



HL7 Development Framework

Version 3.0 Model Driven Standards Development

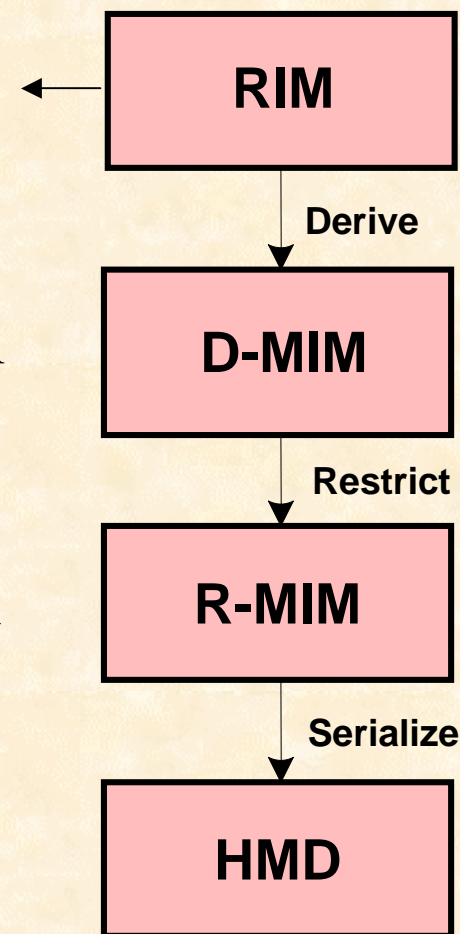
Abdul-Malik Shakir

Principal Consultant, Shakir Consulting

October 2005

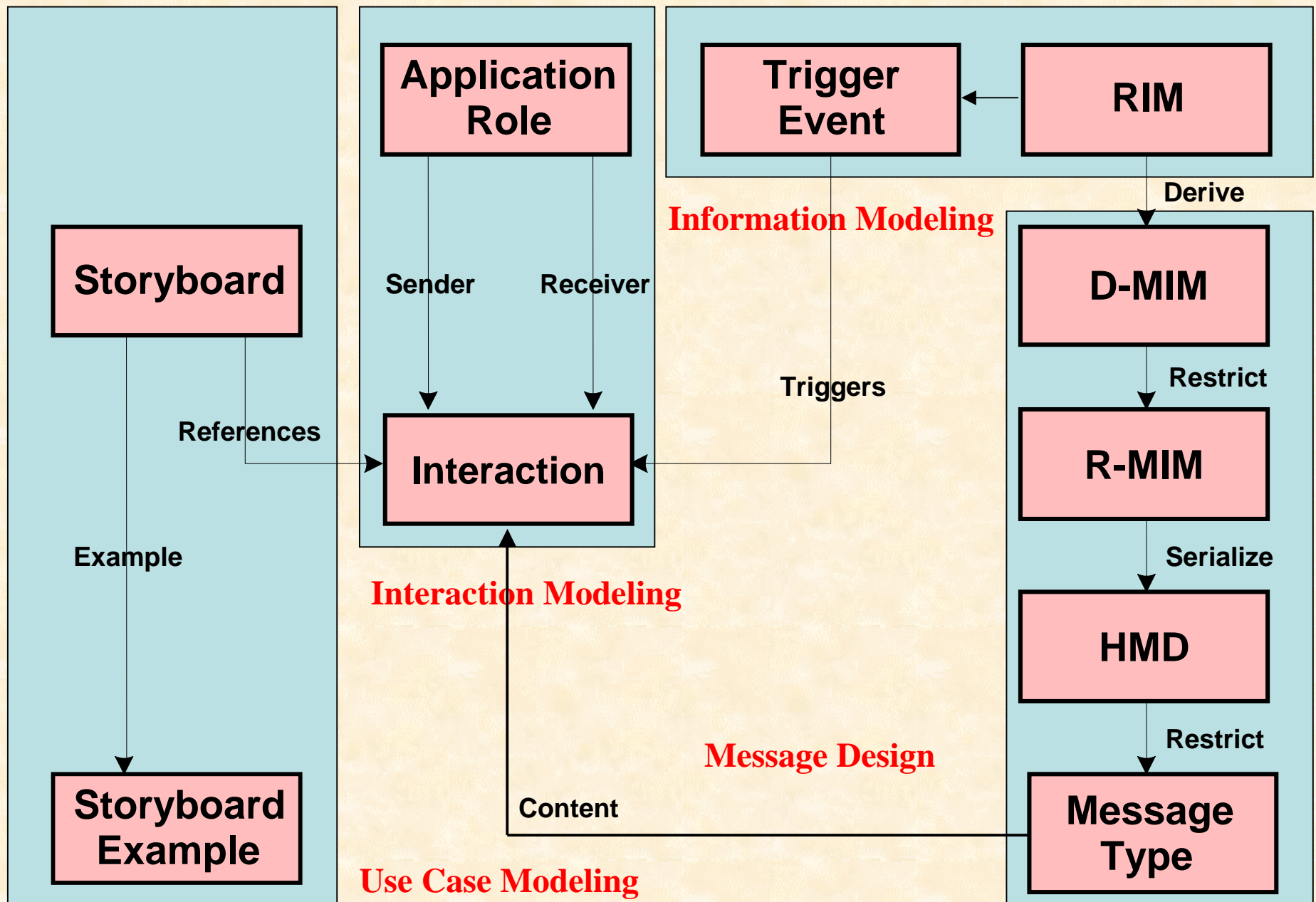
- **Health Level Seven (HL7) is one of several American National Standards Institute (ANSI) -accredited Standards Developing Organizations (SDOs) operating in the healthcare arena. Most SDOs produce standards (sometimes called specifications or protocols) for a particular healthcare domain such as pharmacy, medical devices, imaging or insurance (claims processing) transactions. Health Level Seven's domain is clinical and administrative data.**
- **Health Level Seven is a not-for-profit volunteer organization. Its members--providers, vendors, payers, consultants, government groups and others who have an interest in the development and advancement of clinical and administrative standards for healthcare—develop the standards. Like all ANSI-accredited SDOs, Health Level Seven adheres to a strict and well-defined set of operating procedures that ensures consensus, openness and balance of interest.**
- **HL7 is an international community of healthcare subject matter experts and information scientists collaborating to create standards for the exchange, management and integration of electronic healthcare information. HL7 promotes the use of such standards within and among healthcare organizations to increase the effectiveness and efficiency of healthcare delivery for the benefit of all.**

- **RIM:** Reference Information Model
- **D-MIM:** Domain Message Information Model
- **R-MIM:** Refined Message Information Model
- **HMD:** Hierarchical Message Definition





HL7 V3 Message Development Framework



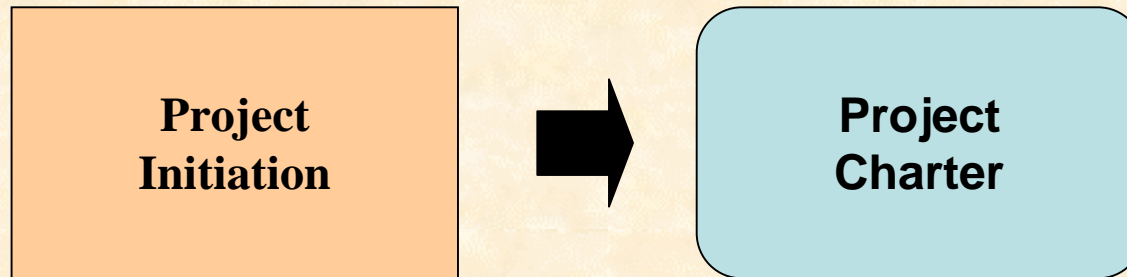
HL7

Development Framework

1. Project initiation
2. Requirements Documentation
3. Specification Modeling
4. Specification Documentation
5. Specification Approval
6. Specification Publication
7. Specification Profiling

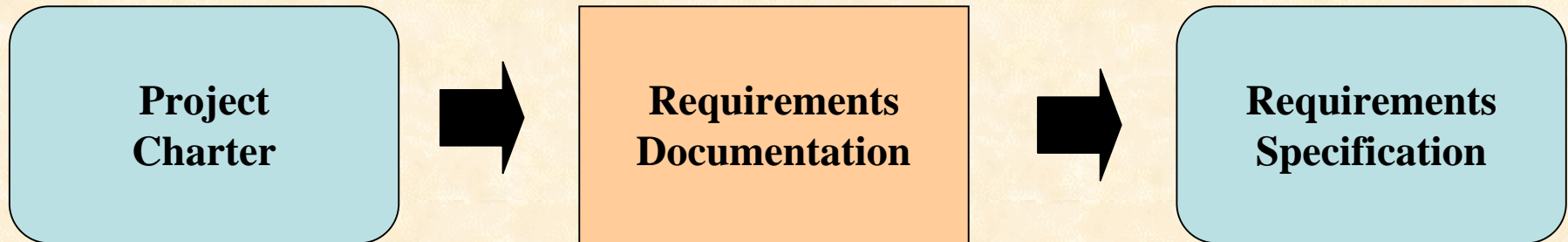
1	Project initiation	During project initiation the project is defined, a project plan is produced, and project approval is obtained. The primary deliverable produced during project initiation is the project charter.
2	Requirements Documentation	During requirements documentation the problem domain is defined, a model of the domain is produced, and the problem domain model is harmonized with HL7 reference models. The primary deliverable produced during requirements documentation is the requirements specification.
3	Specification Modeling	During specification modeling reference models are constrained into design models through a process of iterative refinement driven by requirements specifications and following specification design rules, conventions, and guidelines. The primary deliverable produced during specification modeling is a set of specification design models.
4	Specification Documentation	During specification Documentation the specification design models are packaged into logical units, supplemented with explanatory text, and prepared for approval. The primary deliverable produced during specification documentation is a proposed specification.
5	Specification Approval	During specification approval the pre-approval specification is subjected to a series of approvals steps. The specific approval steps vary by kind of specification, level of approval, and realm of interest. The primary deliverable produced during specification approval is an approved specification.
6	Specification Publication	During specification publication the approved specification is prepared for prepared for publication and distribution. The primary deliverable produced during specification publication is a published specification.
7	Specification Profiling	During specification profiling specification models are further refined and specifications further constrained following the same set of design rules, conventions, and guidelines used in the development of the specification to produce a profile of the specification for use in a particular environment by a defined community of users.

During project initiation the project is defined, a project plan is produced, and project approval is obtained. The primary deliverable produced during project initiation is the project charter.



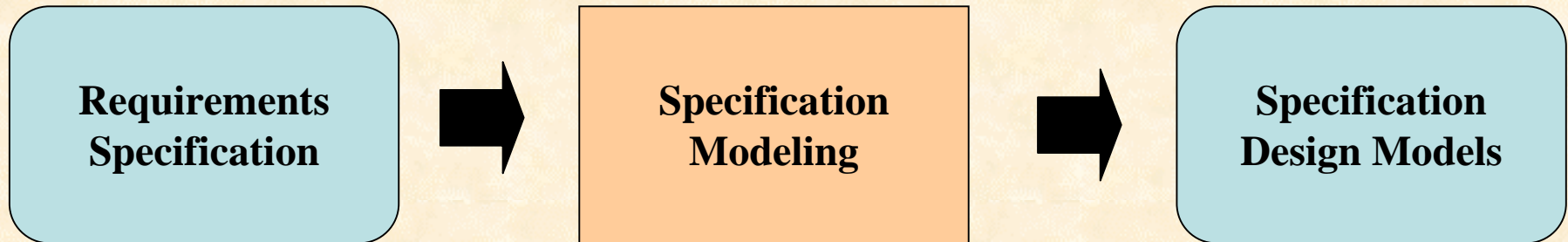
- 1. Define project scope, objectives, and intended deliverables**
- 2. Identify project stakeholders, participants, and required resources**
- 3. Document project assumptions, constraints, and risk**
- 4. Prepare preliminary project plan and document inter-project dependencies**
- 5. Obtain project approval and launch the project**

During requirements documentation the problem domain is defined, a model of the domain is produced, and the problem domain model is harmonized with HL7 reference models. The primary deliverable produced during requirements documentation is the requirements specification.



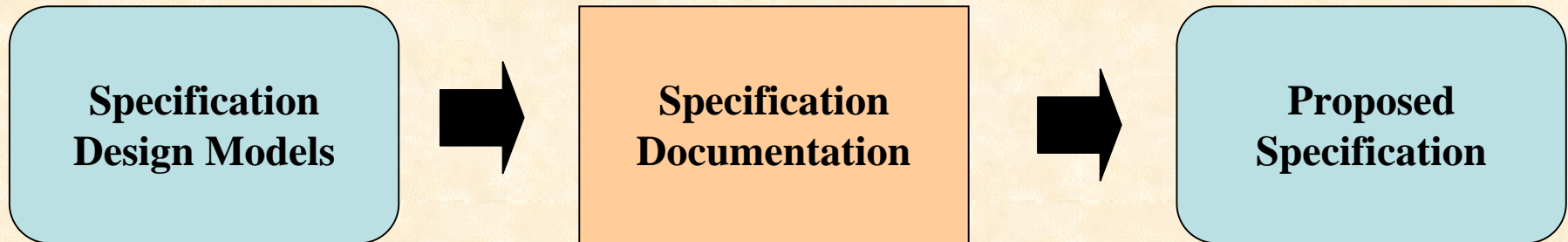
1. **Document Business Process: Dynamic Behavior and Static Structure**
2. **Capture Process Flow: UML Activity Diagram**
3. **Capture Structure: Domain Analysis Model and Glossary**
4. **Capture Business Rules: Relationships, Triggers, and Constraints**
5. **Harmonize the Domain Analysis Model with HL7 Reference Models**

During specification modeling reference models are constrained into design models through a process of iterative refinement driven by requirements specifications and following specification design rules, conventions, and guidelines. The primary deliverable produced during specification modeling is a set of specification design models.



1. **Build design models of static information views**
2. **Construct design models of behavioral views**
3. **Define reusable design model components**
4. **Construct design models of collaboration and interaction**
5. **Harmonize design models with HL7 Reference Models**

During specification Documentation the specification design models are packaged into logical units, supplemented with explanatory text, and prepared for approval. The primary deliverable produced during specification documentation is a proposed specification.



1. Organize design model elements into logical packages
2. Compose explanatory text, examples, and design rationale
3. Update design models and requirement specifications
4. Assemble a proposed specification package
5. Submit specification for approval

During specification approval the pre-approval specification is subjected to a series of approvals steps. The specific approval steps vary by kind of specification, level of approval, and realm of interest. The primary deliverable produced during specification approval is an approved specification.



- 1. Obtain TSC and Board approval to ballot specification**
- 2. Form a ballot pool and conduct specification ballot**
- 3. Assess negative ballots and affirmative comments**
- 4. Modify specification in response to ballot comments**
- 5. Resolve negative ballot responses and if necessary re-ballot**

During specification publication the approved specification is prepared for publication and distribution. The primary deliverable produced during specification publication is a published specification.



- 1. Obtain TSC and Board approval to publish specification**
- 2. Prepare specification for publication**
- 3. Submit publication to standards authorities (ANSI/ISO)**
- 4. Render the specification in various forms of publication media**
- 5. Post and distribute approved specifications**

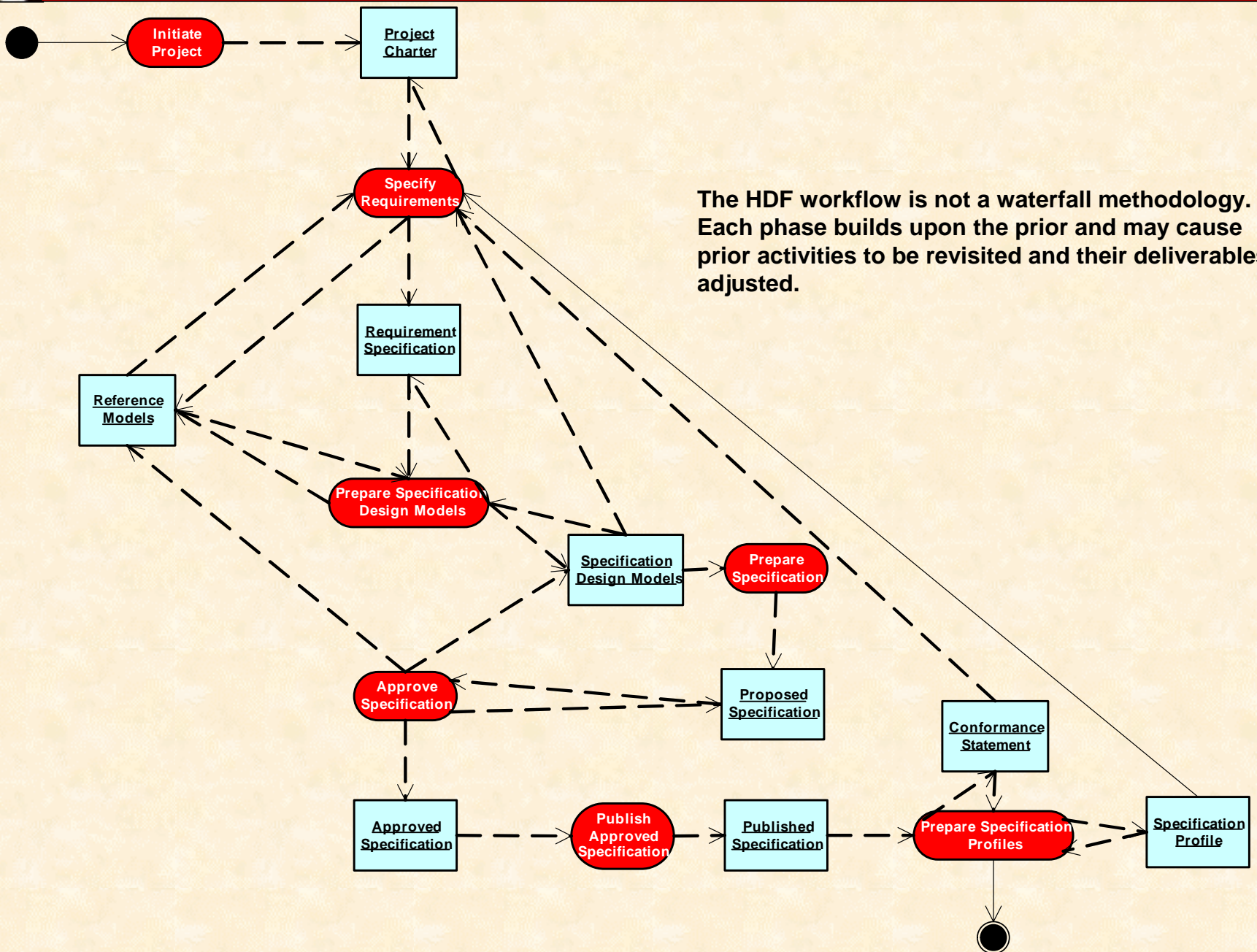
During specification profiling specification models are further refined and specifications further constrained following the same set of design rules, conventions, and guidelines used in the development of the specification to produce a profile of the specification for use in a particular environment by a defined community of users. The primary deliverable produced during specification profiling is a set of specification profiles and conformance statements.



1. Identify community of uses for published specification
2. Further refine and constrain specification design models
3. Document exceptions, extensions, and annotations to specifications
4. Prepare and publish specification profile
5. Prepare and publish conformance statements



HDF Workflow Diagram



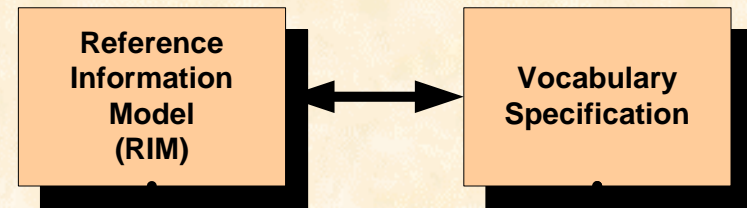
The HDF workflow is not a waterfall methodology. Each phase builds upon the prior and may cause prior activities to be revisited and their deliverables adjusted.

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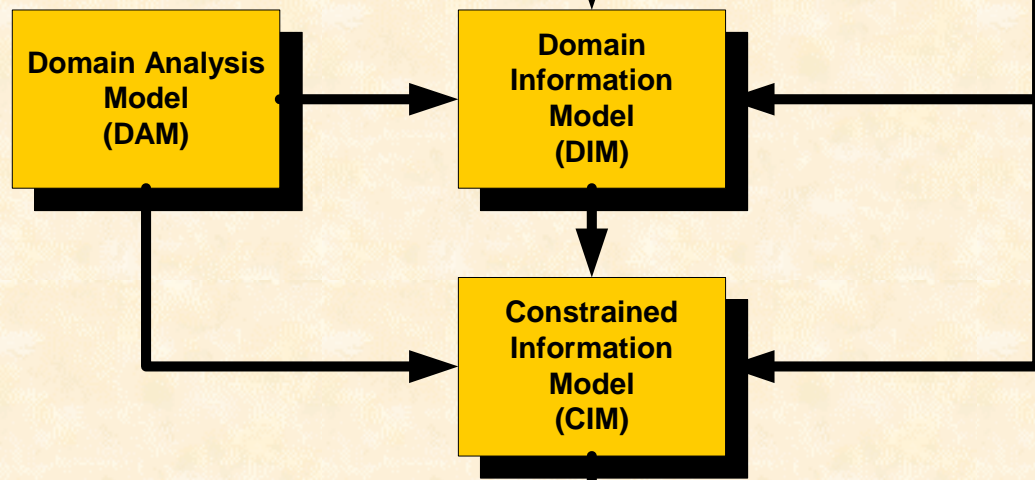


Model Independence

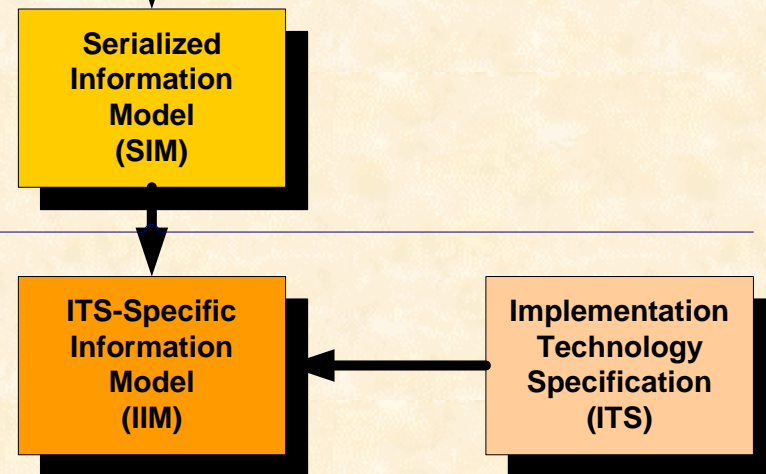
Healthcare Domain /
Problem Space Independent

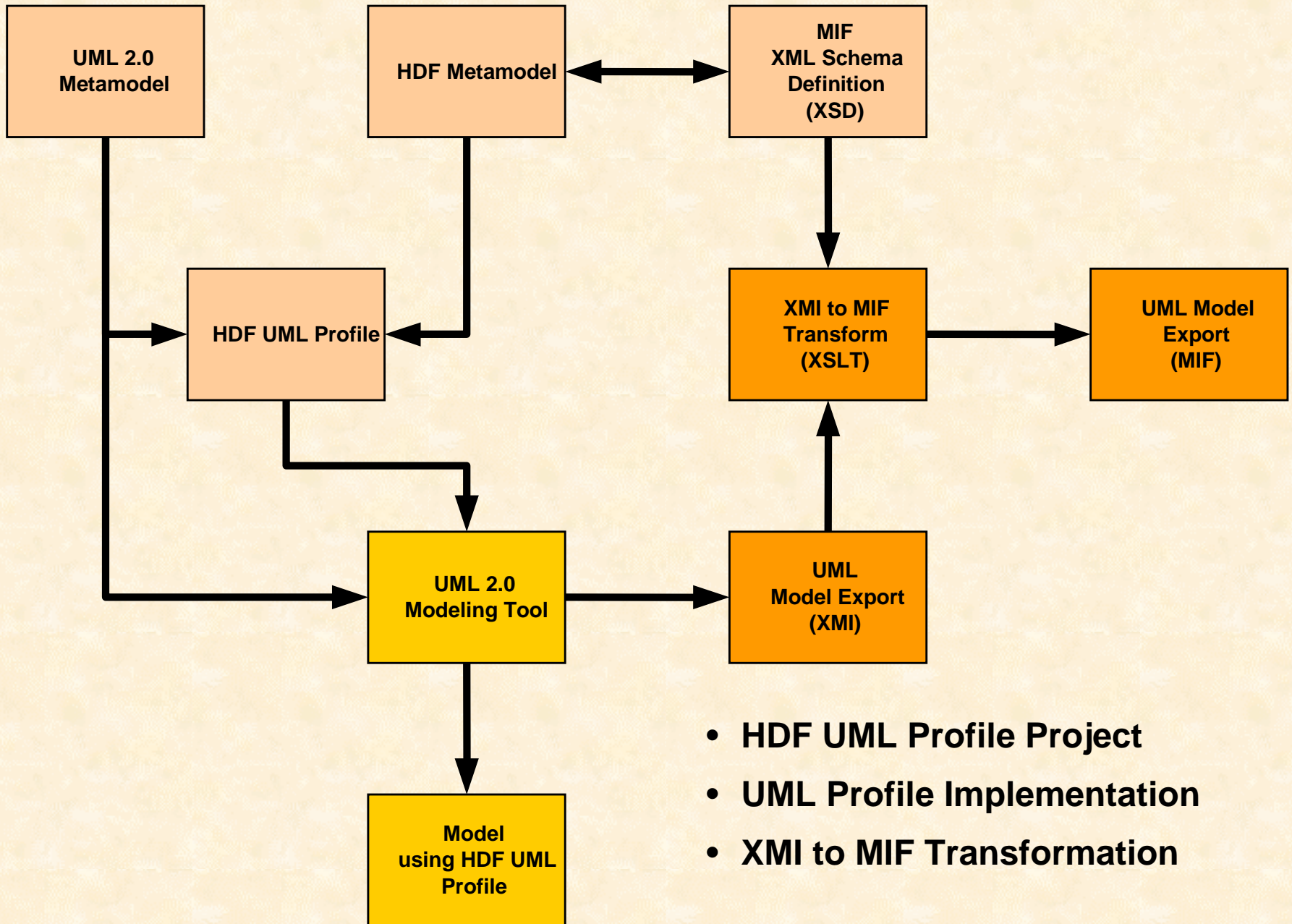


Problem Space Specific /
Technology Independent

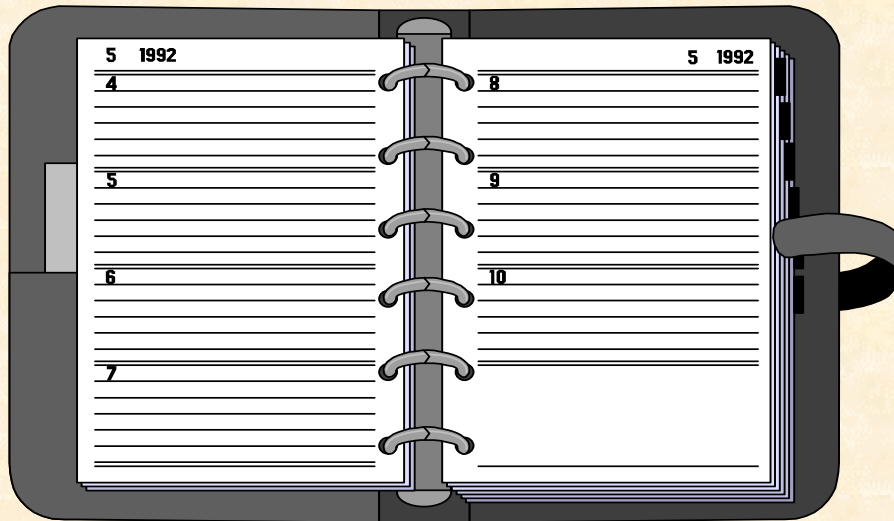


Technology Specific /
Implementation Independent





- HDF UML Profile Project
- UML Profile Implementation
- XMI to MIF Transformation



January 8 – 13, 2006

Working Group Meeting
Pointe Hilton Squaw Peak
Scottsdale, AZ

May 6 - 12, 2006

Working Group Meeting
San Antonio Hyatt
San Antonio, TX

September 10 - 15, 2006

20th Plenary and Working Group Meeting
Boca Raton Resort
Boca Raton, FL

Abdul-Malik Shakir

Principal Consultant

Shakir Consulting

1911 Foothill Blvd., Suite 148

La Verne, CA 91750

Office: (909) 596-6790 Mobile: (626) 644-4491

Email: AbdulMalik@ShakirConsulting.com