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Central Data Administration

New Model Review Procedure

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Revision and Change Description History Log

Revision	Date	Revision/Change Description	Pages Affected
Version 1.0	7/7/2009	Initial Document	All
Version 1.1	9/21/2009	Remove ACE links and replace with document names. Change reference to step 1.2.5 to 1.3.5.	pp. 3, 5 and 6
Version 2.0	3/23/2010	<ol style="list-style-type: none"> 1. Changed name from "Process" to "Procedure" 2. Removed the statement that it was internal to CDA 3. Added reference to Logical Design sub-process that it is the procedure for. 	pp. 3
Version 2.1	4/27/2010	Update checklist to make sure representation term consistent with attribute definition	pp. 10
Version 2.2	07/15/2010	Add CMS URL for template request	pp. 5
Version 2.3	8/18/2010	Update to reflect that there are two logical model reviews: at the end of Requirements Analysis and at the end of Design	pp. 4,7
Version 2.4	10/30/2012	Update to reflect reuse of ELDM.	pp. 5

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1. Introduction

This procedure is for the Logical Design sub-process 1.7.1 Perform a Quality Review of the Logical Data Model. There are two reviews, corresponding to Investment Lifecycle (ILC) phases:

- Requirements Analysis Phase – The model is reviewed at the end of this phase to make sure it meets requirements and standards before design begins. The approval at this phase is “preliminary”.
- Design Phase – The model is reviewed again to make sure that any changes made during design are consistent with standards. This is the “final” review. It is only necessary to review the model objects that have changed since the preliminary review.

Possible results of model reviews include:

- Model Approved – There were no deviations from Standards
- Model Conditionally Approved – There were some deviations from standards, but the critical standards (primarily names and definitions) were met.
- Model Not Approved – There were deviations in critical standards. Multiple reviews may be required before Final Approval is obtained.

2. Prepare Results Spreadsheet

Set up the spreadsheet that will contain the results of the review:

1. Load the following ERwin report templates into your report template directory from :http://www.cms.gov/DataAdmin/03_LogicalDataDesign.asp#TopOfPage
 - a. CSV Attribute Defs.rtb
 - b. CSV Attribute UDPs.rtb
 - c. CSV Entity Defs.rtb
 - d. CSV Entity UDPs.rtb
 - e. CSV Entity Keys.rtb
 - f. CSV Relationship.rtb
2. Create a copy of the New Model Review Results Template from [:http://www.cms.gov/DataAdmin/03_LogicalDataDesign.asp#TopOfPage](http://www.cms.gov/DataAdmin/03_LogicalDataDesign.asp#TopOfPage) and rename it using the following format: CDA Model Review Results [model name] [subject area name] [review date]
3. Run the reports and copy into the Results tabs:

Tab	Report
Reuse Validation	N/A
Model Level Standards	N/A
Entity Definition Standards	Entity defs.rtb
Entity Names Standards	Name Checker
Entity Key Standards	CSV Entity Keys.rtb
Entity UDPs Standards	CSV Entity UDPs.rtb ¹
Attribute Definition Standards	CSV Attribute Defs.rtb
Attribute Names Standards	Name Checker
Attribute UDPs Standards	CSV Attribute UDPs.rtb ¹

¹ If this report doesn't work, create an equivalent report in the model

Tab	Report
Relationship Standards	CSV Relationship.rtb
Third Normal Form	N/A

3. Review Model

Appendix E contains Data Flow Diagrams (DFDs) that correlate to the review processes.

3.1 Validate Reuse

Validate that the entities and attributes are candidates for adopting existing entity and attribute names and definitions from the Enterprise Logical Data Model (ELDM) and other approved data models.

1. Identify Entities and Attributes that may be candidates
2. Review relevant project models
3. Review Standard Data Models for reuse
4. Document potential candidates
5. Meet with Central Data Administration Organization CDAs to verify recommendations
6. Document decisions in the “Reuse Validation” worksheet of the Results Spreadsheet.

3.2 Validate Standards

The Validate Standards steps consist of checking data model metadata against the Standards Check-List Items (appendices A – D). This is done at the model, entity, attribute, and relationship level. Fill out the Results Tabs using the following values:

Value	Condition
Y or blank	Meets the standard
N	Violates the standard
E	An exception to the standard has been granted for the object

3.2.1 Model Level

Validate the Model Level Standards in Appendix A, and populate the results in the “Model Level Standards” tab of the Results Spreadsheet. Look in “Model/Model Properties” in the data model to find the information.

3.2.2 Entity Level

The Entity Level Standards are in Appendix B. Entity Level Standards are broken into four groups, each on a separate worksheet:

- Definitions
- Names – Use the Name Checker tool
- Keys
- UDPs

3.2.3 Attribute Level

The Attribute Level Standards are in Appendix C. Attribute Level Standards are broken into three groups, each on a separate worksheet:

- Definitions
- Names – Use the Name Checker tool
- UDPs

3.2.4 Relationship Level

Relationship Level Standards are in Appendix D.

3.3 Validate Third Normal Form (3NF)

Validate that the model is in Third Normal Form (3NF). To be in 3NF:

- Each attribute must be “atomic” (no multi-value attributes), i.e. be in First Normal Form (1NF)
- Each non-key attribute must depend on the entire key (no non-key attribute depends on only part of the key), i.e. be in Second Normal Form (2NF).
- Each non-key attribute is non-transitively dependent on the entire key (no non-key attribute is dependent on one or more other non-key attributes).

Document any violations of 3NF in the Third Normal Form worksheet of the Results Spreadsheet.

3.4 Determine Review Result

Determine the results of the Review. The results are based on what deviations were identified in the above steps. Possible choices include:

- Approved – There were no deviations. Go to step 1.3.5
- Conditionally Approved – In order to be Conditionally Approved, all of the Standard Items in the Appendices marked as “Required” must be satisfied. Necessary changes are listed which will be made by a specified date. Send to the Project Local DA the list of contingent approval items and go to step 1.3.5. There may be deviations for those Standard Items that are not marked as required. These deviations must be fixed before Final Approval.
- Unapproved – Deviations were found for Standard Items in the Appendices marked as “Required”. Necessary changes, which need to be made before the model can be approved, are listed. Send the review output to the Project Local DA. After the Local DA has fixed the problems, the model review process should restart from the beginning.

3.5 Obtain Business Owner/Representative Sign Off

This step is required for only the Preliminary Review at the end of the Requirements Analysis phase:

1. Prepare reports for the Business Owner to review:
 - Entity Definitions (CSV Entity Defs.rtb)
 - Attribute Definitions (CSV Attribute Defs.rtb)

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2. Fill out a Cover Letter <insert link> explaining what you want the Business Owner to review.
3. Fill out the Central Data Administration Logical Data Model Acceptance/Sign Off Form (per the included instructions) and send it to the Business Owner/Business Representative for approval, or waiver, to indicate the satisfaction of the model's Business Requirements. Include the reports and Cover Letter from above.

3.6 Provide Central Data Administration Sign Off

Upon receipt of Business Owner/Business Representative's approval or waiver, the Central Data Administration team member should complete the Data Administration Logical Data Model Acceptance/Sign-off Form by specifying the Central DA signature and date of conditional/final approval. The Central Data Administration team member should redistribute a copy of the form to the impacted parties and post the form and model to its corresponding project library.

3.7 Register Approved Model

After approval, send a copy of the model to CMS CDA.

Appendix A – Model Level Standards Checklist Items

ID	Area	Item	Standard	Reqd ? ²
1	Model Properties	Does the model name conform to standards?	DM OP-028	X
2		Does the model use IDEF1X notation?	Central Data Administration (CDA) Standard Tool Use	X
3		Is the Model Author populated?	Central Data Administration (CDA) Standard Tool Use	X
4	UDPs	LDM DA Signoff Date	Central Data Administration (CDA) Standard Tool Use	
5		Model Business Contact Name	Central Data Administration (CDA) Standard Tool Use	X
6		Model Central DA Name	Central Data Administration (CDA) Standard Tool Use	X
7		Model Create Date	Central Data Administration (CDA) Standard Tool Use	X

²'X' indicates requirement for conditional approval. All items are required for final approval.
10/30/2012

Appendix B – Entity Level Standards Checklist Items

ID	Area	Item	Standard	Reqd?
1	Definition	Is the definition clear, concise and unambiguous?	DM OP-008	X
2		Does the definition describe a singular occurrence of the entity?	DM OP-008	X
3		Does the definition exclude references to technology or media?	DM OP-008	X
4		Does the definition exclude references to time-bound or process-bound circumstances ?	DM OP-008	X
5	Name	Is the entity name unique?	DM OP-009	X
6		Is the entity name singular?	DM OP-009	X
7		Does the entity name exclude numbers and special characters?	DM OP-009	X
8		Does the entity name consist of an Object Class Word, a Property Term and one or more Qualifier Terms?	DM OP-009	X
9		Is the first letter of each term Capitalized, and are terms separated by spaces?	DM OP-009	X
10		Are terms in the Glossary?	DM OP-009	X
11	Key	Does the entity have a primary key?	DM OP-016	X
12	UDPs	Entity Business Contact Name (if different from the Model Business Contact Name)	Central Data Administration (CDA) Standard Tool Use	
13		Entity CDA Standard Name (if different from the entity name in the model)	Central Data Administration (CDA) Standard Tool Use	
14		Entity Requirement ID	Central Data Administration (CDA) Standard Tool Use	
15		Entity Security Category Description	Central Data Administration (CDA) Standard Tool Use	

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16		Physical Table Name (always in “logical only” models, in “logical/physical models if not a 1:1 correspondence between entities and tables)	Central Data Administration (CDA) Standard Tool Use	
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Appendix C – Attribute Level Standards Checklist Items

ID	Area	Item	Standard	Reqd ?
1	Definition	Is the definition clear, concise and unambiguous?	DM OP-010	X
2		Does the definition describe a singular occurrence of the attribute?	DM OP-010	X
3		Does the definition exclude references to technology or media?	DM OP-010	X
4		Does the definition contain only well-recognized agency acronyms?	DM OP-010	X
5		Does the definition avoid circular reasoning?	DM OP-010	X
6		Does the definition say that the attribute is derived if the Attribute Derivation Text UDP is populated?	DM OP-013	X
7		Is the definition consistent with the Representation Term?	DM OP-012	X
8	Name	Does the attribute name consist of a Property Term, one or more Qualifier Terms, and a Representation Term.	DM OP-012	X
9		Is the first letter of each term Capitalized, and are terms separated by spaces?	DM OP-012	X
10		Are terms in the Glossary?	DM OP-012	X
11	UDPs	Attribute Alias Name	Central Data Administration (CDA) Standard Tool Use	
12		Attribute CDA Standard Name (if model attribute name is different from standard attribute name)	Central Data Administration (CDA) Standard Tool Use	
13		Attribute Derivation Text	Central Data Administration (CDA) Standard Tool Use	
14		Attribute Requirement ID (if different from entity)	Central Data Administration (CDA) Standard Tool Use	

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15		Physical Column Name (always in “logical only” models, in “logical/physical models if not a 1:1 correspondence between attributes and columns)	Central Data Administration (CDA) Standard Tool Use	
16		Attribute Data Source Name	Central Data Administration (CDA) Standard Tool Use	

Appendix D – Relationship Level Standards Checklist Items

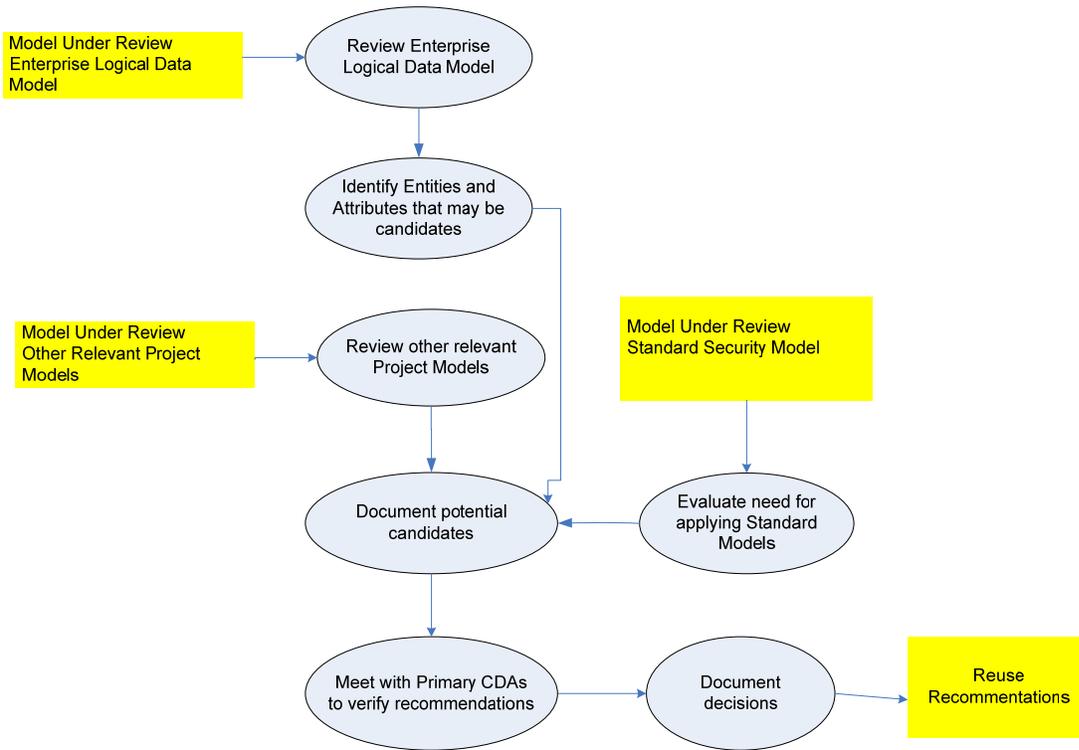
ID	Area	Item	Standard	Reqd?
1	Normalization	Is the relationship not redundant with any other relationship between the two entities?	DM OP-015	X
2	Verb Phrase	Has each verb phrase been defined in the parent-child direction?	DM OP-015	
3		Are verb phrases in all lower case letters?	Central Data Administration (CDA) Standard Tool Use	

Appendix E – Model Review Process Diagrams

The intent of this appendix is to provide a graphical representation of the overall Model Review Process. The process diagrams reflect the inputs, processes and expected outputs for each of the sub processes reflected in Section 3 of this document. The rectangles in the diagrams identify the inputs/outputs while the ovals represent the process. There are standard Erwin input and output templates that are referenced in the process diagrams which are described in more detail in Appendix F and G.

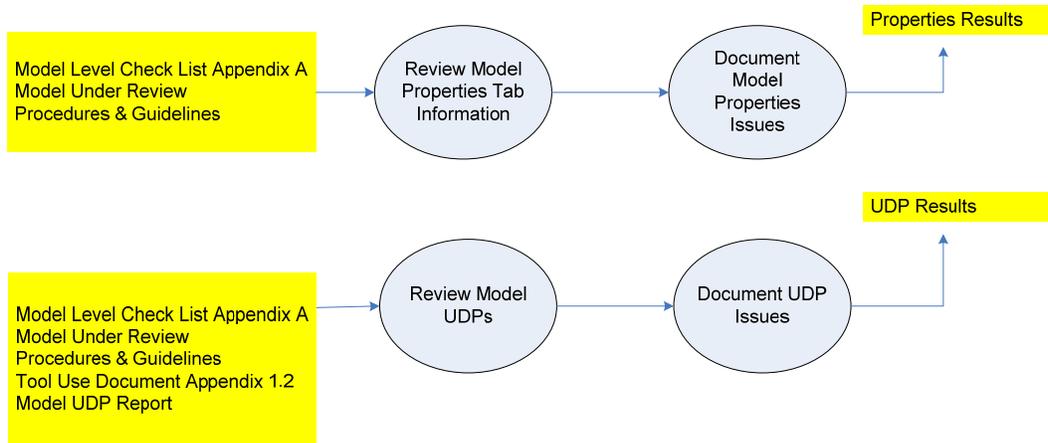
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1.3.1 Validate Reuse



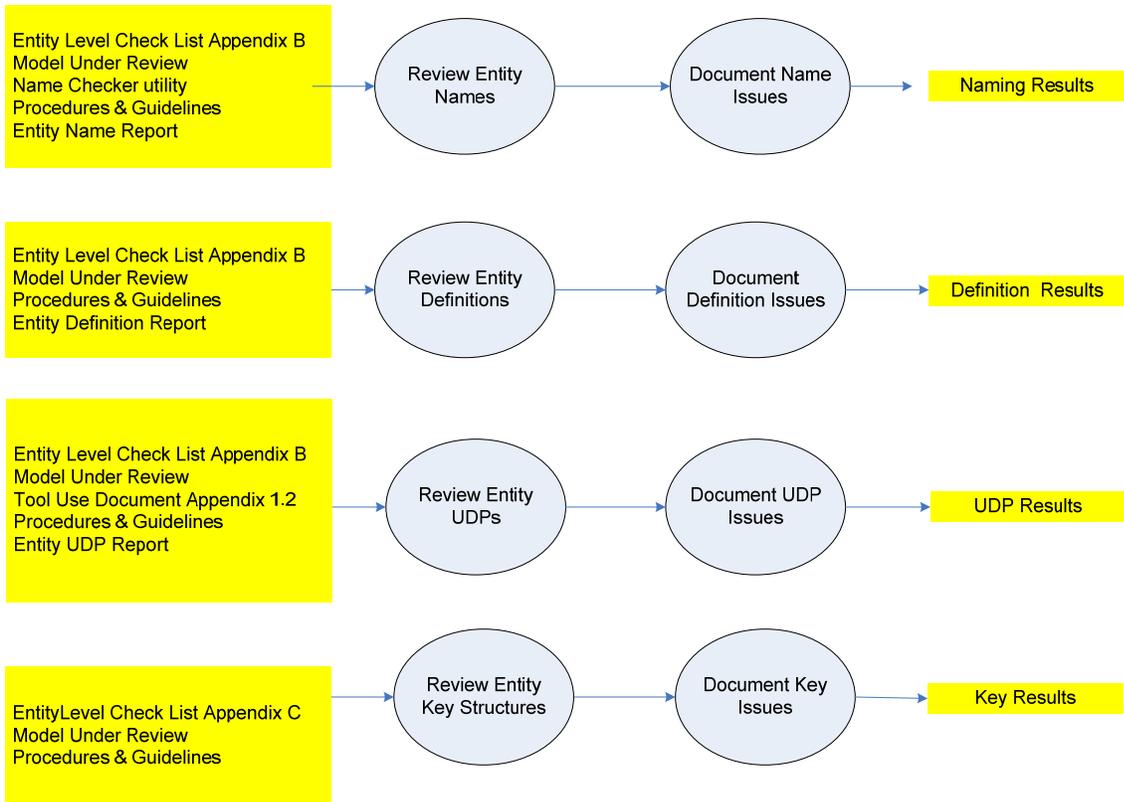
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1.3.2.1 Validate Standards Model Level Standards



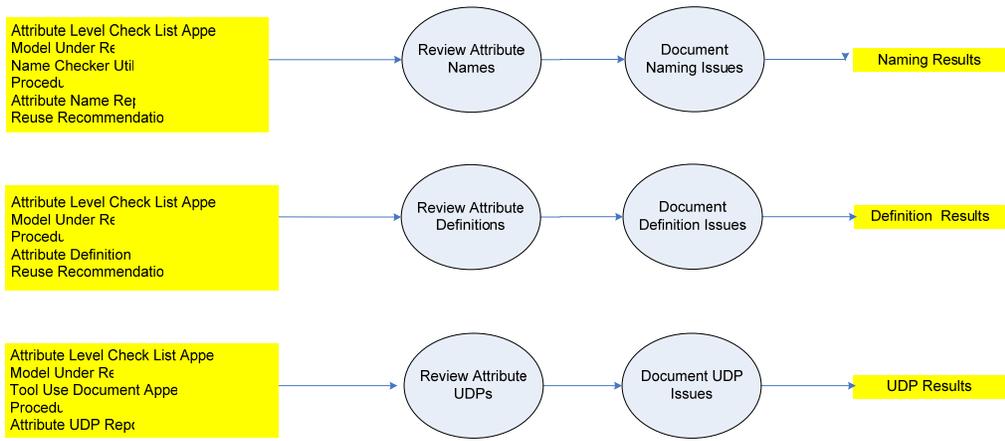
New Model Review Procedure

1.3.2.2 Validate Standards Entity Level Standards



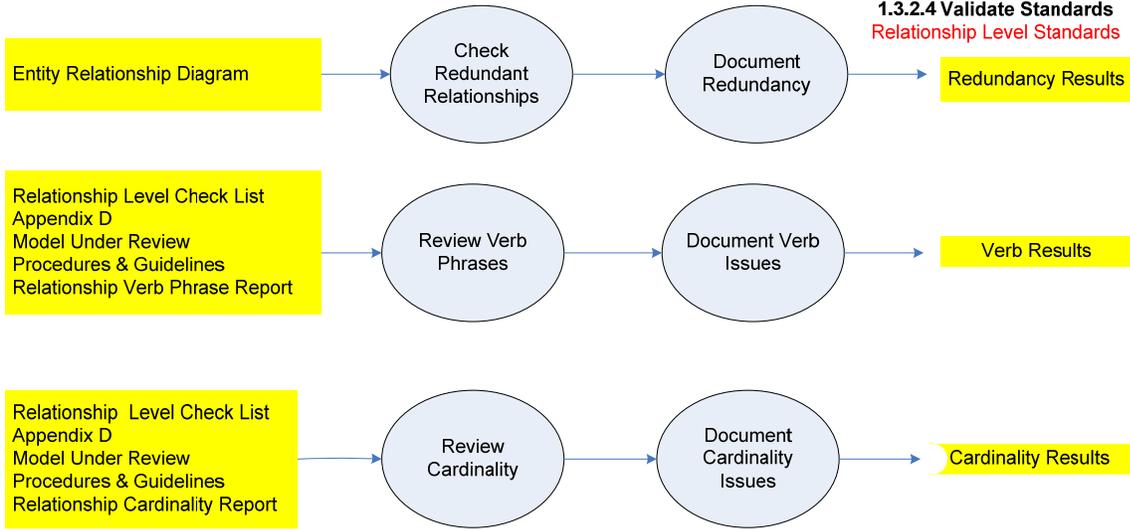
New Model Review Procedure

1.3.2.3 Validate Standards Attribute Level Standards



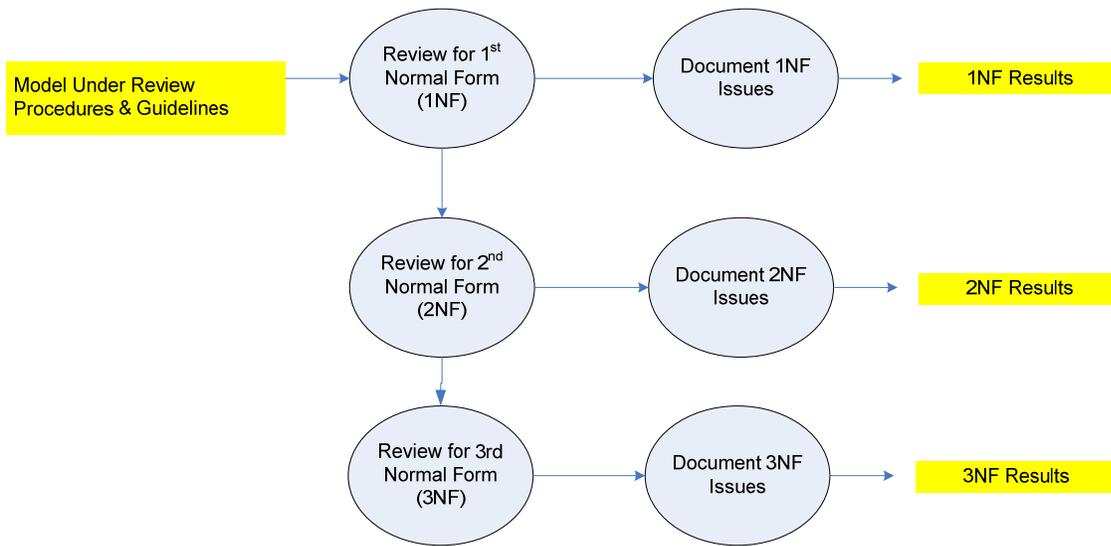
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1.3.2.4 Validate Standards Relationship Level Standards



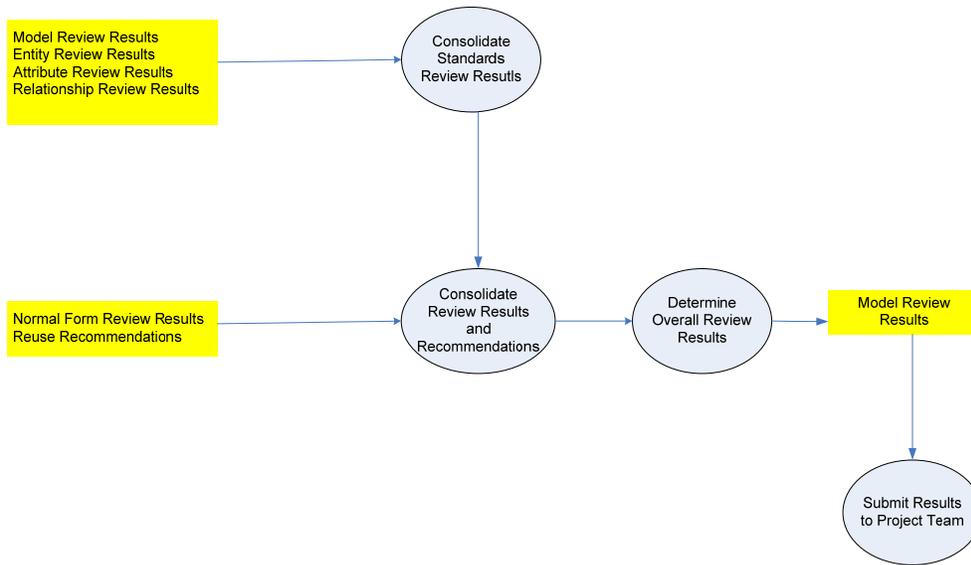
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1.3.3 Validate Third Normal Form (3NF)



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1.3.4 Determine Review Results



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- 1.3.5 Obtain Business Owner Signoff
- 1.3.6 Document Approval
- 1.3.7 Register Approved Model

