outline presented by CMS & recommend a comprehensive set of technologies that together form the MITA Technical Architecture
  - Establish an initial recommendation process that encourages participation & suggestions from all parties
  - Establish a recommendation process that (over time) becomes more structured with established adoption procedures. The goal is to promote buy in & assurance that the process is fair & objective
  - Model our recommendation process (with appropriate revisions) after established standards organizations (JAVA JCP, HL7, OASIS)
  - Coordinate versions with other authoritative sources (i.e. HL7 on version of WSDL)

# TAC Benefits

- **CMS**

- Long-term source of recommendations on the MITA technical architecture

- **States**

- Provides an organization where state run Medicaid agencies are able to help formulate the technical architecture
- Provides a source of consolidated / interoperable technologies that the states can use as basis for integration (plug and play)

- **Vendors**

- Provides a resource for vendors to understand and embrace the MITA technical architecture
- Eliminate risk
- Highlight benefits of MITA



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# Latest Changes to the MITA Technical Architecture (2.0 Plus)

**Bill Branch,  
FOX Systems, Inc.**

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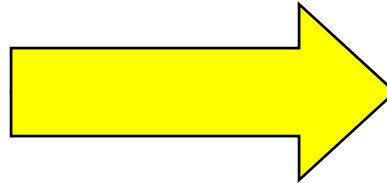
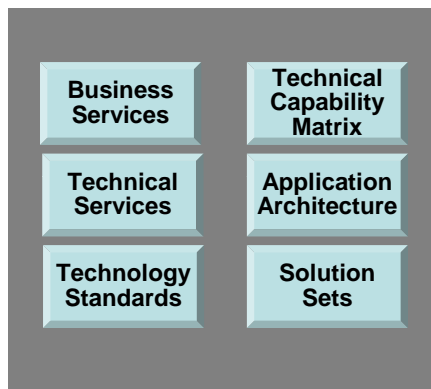


# MITA Technical Architecture

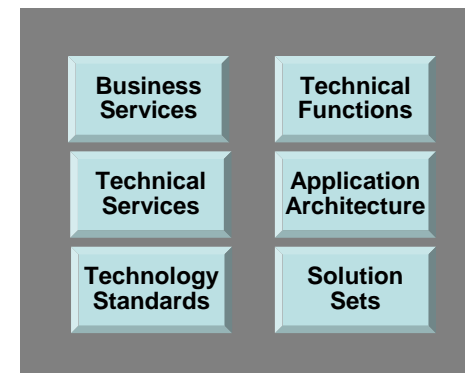
- *In the Medicaid Information Technology Architecture (MITA) Framework 2.0, the MITA Technical Architecture was the least developed of the three architectures.*
- *Since Framework 2.0 was issued in March 2006, the Technical Architecture has continued to evolve based on the efforts of CMS, the MITA team, States, and the PSTG's Technical Architecture Committee (TAC).*
- *This presentation discusses the changes that have been made to the MITA Technical Architecture due to its natural evolution over the past 12 months.*

# Technical Functions

## Framework 2.0



## Framework 2.0 Plus



- Inconsistent use of the word “capabilities” in TA
- Not consistent with taxonomy of the business architecture
  - BA -> BP -> ML -> BS -> SS
  - TCM -> ML -> TS -> SS

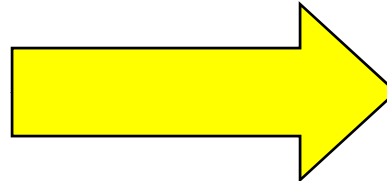
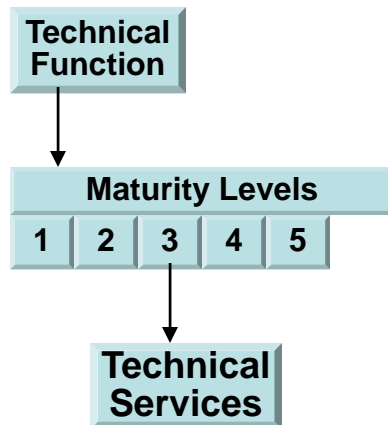
- Achieves consistency
- Business process equivalent to technical function
  - BP -> ML -> BS -> SS
  - TF -> ML -> TS -> SS

# Technical Functions

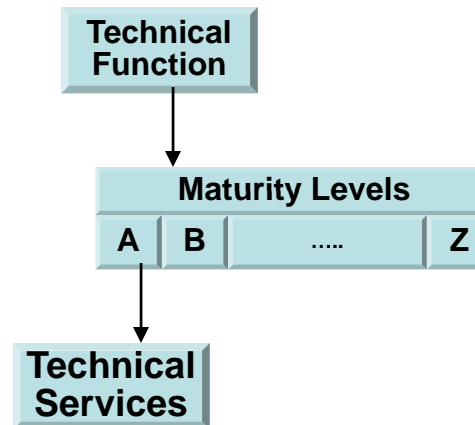
- Examples of technical functions are *Authentication* and *Authorization*.
- Interfaces to technical functions modeled as triggers and results.
- Technical function only exists to enable the business processes.
- Initially, technical functions will be defined using a template but like the business processes will ultimately be based on UML models.
- Technical function maturity level pairs (*function + capability*) will result in a technical service.
- The technical functions are being defined by the Private Sector Technology Group's Technical Architecture Committee (TAC).

# Technical Maturity Levels Are Based on Industry Standards

## Framework 2.0



## Framework 2.0 Plus



- Artificially linked technology to MITA Business maturity
- Did not allow flexibility for industry standards
- Did not provide flexibility in designing technical services/solution sets

- One to many maturity levels for each technical functions
- Maturity levels are specified by letter (A, B, C)
- Maturity levels only have meaning within the scope of that particular technical function
- Provides flexibility



## Benefits of New Maturity Level Approach

- Technical maturity no longer maps technology to the five levels of business maturity. Instead each technical function is defined with its own independent maturity levels.
- The technical function may have one or many levels of maturity based on the industry standards for that particular technical function.
- This allows a technical service to be based on the industry derived capabilities/maturity levels.
- Solution sets for business services can make use of a heterogeneous mix of technical maturity levels based on the value that they bring to the business process.

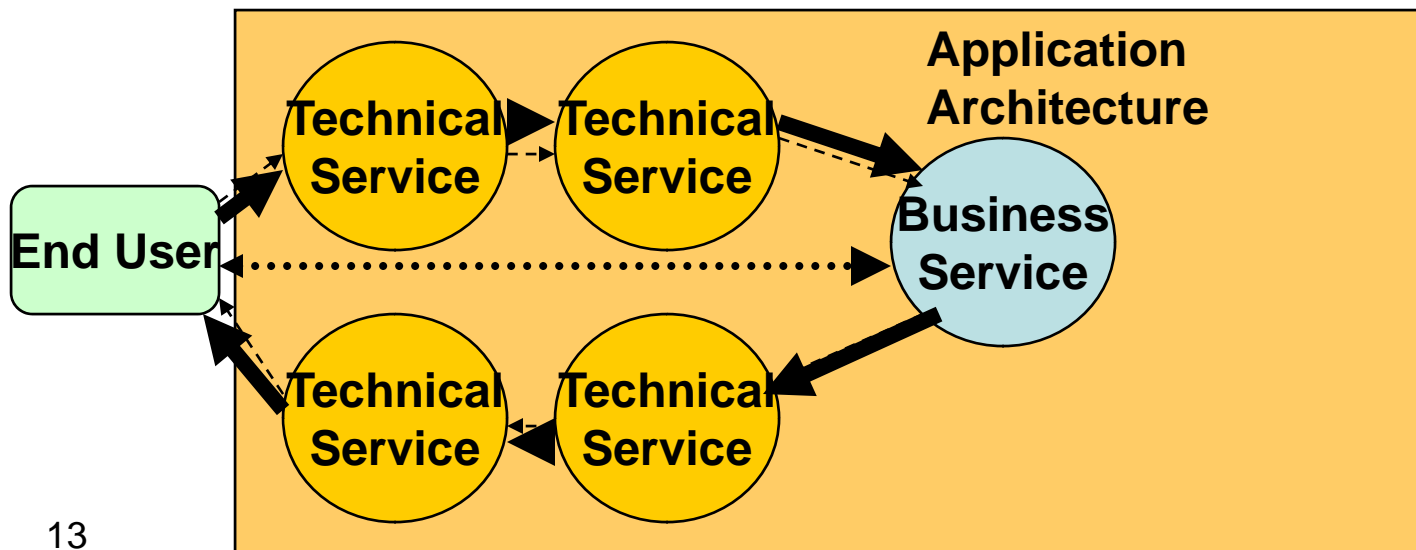


# Technical Services Update

- There have been no structural changes to the concept of Technical Services.
- A service can be defined for each technical function—maturity level pair.
- The methodology used to define the technical service is the same as for business services, i.e., HL7.
- The HL7 Reference Information Model will be used in the development of the technical service interfaces whenever possible.

# Application Architecture Updates

- The application architecture captures technical infrastructure needs that can not be defined as a technical function/technical service. An example of this is an *enterprise service bus*.
- Each element of the application architecture will have technical maturity levels and technical solution sets.



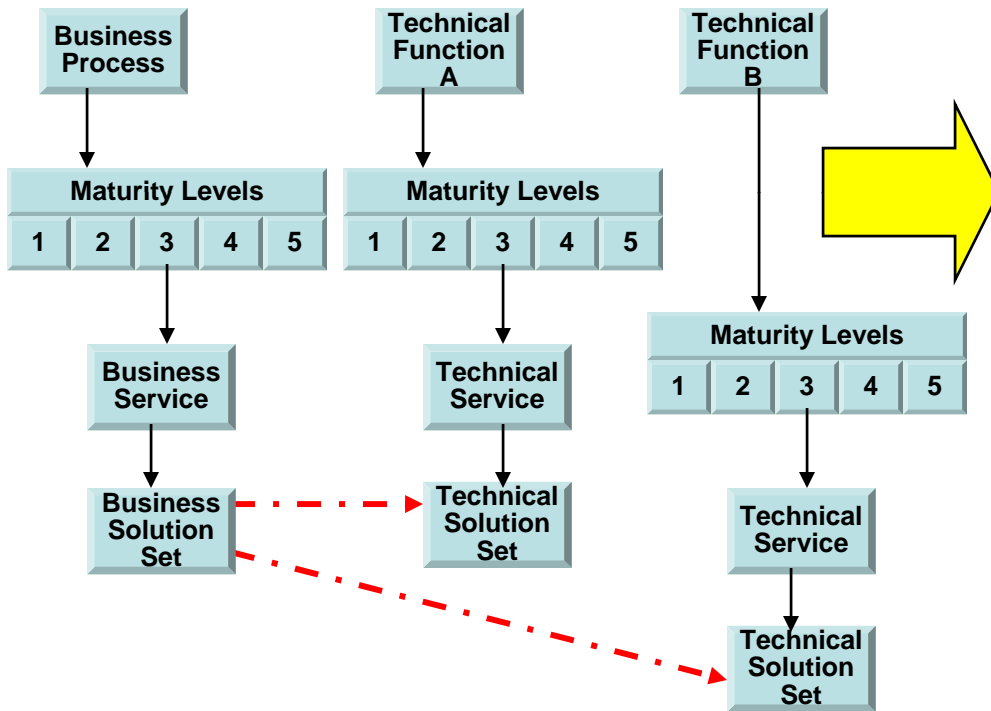


# Technical Solution Sets

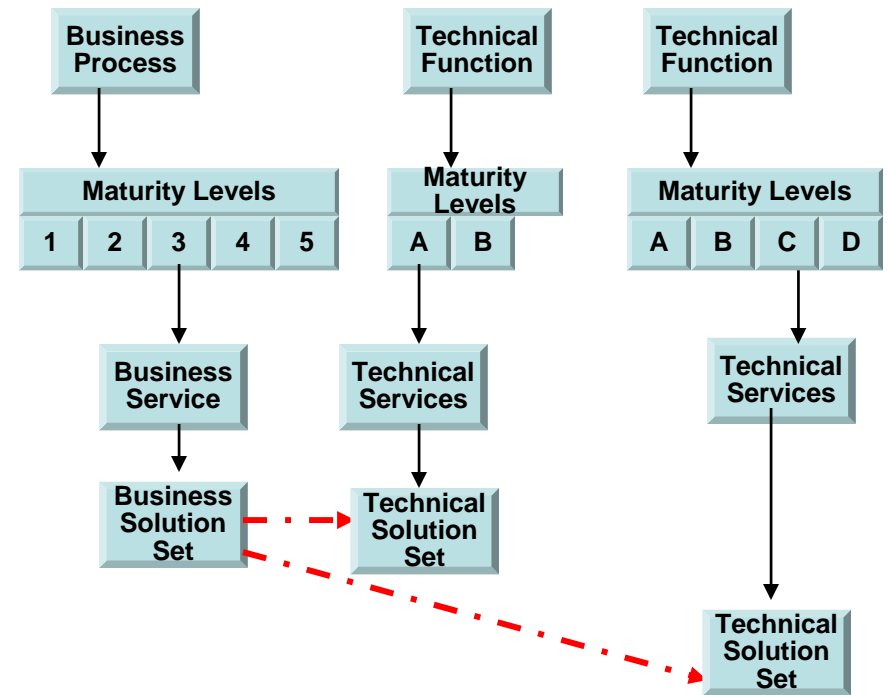
- The role of technical solution sets remains unchanged.
- There may be one or many technical solution sets for each technical function—maturity level or application element-maturity level pair.
- A solution set has the metadata describing a specific implementation approach.

# Technical Maturity Levels

Framework 2.0



Framework 2.0 Plus





# Relation to Business Service Solution Sets

- Business services solution sets contain pointers to all technical function—maturity level pairs that are used by the particular implementation of the business service.
- Allows maximum flexibility for the implementer to use the mix of technology while maintaining a loose inventory of technology available for use.



# Technical Assessment

## Framework 2.0

- Sporadically mentioned
- Process same as Business process self assessment
- Resulted in an assessment of the technical maturity in terms of the five levels of MITA Business Maturity
- Assessed technology for technology sake

## Framework 2.0 Plus

- *Refocuses assessment process on business*
- *Process is now an inventory of the technical services and applications available*
- Technical assessment is performed to determine what technical assets are currently available in a State's infrastructure that can support future business needs
- Used in conjunction with Business service solution sets and the "to-be" business service assessment to determine technical needs to meet the business "to-be" configuration.



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# TAC Work Group Introduction

**Dave Walsh**  
**eServices Group**

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# TAC Work Groups

Technical Services	Ivan Handler
SOA Best Practices	Manny Mkrтчichian
Security & Privacy Standards	Patrick Fendt
Interoperability Standards	Thea Hygh
Business Process & Workflow Standards	Arvinder Singh
HL7 Standards	Bill McAuliffe



# Technical Services Work Group

**Ivan Handler**  
**State of Illinois**

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# Technical Services Work Group

- **Purpose** – compile a list of technical services that will be common to the modules & technical infrastructure needed to implement MITA-compliant business services.
- **Achievements**
  - Generated an initial list of technical functions that will constitute the MITA technical framework
  - Focused on business process enabler services
- **Next steps**
  - Complete the list of technical functions that will constitute the MITA technical framework
  - Complete technical function templates
  - Begin technical service templates



# Technical Services Work Group

## Technical Function Categories

- Messaging
- Data sharing
- Strategic policy management
- Service orchestration
- Service metadata management
- Workflow
- Rules engine
- Configuration management
- System extensibility
- Business relationship management
- Security and privacy
- Data access
- Performance measurement
- Client support
- Auditing
- Foreign language support



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# SOA Best Practices

**Manny Mkrtychian**  
**FOX Systems, Inc.**

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# SOA Best Practices Work Group

- **Purpose** – develop SOA best practices recommendations to assist CMS & State Medicaid programs in their transitioning toward SOA within the MITA framework.

# SOA Best Practices

- **Developed by the SOA Best Practices Sub Committee**
- **Chair: Manny Mkrтчichian, FOX Systems**
- **Members:**
  - » **Deborah Watson, Software AG**
  - » **Greg Anderson, Minnesota DHS**
  - » **Steven Reynolds, ACS**
  - » **Patrick Fendt, Oracle Corporation**
  - » **Arvinder Singh, CNSI**
  - » **Seth Kaplan, Unisys**
  - » **Donna Singel, Unisys**
  - » **Ning Ye, Unisys**
  - » **Bill Rodriguez, Accenture**
  - » **Jeffrey Mullins, Accenture**
  - » **Larry Presley, IBM Corp.**
  - » **Ivan Handler, State of Illinois**
  - » **David Smiley, Software AG**
  - » **Dave Walsh, eServices**
  - » **Susan Fox, FOX Systems**
  - » **Bill Branch, FOX Systems**



# SOA Best Practices Work Group

- **Achievements**

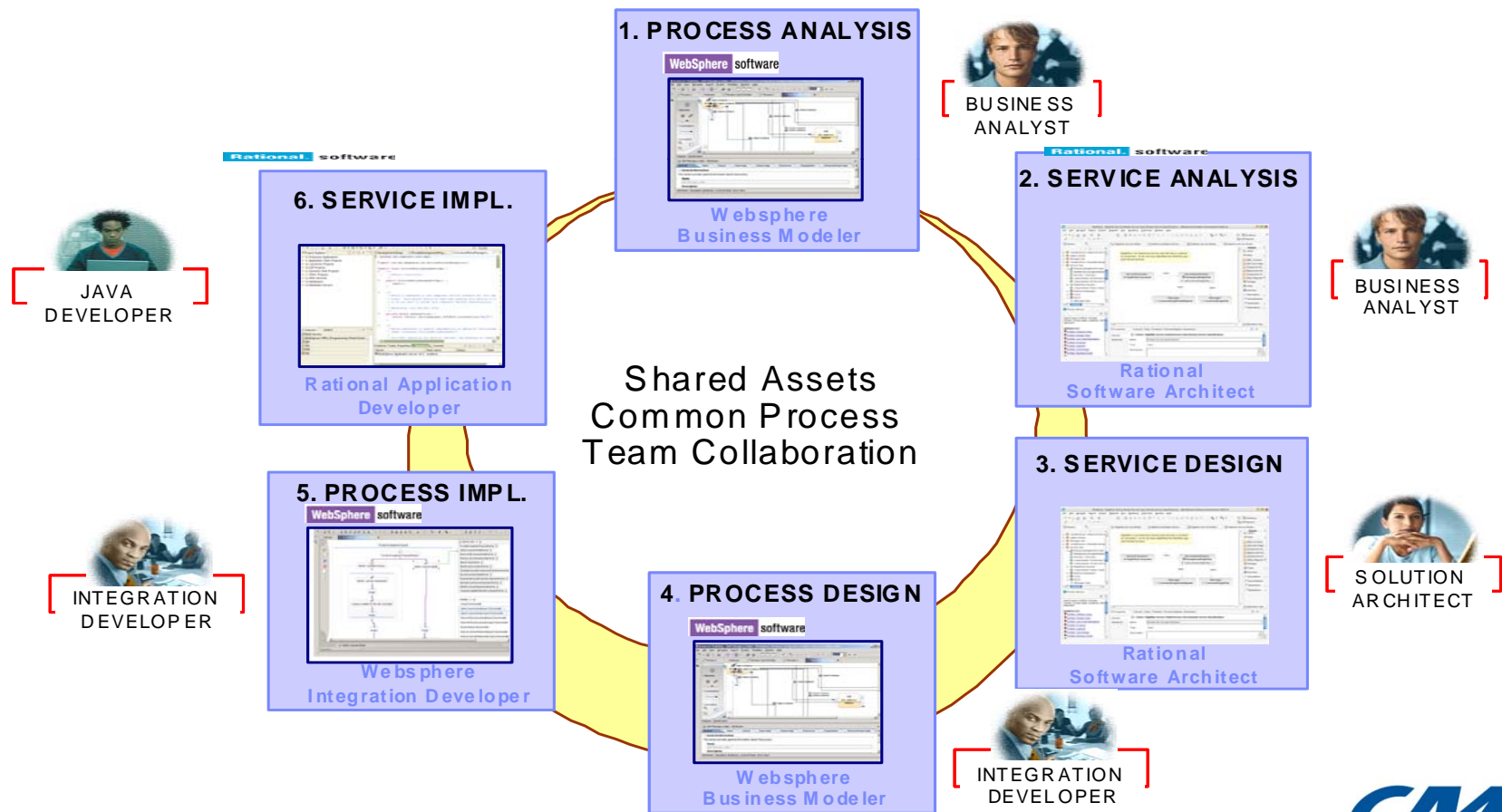
- Developed draft SOA governance best practices “white paper” as a handbook guidance to states in planning and building a SOA governance structure as part of their SOA transformation efforts. The best practices guidance includes:

- SOA governance overview and basics
- The impact of SOA governance on the SOA life cycle (includes new SOA role descriptions)
- Governance reference framework
- Technology elements
- SOA organizational elements (provides examples of organizational realignments)
- Deployment issues in MITA aligned SOA implementations
- Reference bibliography

# SOA Best Practices Work Group

## New SOA Businesses and Information Technology Roles Under SOA Governance

An Example High-Level Process from Analysis to Implementation





# SOA Best Practices Work Group



- **Next Steps**

- Developing "SOA maturity evaluation" best practices:
  - SOA as an architectural approach
  - Immaturity and maturity
  - Components that determine SOA maturity
    - Organizational maturity
    - Technology maturity
    - Architectural maturity
    - Life cycle maturity
    - Governance maturity
    - Program management maturity
  - Maturity levels – select vendor specific discussions and consensus view
  - Maturity impact
  - Maturity state and transformation
- Developing "SOA evaluation matrix" and "SOA implementation artifacts" best practices as a nuts and bolts guidance to states considering SOA transformation



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# Security & Privacy Work Group

**Patrick Fendt  
Oracle**

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# Security & Privacy Work Group

- **Purpose** – define technical functions & technical services that facilitate consistent & standards-based implementations of the MITA framework - while adopting industry best-practices.
  - Focus was on authentication, authorization, auditing, provisioning, privacy/confidentiality, GRC, directory services



# Security & Privacy Work Group

- **Achievements**

- Wrote technical function descriptions for each of the 7 areas including:
  - Characterization of purpose/needs
  - List of standards that apply to this area
  - Recommend best-practice approach to implementing this function in the context of MITA
  - Defined “capability levels” for each of the areas



# Security & Privacy Work Group

- **Next steps**

- Gather feedback from CMS and MITA / MMIS community
- Communicate our findings to other standards bodies
  - Industry needs further definition of SOA-oriented security services (SaaS)
  - Ask HL7 for input or adoption
- Provide input to vendors in the hopes to further enhance standards-based security



# Interoperability Standards Work Group

Thea Hygh  
IBM

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# Interoperability Standards Work Group

- **Purpose** – identify & evaluate industry standards & technologies that achieve MITA goals through interoperability.
- **Achievements**
  - Focused on web services interoperability organization (WS-I) goals and deliverables
    - Open Standards + Profiles = Interoperability
- **Next steps**
  - Align MITA goals for interoperability with WS-I effort
    - Document and recommend revisions for MITA Technology Standards Reference Guide (TSRG)

# Interoperability Standards Work Group

- **Assessment**

- Web services offers “promise” of interoperability
  - Across platforms, operating systems, programming languages
- Web services standards are evolving at a rapid pace
  - Published by various standards bodies (W3C, OASIS, IETF)
  - Ambiguities between various standards and standards bodies
- WS-I is an open industry effort
  - Collaboration with existing standards organizations
  - Deliverables based on existing open standards
    - Profiles, sample applications, test tools, best practices
  - Profiles consist of selected set of specifications
    - Based on customer requirements
    - Guidelines for implementation and usage

# Interoperability Standards Work Group

## WS-I Work to Date\*

<b>Additional Capabilities</b>	<b>Management</b>	<b>Portals</b>	
<b>Business Process Orchestration</b>	<b>Composition/Orchestration</b>		
<b>Composable Service Elements</b>	<b>WS-Security</b>	<b>Reliable Messaging</b>	<b>Transactionality</b>
<b>Messaging</b>	<b>Endpoint Identification, Publish/Subscribe</b>		
<b>Description</b>	<b>XML Schema, WSDL, UDDI, SOAP with Attachments</b>		
<b>Invocation</b>	<b>XML, SOAP</b>		
<b>Transports</b>	<b>HTTP, HTTPS, SMTP, Others</b>		



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# Business Process & Workflow Standards Work Group

**Arvinder Singh**  
**CNSI**

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# Business Process & Workflow Standards Work Group

- **Purpose**

- Document & elaborate on the different industry standards & specifications that are currently available in the workflow & business process management space.
- Review the potential overlap and conflict of existing standard and standards organizations.



# Business Process & Workflow Standards Work Group



- **Accomplishments**

- Review the existing standards for their applicability & history of evolution

Standard	Details
WF-XML	Wf-XML and Workflow Reference Model from the Workflow Management Coalition (WfMC)
WSFL	IBM Web Services Flow Language: Specifies two types of Web services composition
XLANG	Microsoft's XLANG: Business modeling language for BizTalk, which is a component of .NET that enables EAI.
BPELWS	Business Process Execution Language for Web Services is the cooperative merging of WSFL and XLANG for Web services orchestration, workflow, and composition.
eBXML BPSS	The eBusiness Transition Working Group carries forward the definition of workflow conversation and orchestration in the Business Process Specification Schema (BPSS) layer of ebXML,
WSCl	Sun/BEA/Intalio/SAP consortium's Web Services Choreography Interface
WSCL	W3C's Web Services Conversation Language
PIPs	RosettaNet's Partner Interface Process
JDF	CIP4's Job Definition Format is an upcoming workflow industry standard for the Graphics Arts industry



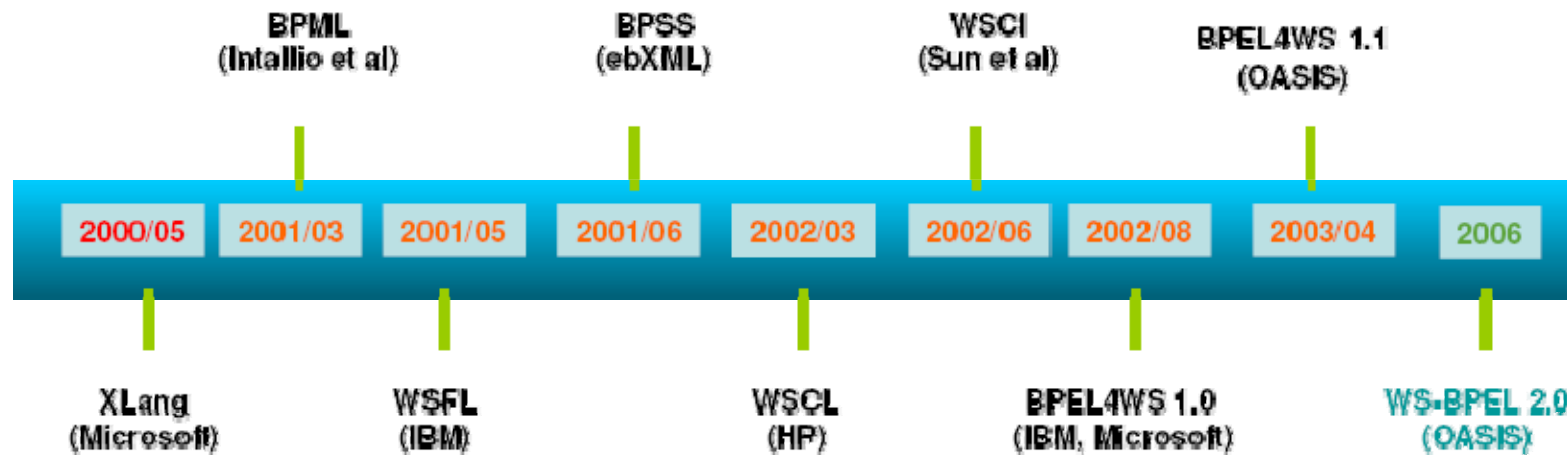
# Business Process & Workflow Standards Work Group



- Accomplishments**

- Establish the recommended workflow orchestration standard

**Proprietary** → **Standard**





# Business Process & Workflow Standards Work Group



- **Accomplishments**

- Document a sample provider enrollment business flow using the standard for demonstration and reference purposes
  - Basic provider enrollment flow



# Business Process & Workflow Standards Work Group



- **Next steps**

- Assess the standard for workflow and human integration
  - BPEL 4 People vs. Extensions
- Explore the integration with other areas like security and rules engine services



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# HL7 Standards Work Group

**Bill McAuliffe**  
**eServices Group**

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# HL7 Standards Work Group

- **Purpose** – catalogue & communicate health care IT initiatives & SDO work that should be considered in MITA. Initiatives and SDOs include the ONC-coordinated HIT strategic plan, AHIC, HITSP, CCHIT, HL7, and CAQH.
- **Achievements**
  - Revised work group mission
  - Introductory overview of industry initiatives that have relevance to MITA
  - Identification of relevant HL7 and industry initiatives considered or referenced by other TAC work groups within technical functions
  - Initial discussions on process by which MITA HL7 work group products are used to within TAC efforts
- **Next steps**
  - Continued identification, evaluation and intra-TAC evangelism of HL7 and industry initiatives that relate to MITA technical architecture development.



# Planning Ahead & Discussion

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**eServices Group**

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# Planning Ahead

- **2008**
  - List of technical functions
  - 8 technical function templates
  - Industry standard SOA decision
  - Interoperability profile
- **2009**
  - Starter kit for business services
  - Technical function templates
  - MITA gateway services
  - Lab
- **2010**
  - Trigger/results schema
  - Approved SOA interfaces
  - Technical services modeling

# Discussion

- Increasing involvement
- Efficient organization
- Streamlining communication