Business Process Modeling
v1.0

Status of this Memo

This governance standard defines the process for submitting business models to the Office of the Chief IT Architect (OCITA) of the National Institutes of Health (NIH) when a request is made to invest in an information technology (IT) project or update an existing system that is or will be subject to both the NIH Enterprise Architecture (EA) and the Capital Planning & Investment Control (CPIC) policy and procedures.

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1 Introduction

This document proposes the governance standard for creating and submitting business process models to the Office of the Chief IT Architect (OCITA) for **verification**. Once approved, all IT projects that are subject to both the NIH Enterprise Architecture (EA) and the Capital Planning & Investment Control (CPIC) policy and procedures shall follow the procedures for submitting business process models.

Business modeling (a.k.a., *business process modeling*) is the representation of current ("as is") and future ("to be") enterprise processes, so that they may be compared and contrasted. By comparing and contrasting current and proposed enterprise processes, business analysts and managers can identify specific process transformations that can result in quantifiable improvements to their businesses.[1]

This standard proposes that current and future state business models for new and existing systems shall be submitted to OCITA for verification. OCITA will not be responsible for creating the business models for the submitting organizations and project teams but can offer guidance and/or direction in creating the models. Upon submission, OCITA will validate the existence of the models and may provide feedback regarding the IT project's impact on the existing NIH Enterprise Architecture. OCITA will not have the authority to impede or cancel the IT project based on the content of the model.

Although business process models may not be appropriate for all IT investments or projects, it is appropriate that many more projects use business process models than currently do. OCITA is looking to partner and mentor project teams regardless of whether or not they meet the determination guidelines for submitting models described in Section 4, "Guidelines for Submitting Business Process Models to OCITA," below and can help teams assess the level of effort required for business process modeling for their particular project.

While the determination guidelines make submitting business process models to the Enterprise Architect mandatory for some projects, it is highly suggested that as a best practice business models be completed for all IT investment projects.

2 Benefits of Business Process Modeling

For the purposes of this governance standard, Business Process Modeling is the discipline of defining and outlining business practices, processes, information flows, data stores and systems. The resulting business models can help NIH and its ICs by:

- Creating a roadmap between the current state of the business and the desired future state.
- Generating targeted system requirements, use cases, and business process improvements initiatives. The information captured in business process models provides the groundwork for creating system development documentation and more user-friendly applications.

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[1] Business Modeling Forum. www.businessmodelingforum.com. 2007.
http://www.businessmodelingforum.com/FAQ.htm (10 July 2007)

- Enabling informed and quantitative decisions
  - Metrics (such as time) can be tied to processes
  - Enables gap analysis that identifies deficiencies between business processes and system capabilities
- Clearly depicting contribution of each activity to overall business purpose
  - Defines "why" activities are necessary
  - Identifies non-value add or redundant activities and systems
  - Aligns business process with strategic priorities, business drivers, and corporate values
- Clarifying processes, terms, roles and definitions
  - Provides one common understanding for all stakeholders
  - Demonstrates that variations between organizations may not be as pronounced as believed
  - Focuses on roles, not titles
  - Provides tool to compare processes when merging two organizations or systems supporting two organizations
- Ensuring Regulatory Compliance
  - Provides ability to document impact of regulatory mandates against current business processes.
  - Provides ability to document incorporation of mandates into the business process.
- Providing an audit tool
  - Provides auditors with graphical documentation of business processes, human and system interactions.
  - Enables ICs to audit and validate their IT systems to ensure that their business processes and underlying data comply with regulations.
  - Enables ICs to audit and validate that the new IT project will map to the current or anticipated business processes.

OCITA has observed the benefits of this process and believes that it is critical to ensuring and enhancing the communication between the Business Owner and Technology Steward as well as between multiple stakeholders for successful systems development. One example in which OCITA has documented evidence of the positive effects of business process modeling is the Homeland Security Presidential Directive-12 (HSPD-12) project. The trans-NIH, cross-functional project team used business processing modeling to demonstrate compliance with the HSPD-12 regulations. The business process models were an integral tool that demonstrated business as it existed today (current state) versus how business would need to be conducted as a result of the directive (future state).

3 Business Process Model Components

The protocol for this standard specifies that current state and future state business process flow models accompany any IT project subject to both the NIH EA & the CPIC process.

OCITA recommends that each set of business process models submitted contain the following information, depending on the type of complexity of the processes being modeled:

- ***Business Processes*** – A set of tasks or activities the business must perform to achieve the goals and objectives of the business.
- ***Resources*** - The people, organizations, and or system(s) required to complete each business task/activity.
- ***Data*** – The information that is created, used by, or updated as a result of a business task/activity.

Each set of models submitted to OCITA may also contain the following information:
- ***Temporal constraints*** – Time constraints that affect a business task/activity.
- ***Locality constraints*** – The location(s) at which the business task/activity takes place.

The above information should be combined into **business process flow model**(s) that display the sequence of tasks/activities, the dependencies between the tasks/activities, and the flow of information (resource, data, locality, time) from one task/activity to another.

OCITA does not endorse any particular business process modeling software or format for creating business process models. This standard encourages ICs to choose the business process modeling tool and/or methodology that meets their individual business needs. The ICs should ensure however when selecting a tool/methodology that the outputs (models) of the tool/methodology contain the components listed in this section. Please see Appendix A for an example of a current state business process flow model that includes all of the information cited above.

4 Guidelines for Submitting Business Process Models to OCITA

- **<u>Determination Guidelines for New Systems</u>:** Once it has been determined that the IT project is subject to the NIH Enterprise Architecture and also subject to CPIC process, the IT project manager (PM) shall follow the enterprise architecture guidelines for compliance. This information can be found at the following URL: http://enterprisearchitecture.nih.gov/YourPart/File/ComplianceProcess.htm

- **<u>Determination Guidelines for Existing Systems</u>:** For changes to an existing system (e.g. systems within the operations and maintenance phase), either one of the following criteria will necessitate the PM submitting business process models for verification:

    1. If the change(s) impact the NIH Enterprise Architecture or the enterprise business process models – regardless of whether or not a governance approval is required. A listing of current projects subject to the enterprise architecture can be found at the following URL: http://enterprisearchitecture.nih.gov/ArchLib/AT/BA/

    2. If the change(s) causes the system to rise to a level that makes it subject to the NIH Enterprise Architecture and CPIC processes.

- **<u>Submission Guidelines:</u>** In the Systems Development Life Cycle, the planning phase includes System Concept Development, Planning, and the Requirements Definition phases[2]. It is during this phase that current state and future state models shall be created and then submitted to OCITA for review. Furthermore, changes to existing systems in operations and maintenance that meet the criteria above, submit models during the planning phase for the project or change. Models can be emailed to EnterpriseArchitecture@mail.nih.gov or submitted in hard copy format to OCITA.

5 References

Business Modeling Forum FAQ section, http://www.businessmodelingforum.com/FAQ.htm

Planning a new IT project?,
http://enterprisearchitecture.nih.gov/YourPart/What/PlanningNewITProject.htm

Compliance Process, http://enterprisearchitecture.nih.gov/YourPart/File/ComplianceProcess.htm

6 Contact

To contact the NIHRFC Editor, send an email message to: EnterpriseArchitecture@mail.nih.gov.

7 Security Considerations

This NIHRFC raises no security issues.

8 Document Revision History

Version	Date	Change	Authority	Author of Change
0.1	2007-02-08	• Separated required components from optional components in section 3 • Clarified HOW definition in section 3 • Revised Appendix A image		Angela Thomas, Author
0.2	3/9/2007	• Minor editorial changes	NRFC0001	Steve Thornton, NRFC Editor
0.3	4/17/2007	• Deleted Reference notation • Minor format changes.		Angela Thomas, Author

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[2] Planning a new IT project?: http://enterprisearchitecture.nih.gov/YourPart/What/PlanningNewITProject.htm

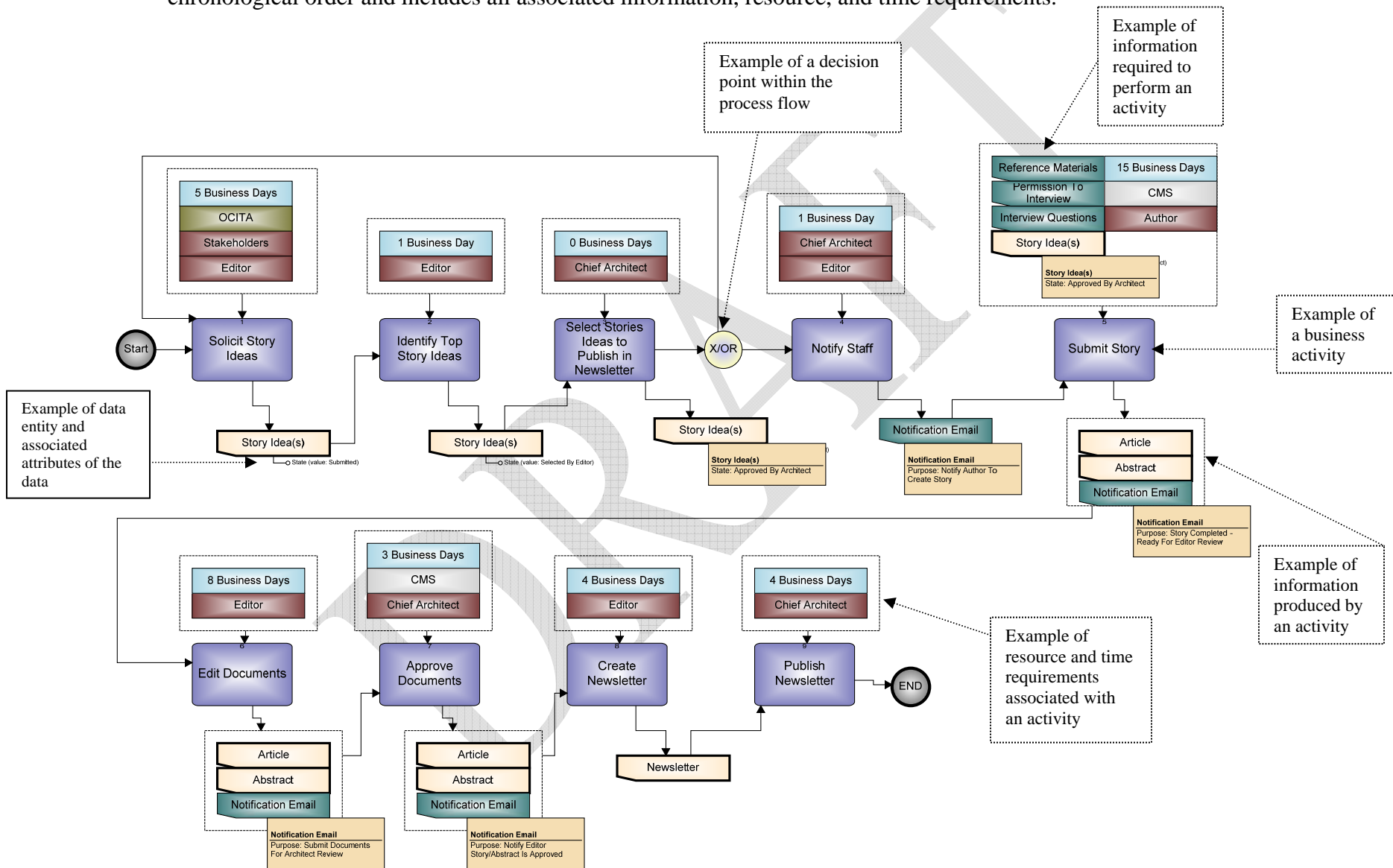|				
		• Added BPM definition to section 2		
0.5	01/31/2008	**Section 1—Introduction** • Clarified OCITA role for creating and receiving the business process models • Revised the introduction to explicitly state that the NIHRFC is a standard (not a best practice) **Section 2— Benefits of Business Process Modeling** • Added additional benefits examples **Section 3—Business Process Model Components** • Added NIH EA & CPIC guidelines • Add language encouraging ICs to select their own modeling tool based on individual needs. **Section 4—Guidelines for Submitting Business Process Models to OCITA** • New section **Section 5—References (formerly Section 4)** • Section renumbered • Added additional references **Section 6—Contacts (formerly Section 5)** • Section renumbered **Section 7—Security Considerations (formerly Section 6)** • Section renumbered **Section 8—Document Revision History (formerly Section 7)** • Section renumbered		Angela Thomas, Author

		• Name change from 'Changes' to current title & version number Section 9—Author's Address (formerly Section 8) • Section renumbered		
0.6	02/15/2008	• Added revision table • Added Glossary (Appendix B)		Angela Thomas, Author
0.7	02/26/2008	• Minor copy edits	NIHRFC0001	Steve Thornton, NIHRFC Editor
0.8	03/19/2008	• Minor edit per the suggestion of the ITMC EA Subcommittee	ITMC EA Subcommittee	Matthew Amodio, NIH OCITA
0.9	06/23/2008	• Added submission guidelines for existing and O/M systems • Modified language in section 3 from "must" to "should" • Recommended all systems consider business process modeling as best practice	Angela Thomas	Steve Thornton
1.0	07/18/2008	• Added link to BA models in Section 4 Determination guidelines for existing systems.	Angela Thomas	Angela Thomas
1.0	8/26/2008	• Document approved by Architecture Review Board	Architecture Review Board (8/26/2008)	Matt Amodio, NIH OCITA

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Appendix A: Sample Business Process Flow Model

This business model depicts the current state of the EA newsletter business processes. The model lists the activities in chronological order and includes all associated information, resource, and time requirements.

Example of a decision point within the process flow

Example of information required to perform an activity

Example of a business activity

Example of data entity and associated attributes of the data

Example of information produced by an activity

Example of resource and time requirements associated with an activity

5 Business Days / OCITA / Stakeholders / Editor

1 Business Day / Editor

0 Business Days / Chief Architect

1 Business Day / Chief Architect / Editor

Reference Materials | 15 Business Days
Permission To Interview | CMS
Interview Questions | Author
Story Idea(s)

Story Idea(s)
State: Approved By Architect

Start → Solicit Story Ideas → Identify Top Story Ideas → Select Stories Ideas to Publish in Newsletter → X/OR → Notify Staff → Submit Story

Story Idea(s) — State (value: Submitted)

Story Idea(s) — State (value: Selected By Editor)

Story Idea(s)
State: Approved By Architect

Notification Email
Purpose: Notify Author To Create Story

Article / Abstract / Notification Email

Notification Email
Purpose: Story Completed – Ready For Editor Review

8 Business Days / Editor

3 Business Days / CMS / Chief Architect

4 Business Days / Editor

4 Business Days / Chief Architect

Edit Documents → Approve Documents → Create Newsletter → Publish Newsletter → END

Article / Abstract / Notification Email

Notification Email
Purpose: Submit Documents For Architect Review

Article / Abstract / Notification Email

Notification Email
Purpose: Notify Editor Story/Abstract Is Approved

Newsletter

Appendix B: Glossary of Terms

Business Owner

The business owner is an individual at the director level or above who manages the business process that the system supports or will support.

Business Process Modeling / Business Modeling

The discipline of defining and outlining business practices, processes, information flows, data stores and systems.

Stakeholder

The stakeholder is an individual or organization who has an interest in the effective and efficient running of a system. Also one who is affected by the project.

Technical Steward

The technical steward is the individual or organization responsible for supporting the impacted business process with information systems solutions.