Process Specification
for
Theia

Version 1.0

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Introduction

This document presents the requirements engineering process for the Theia application. The team consisted of six software engineers. Phase II commenced on October 13, 2025, and continued until the first prototype of the Theia mobile app was completed on December 4, 2025.

IDEF0 Models

To provide a detailed explanation of the team's requirements process, we adopted the **IDEF0** (Integration Definition for Function Modeling) methodology. Figure 1 provides an overview of the Phase II requirements engineering process. The activity 'Conduct Requirements Engineering for Theia' is further decomposed into detailed sub-activities in subsequent models.

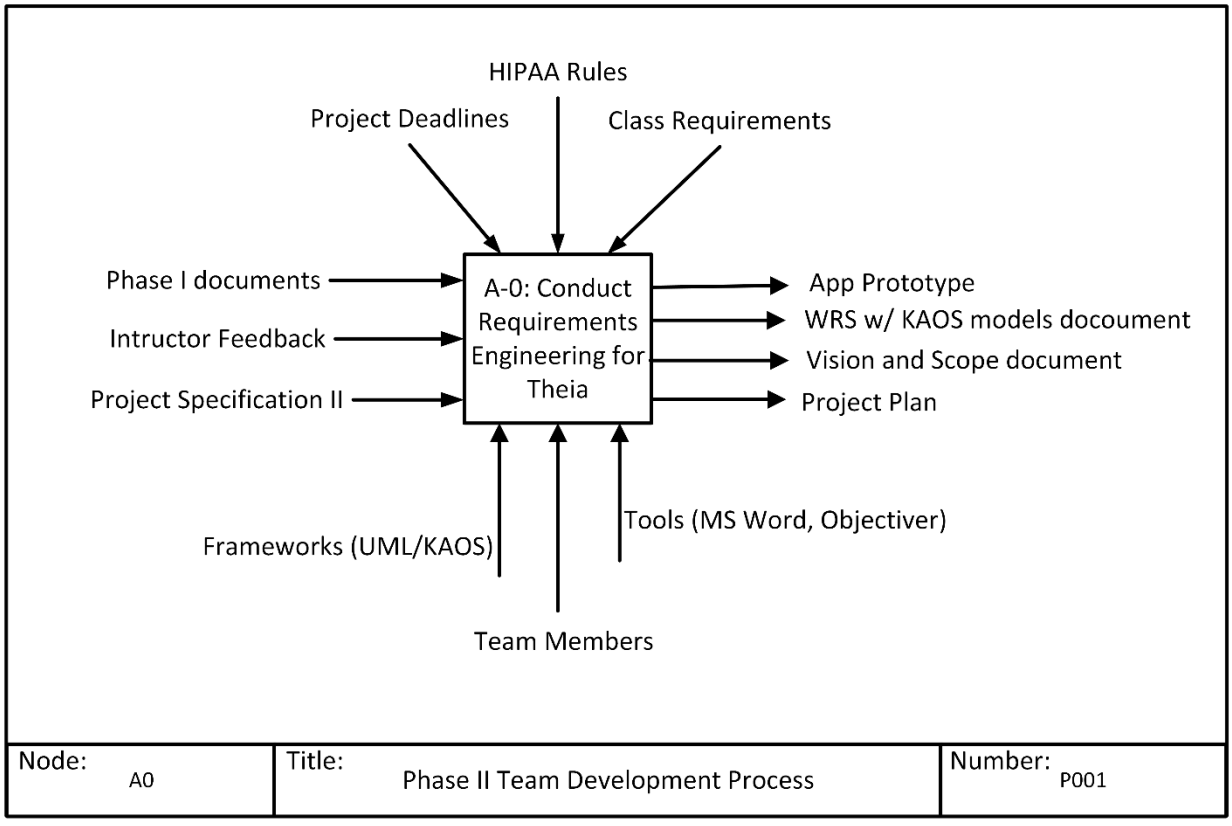

Figure 1. Phase II Team Development Process

Level 1 decomposition

Figure 2 demonstrates the general high-level components of the process. Our team adopted an iterative general process: analyze requirements → assign tasks → implement → evaluate

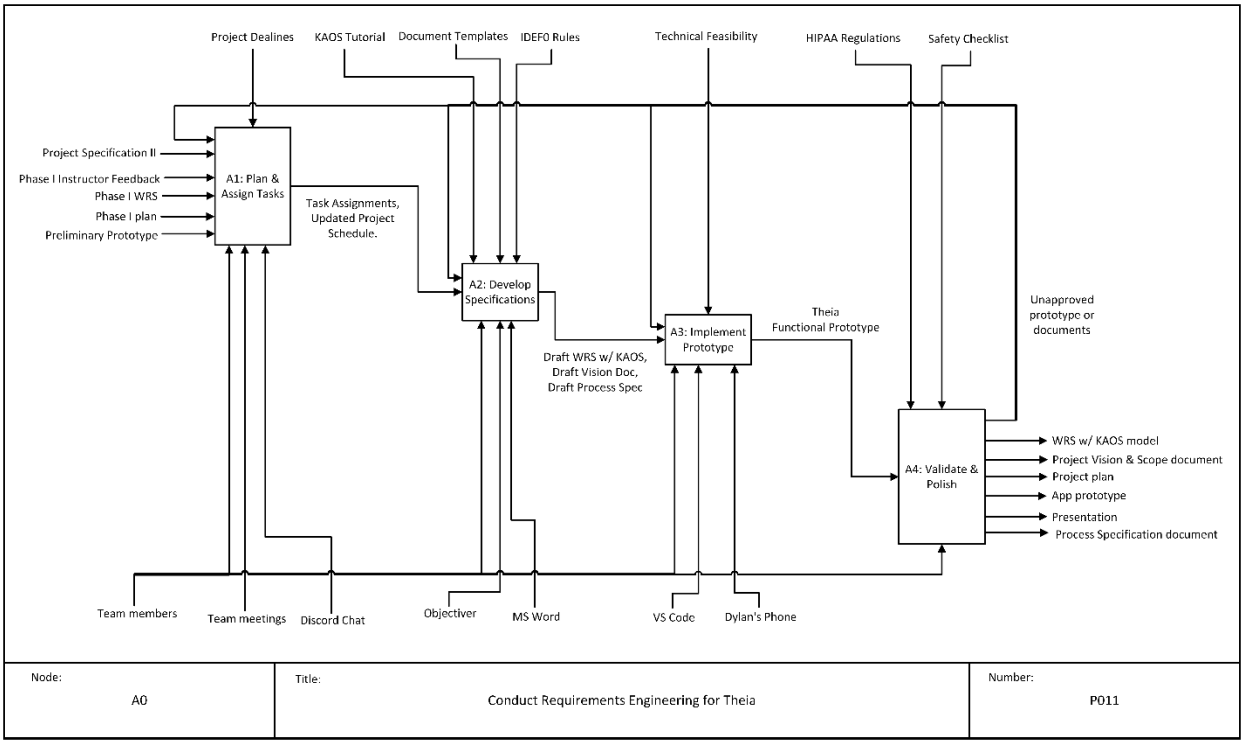

Figure 2. General overview of requirements engineering process

Level 2 decomposition

This section expands the details of each process from the general overview.

A1: Plan and assign tasks

This process involves analyzing the new requirements from Project Specification II, reviewing Phase I deliverables and instructor feedback to identify new tasks. The newly identified tasks are then assigned to each team members with deadlines based on the class project deliverables deadlines and team meeting schedules.

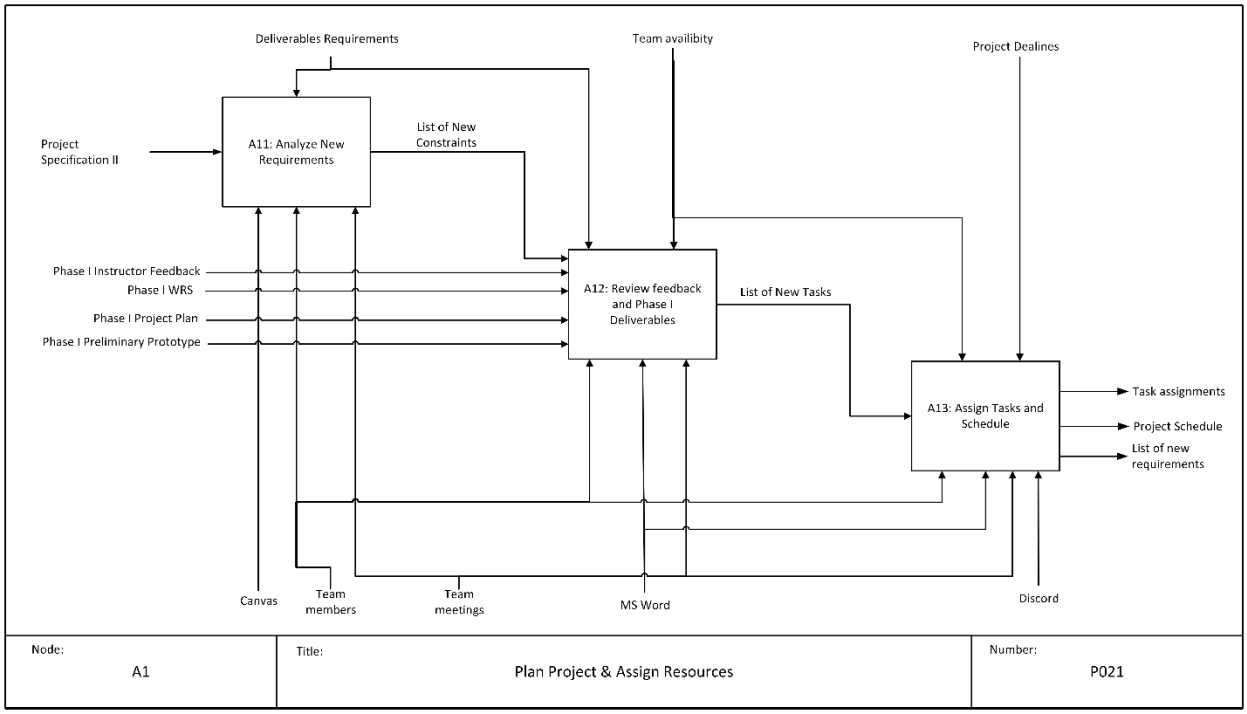

Figure 3. Expanded plan and assign tasks process

A2: Develop project specifications

This process addresses all the documentation requirements for the Theia project. In this process, we developed all required documents:

- Vision and Scope document
- updated WRS with KAOS models document
- Process Specification document
- updated Project Plan.

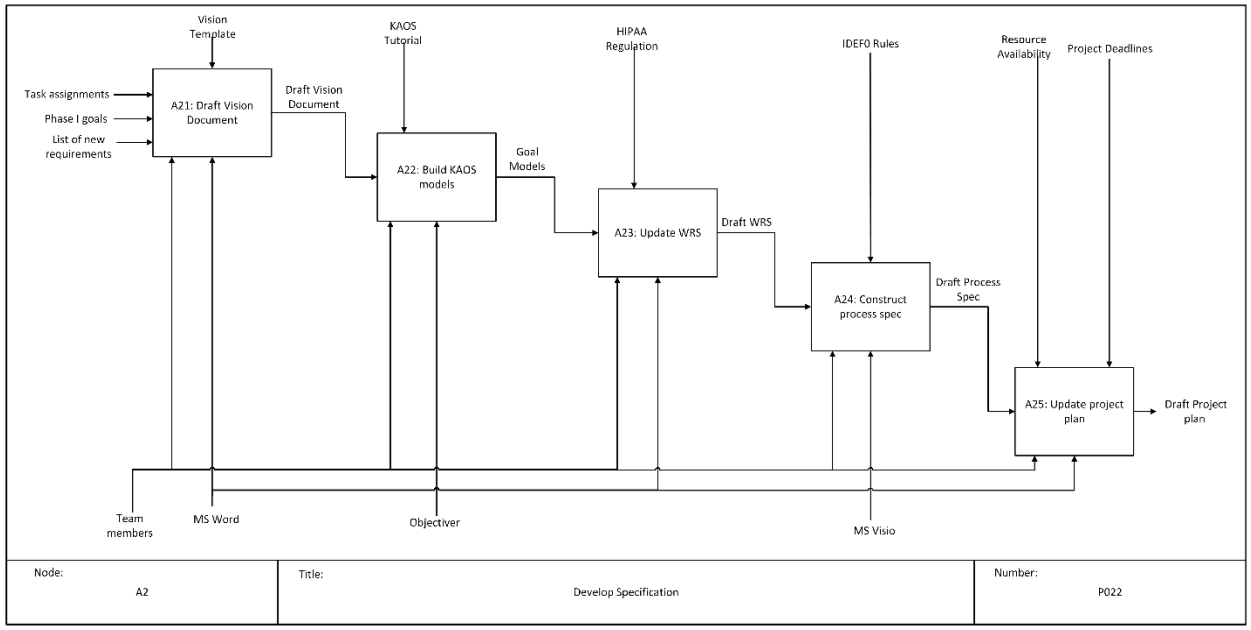

Figure 4. Expanded develop specification process

A3: Implement Prototype

This model describes the implementation of the Theia mobile app prototype. Our initial focus was on creating an enhanced user manual that incorporated new requirements from the updated WRS document and feedback from the Phase I prototype. Once the documentation was finalized, we proceeded with prototype development guided by the user manual and defined requirements. To streamline the process, we leveraged AI tools such as GitHub Copilot for development assistance.

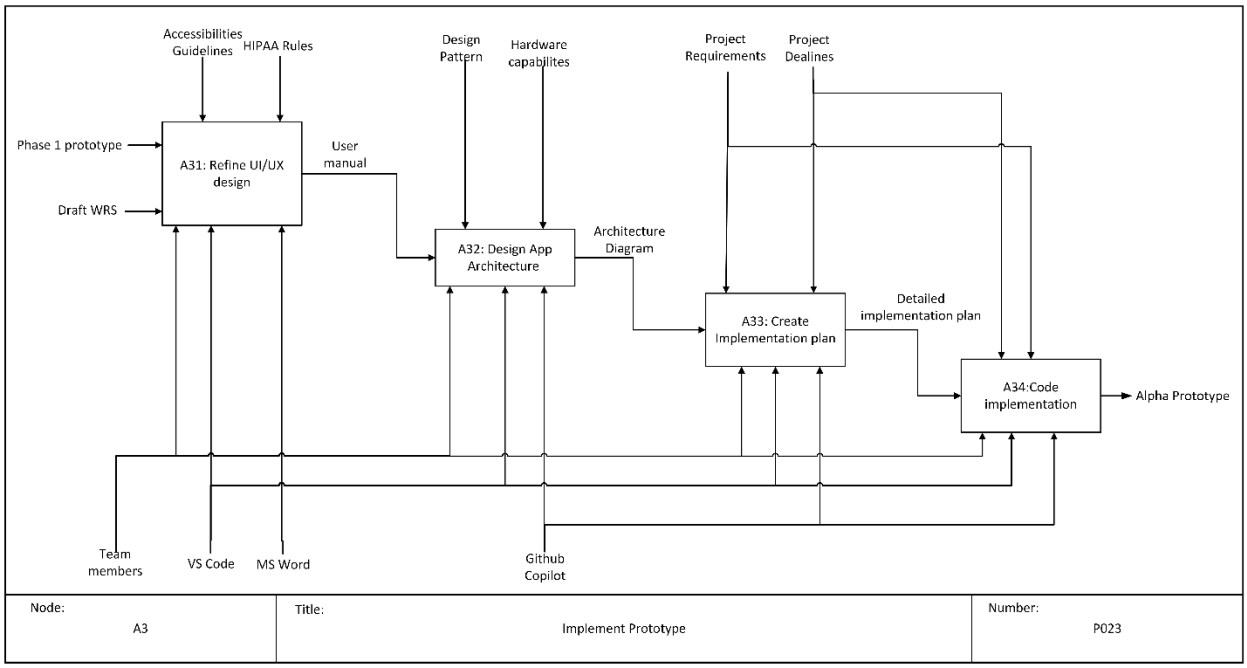

Figure 5. Expanded implement prototype process

A4: Validate and polish

In this stage, we review all documents and the prototype to identify errors and bugs. The process is iterative—any issues found in the documents become inputs for the next revision cycle. Once the documents are finalized, we proceed to deliver the demo and presentation. The prototype undergoes the same iterative refinement.

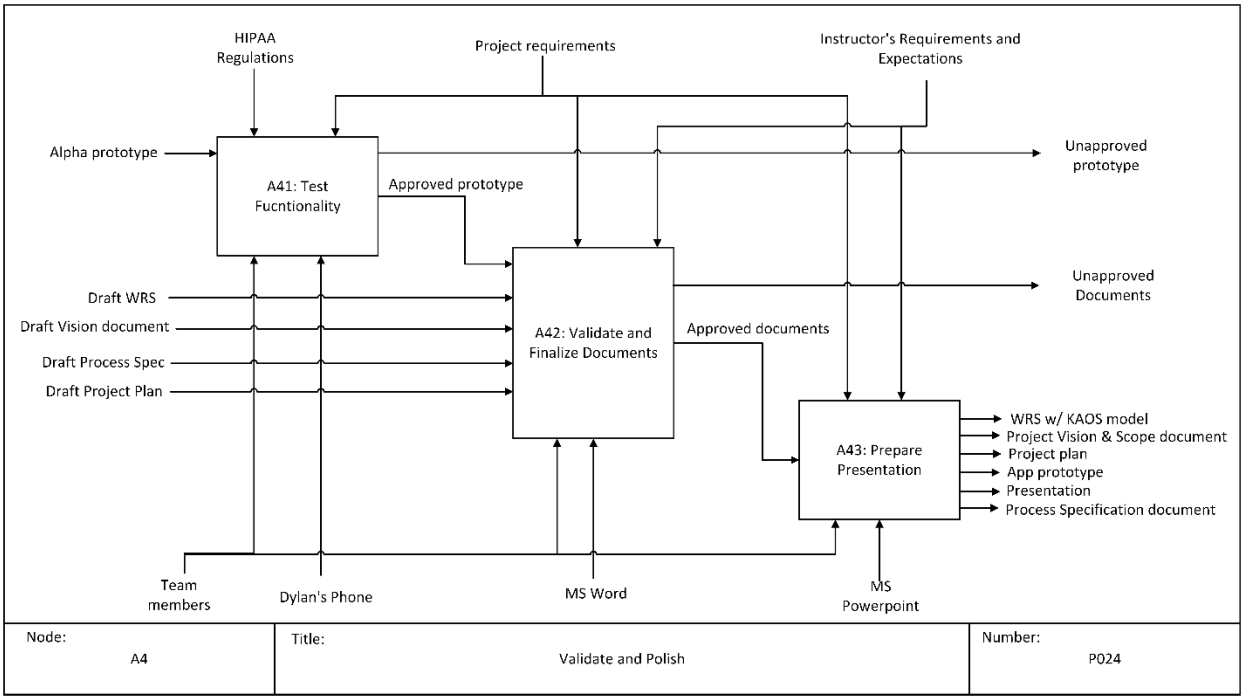

Figure 6. Expanded validate and polish process