Walkthrough & Preparation for 1st Peer Review of Model for the Guide to Model Based Needs & Requirements

Team Members

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

What you are going to see

- We have 1 hour to complete this dry run

- We will identify the system to be developed

- We will provide a status of where we are in the development of the supporting model

- We will see how use Cameo Collaborator with Teamwork Cloud

- We will provide an overview of the model structure

- We will identify what is ready for review and what is not.

Case Study:
Lid Installing Robot (LIR)

Lou Wheatcraft

Wheatland Consulting, LLC

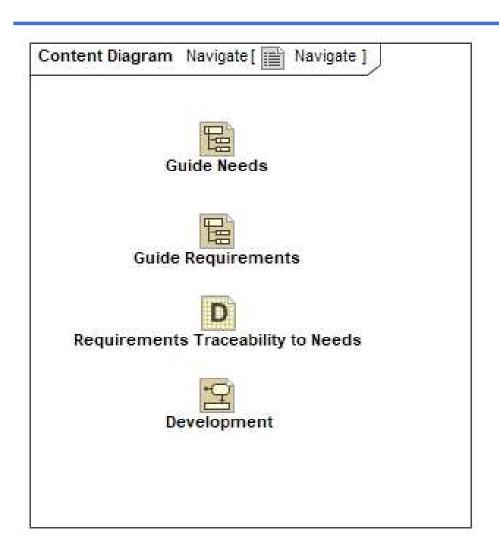Wheatland.consulting@gmail.com

Preview of the model in TWC

- During the dry run the Published Collaborator view of the model will be used in parallel with the slides to help prepare reviewers

- https://69.147.191.246:8443/collaborator/document/265bb51d-d875-458e-9f54-50d67695d862

- If you plan to actively participate and use Collaborator, We will need to make sure you have a TWC account setup and you have a reviewer profile.
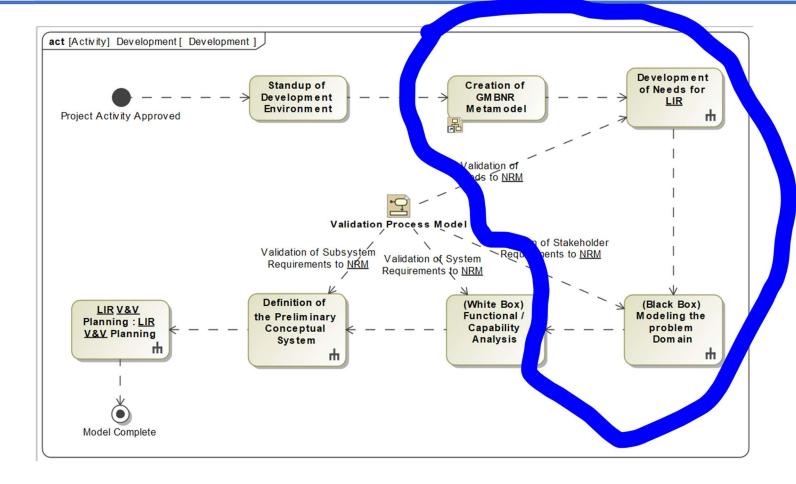
Requirements the Guide is to Satisfy

- We will start with a quick look at the Needs which were derived from an identified deficiency

- Next, we will look at the Requirements and their rationale.

- Then the traceability of the Requirements for Guide to the Need Statements

Status Update

Status Update

- The Schedule

  GMBNR Schedule

Proposed Guide Outline Follows The Model Development Process (1 of 2)

1.   Introduction

1.1.   Purpose and Scope

1.2.   Audience

1.3.   Approach

2.   The GMBNR Metamodel

3.   The Lid Installing Robot (LIR)

3.1.   Model of Baseline Jar Processing System (JPS)

3.2.   Development of Needs for LIR

3.2.1.   Identification of Stakeholders

3.2.2.   Assessment of Needs for Each Stakeholder

3.2.3.   Validation of the Needs

3.3.   Modeling the Problem Domain (Black Box Perspective)

3.3.1.   Identification of risks and method of mitigation

3.3.2.   Development of Stakeholder Requirements from Needs

3.3.2.1.   Organization of Requirements into Sets

3.3.3.   Validation of the Stakeholder Requirements

3.3.4. Plan(s)   Reassessment and Update of the LIR Risks and Mitigations

3.4.   Functional/Capability Analysis (White Box Perspective)

3.4.1.   Definition of LIR Use Cases

3.4.1.1.   Allocation of Stakeholder Requirements to Functions/Capabilities

3.4.1.2.   Assessment of Use Case Results vs Needs

3.4.1.3.   Identification of External Interface

3.4.1.4. Plan(s)   Reassessment and Update of the LIR Risks and Mitigation

3.4.2.   Creation of the LIR Logical Architecture Model(s)

3.4.2.1.   Allocation of Functions/Capabilities to Logical Model Entities

3.4.2.2.   Definition of Technical Measures

3.4.2.3.   Assessment of Logical Architecture to Needs

3.4.2.4. Plan(s)   Reassessment and Update of the LIR Risks and Mitigation

3.4.3.   Creation of the LIR Conceptual Physical Architecture(s)

3.4.3.1.   Definition of Natural Environment Affecting the LIR

3.4.3.2.   Definition of Induced Environment Affecting the LIR

Proposed Guide Outline Follows The Model Development Process

Model Organization

- 00 Supplemental
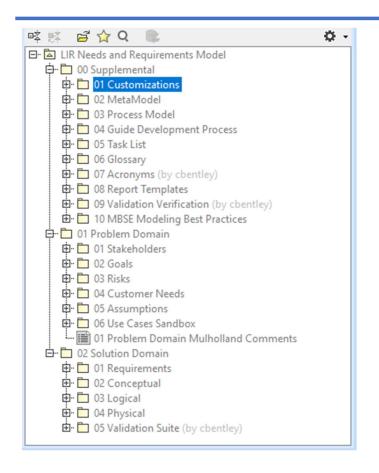
- 01 Customizations defines custom stereotypes

- 02 Metamodel defines the Metamodel used to develop the model
  - There is a sandbox folder for the verification mete-model that is still in work

- 03 Defines the interpretation of the process description from the NRM

- 04 Guide Development Process defines the process that parallels the Outline for Guide to Model Based Needs and Requirements
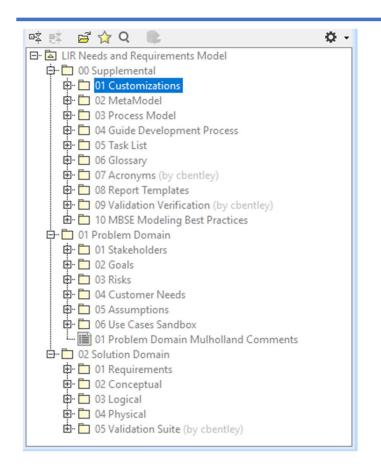
Model Organization

- 05 Task List lists a set of tasks that as a development team we are keeping up with

- 06 Glossary contains the definition of terms used in the NRM and in the Guide.

- 07 Acronyms defines all acronyms used in the model

- 08 Report Templates contains the templates that have been created to support generation of artifacts. More will be developed.

Model Organization

- 09 Validation Verification is work in process that supports the testing of the Model Validation Suite.

- 10 MBSE Modeling Best Practices defines for the development team a set of modeling practices that ensure our distributed team implement the same modeling practices. These will continue to evolve.
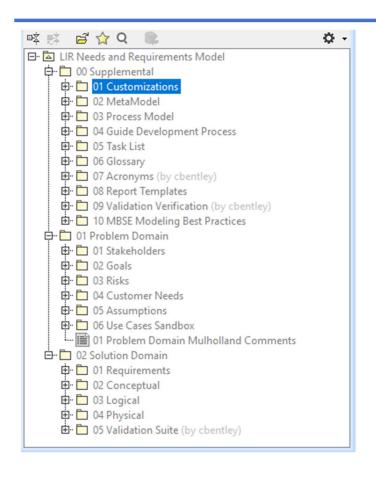
Model Organization

- 01 Problem Domain
  - 01 Stakeholders Is the list of stakeholders for the Lid Installation Robot (LIR), their desired outcomes and trace to goals
  - 02 Goals contains the goals of the LIR Stakeholders
  - 03 Risks contains the set of risks documented in the LIR Case Study
  - 04 Customer Needs contains that set of Need statements derived from the Goals. Note that the Stakeholder Requirements are derived from the set of Needs.
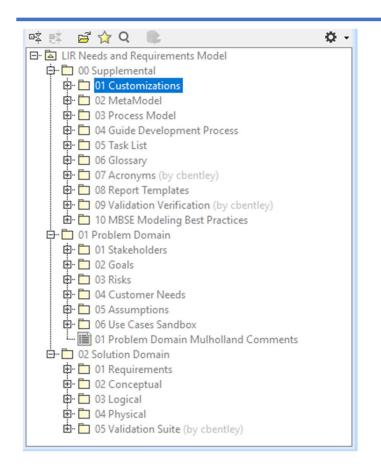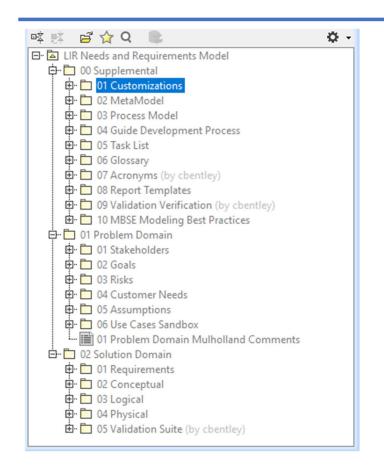
Model Organization

- 01 Problem Domain
  - 05 Assumptions defines the assumptions that will be applied regarding the design of the LIR
  - 06 Use Cases Sandbox is a work in progress. It contains the operational Use Cases that will drive the development of the Design Input Requirements, Verification Cases and Conceptual Design

Model Organization

- **02 Solution Domain**
  - **01 Requirements**
    - LIR Design Input Requirements – A work in process. Currently not populated
    - Stakeholder Requirements – This is the set of requirements derived from the need statements. Ready for Review
    - Subsystem Design Input Requirements – A work in process. Currently not populated
  - **02 Conceptual** defines the context for the Jar Production Facility and the LIR. It also provides the Product Breakdown Structure of the Jar Production Environment

Model Organization

- **02 Solution Domain**
  - 03 Logical is where the current work is being performed
    - Ready for Review
      - 03 Logical/01 Architecture/LIR System Context View
      - 03 Logical/01 Architecture/LIR, Logical System
      - 03/02 Behaviors/LIR States & Modes – Nominal Operations
      - The remaining is under development
  - **04 Physical – Under Development**
  - **05 Validation Suite – Under Development**

Closing Comments & Questions

- If you plan to actively participate and use Collaborator, We will need to make sure you have a TWC account setup and you have a reviewer profile.

- Questions