Requirements Working Group

Guide to Model-Based Needs & Requirements

Status Presentation

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Team Members

- Rebecca Mulholand (Dynetics and Graduate SE Student at UAH)
- Cameron Bentley (Summit TRC and Graduate SE Student at UAH)
- Jonathan Dang (Dynetics and Graduate SE Student at UAH)
- Jay Silverman (Raytheon)
- John Ding (Airbus)
- Allan Lang (Airbus)
- Maxime Varoqui (Airbus)

Volunteer &Drafted Reviewers

- Several have voiced an interest as a reviewer. The following have reached out and and have been added to the reviewer list
  - Bruno Favoreto
  - Craig Leger
  - Marina Parker
- Drafted Reviewers because of their work with the NRM and previous guides.
  - Lou Wheatcraft
  - RWG Co-Chairs

Additional Reviewers Needed

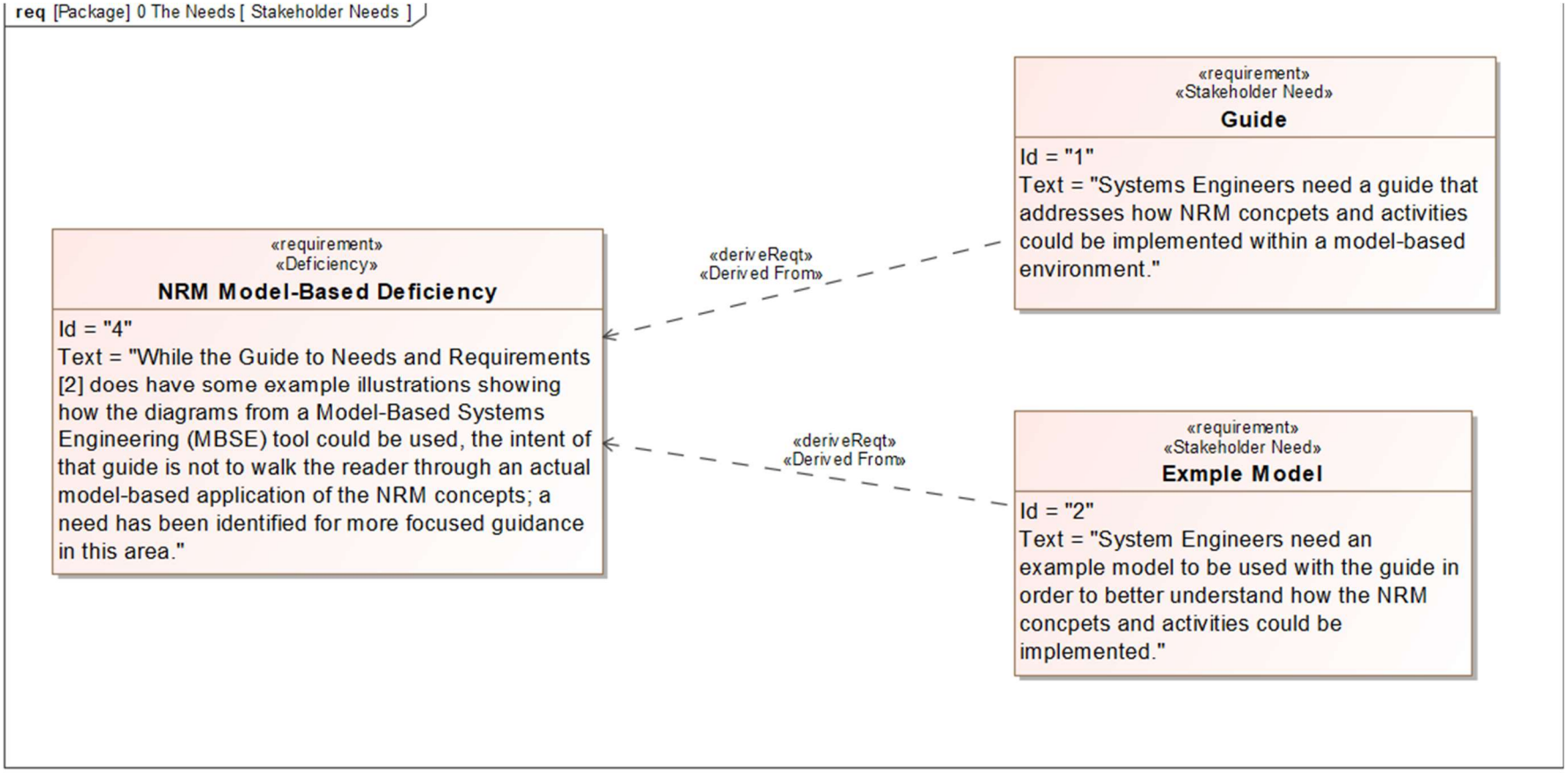
- We will be requesting representation from the MBSE Working group.
- We will be requesting representation from the IV&V Working Group

Why are we developing a Guide for Model-Based Needs & Requirements?

- Let's start by reviewing the Stakeholder Needs that resulted in this project
  - First what is the deficiency that resulted in the Needs
  - Second what are the actual Needs

The following is taken from the model being developed in Catia Magic.

Stakeholder Needs



Purpose of the Guide

- To provide examples and models that can be used to serve as practical guidance for system engineers in the development of needs and requirements to support model-based systems engineering.
- To provide a reference model that can be used as a starting point and easily shared by developers.
  - That is also tailorable.
- To provide a model with a companion guide to serve as a visual that would help developers grasp the concepts described in the Needs and Requirements Manual (NRM).

Intended Benefits of the Guide

- To support the application of the NRM activities and concepts, the guide should consist of example models along with text explaining the models.
- Industry is currently making a rapid transition towards model based and digital engineering.
- The need for properly developed and well-formed needs and requirements has not been diminished.
- The guide will how NRM concepts and activities could be implemented within a model-based environment.

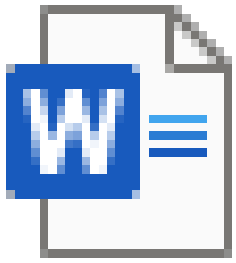
What are the Specific Requirements the Guide is to Satisfy?

#	Name	Text
1	Metamodel	The GMBNR shall define the metamodel for implementation of the NRM.
2	Metamodel Examples	The GMBNR shall provide examples of how the metamodel in model-based systems engineering is implemented to ensure compliance with the NRM.
3	NRM Concept & Activities	The GMBNR shall demonstrate how NRM concepts and activities are applied to model-based systems engineering activities associated with architecture definition and flow down (allocation and budgeting) of requirements to architectural entities at the next level of the architecture.
4	Requirements Flowdown	The GMBNR shall demonstrate the flow down (allocation and budgeting) of requirements to architectural entities at the next level of the architecture.
5	Verification	The GMBNR shall demonstrate how the NRM concepts and activities are applied to the model-based systems engineering activities associated with verification.
6	Validation	The GMBNR shall demonstrate how the NRM concepts and activities are applied to the model-based systems engineering activities associated with validation
7	Development Examples	The GMBNR shall provide examples of how to apply the NRM concepts and activities for model-based systems engineering activities associated with development.
8	Production Examples	The GMBNR shall provide examples of how to apply the NRM concepts and activities for model-based systems engineering activities associated with production.
9	Maintainability	The GMBNR shall provide examples of how to apply the NRM concepts and activities for the model-based systems engineering activities associated with maintainability.
10	Supportability	The GMBNR shall provide examples of how to apply the NRM concepts and activities for the model-based systems engineering activities associated with supportability.
11	Retirement	The GMBNR shall provide examples of how to apply the NRM concepts and activities for the model-based systems engineering activities associated with retirement.

Example System to be Used

This example system is used in the NRM and ensures some level of consistency

Planned Outline Follows the Model Development Process



GMBNR_Outline

Planned Milestones

- Model Complete by August 2024
  - Peer Reviews will begin in July 2024
- Start creating the textual content of Guide August 2024
- Guide & Model ready for review by IW2025

Questions