Module 3 Portfolio Milestone: Initial WBS

Alexander Ricciardi

Colorado State University Global

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Dr. Brian Holbert

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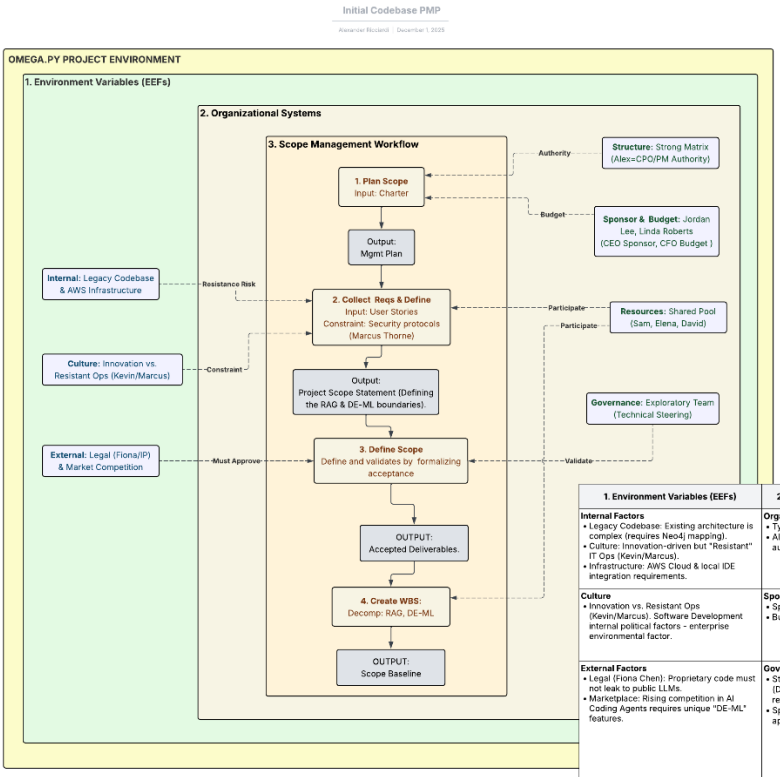
The work breakdown structure (WBS) is a hierarchical graphical representation that shows all the work that needs to be accomplished on the project (Ucertify, n.d. b). It is part of the Project Management Plan (PMP) scope baseline artifact that contains the scope statement, WBS, and WBS dictionary (Ucertify, n.d. a). This document provides the WBS initial components breakdown and discusses how the WBS will work in the overall process of managing the development and implementation of the Omega.py Project Codebase.

Figure 1

Initial Project Codebase PMP



1. Environment Variables (EEFs)	2. Organizational Systems (Governance)	3. Scope Processes (Workflow)
Internal Factors • Legacy Codebase: Existing architecture is complex (requires Neo4j mapping). • Culture: Innovation-driven but "Resistant" IT Ops (Kevin/Marcus). • Infrastructure: AWS Cloud & local IDE integration requirements.	**Organizational Structure** • Type - Strong Matrix. • Alex Ricciardi acts as both CPO and PM, high authority over resources (Sam, Elena).	**Step 1: Plan Scope** • Input: Project Charter. Action: CEO Authorization (completed), Initial budget • Action: Define how the scope will be validated by the "Exploratory Team." • Output: Plan for the Scope Management Plan.
Culture • Innovation vs. Resistant Ops (Kevin/Marcus). Software Development internal political factors - enterprise environmental factor.	**Sponsor & Budget** • Sponsor - Jordan Lee (CEO). • Budget - Linda Roberts	**Step 2: Collect & Define** • Input: Plan for the Scope Management Plan and User Stories from Software Engineers. • Constraint: Security protocols (Marcus Thorne). • Output: Project Scope Statement (Defining the RAG & DE-ML boundaries).
External Factors • Legal (Fiona Chen): Proprietary code must not leak to public LLMs. • Marketplace: Rising competition in AI Coding Agents requires unique "DE-ML" features.	**Governance Framework** • Steering Committee - The "Exploratory Team" (David, Sam, Elena) acts as the technical review board. • Sponsor – Jordan Lee (CEO) provides budget approval. **Resources: Shared Pool** • Leads: Sam (Software), Elena (AI), David (Architect). • Dev Team: Priya, Mark, Sarah (Developers). • Data: Linda Wu (Data Engineer).	**Step 3: Define Scope** • Input. Project Scope Statement (Defining the RAG & DE-ML boundaries). • Key Branches: RAG Agent, DE-ML Parser, Knowledge Graph. • Validates: - Action: Formalizing acceptance (Obtaining Sign-off). - Detail. Reviewing deliverables with the "Exploratory Team" (Elena/Sam) to ensure they meet the acceptance criteria. Output: Accepted Deliverables (Signed-off). **Step 4: Create WBS** • Input: Accepted Deliverables. • Decomposition: RAG, DE-ML, ect. • Create: WBS Dictionary. • Output: Scope Baseline

Note: The diagram illustrates how the project will be managed, and the table gives more details to support the diagram.

As noted in Figure 1, the project uses the technique of decomposition. In the table, it can be found in “3. Scope Processes (Workflow) - Step 4: Create WBS.” This technique consists of breaking down the scope into work packages, creating the initial WBS component. For Project Codebase WBS initial component breakdown can be listed as follows:

1.0 Plan Project Management:

- 1.1 Finalize Project Charter (completed).
- 1.2 CEO Authorization (completed), initial budget.
- 1.3 Define how the scope will be validated by the "Exploratory Team."
- 1.4 Create Scope Management Plan.

2.0 Infrastructure & Security - Addressing “Resistance Risk”:

- 2.1 AWS Cloud Environment Setup.
- 2.2 Neo4j Knowledge Graph Instance Provisioning.
- 2.3 Legal & IP Compliance Audit.

3.0 Core AI Development:

- 3.1 Define DE-ML (Description Extractor Markup Language) Syntax.
- 3.2 Develop RAG Ingestion Pipeline.

4.0 Interface & Client Integration

- 4.1 IDE Plugin Development (VS Code):
    - 4.1.1 Authentication Module (LDAP/SSO).
    - 4.1.2 Context Menu Actions (“Explain Code”).
    - 4.1.3 Inline Comments Renderer (Ghost text).
- 4.2 Architecture Visualization Mapper:
    - 4.2.1 Graph Rendering Engine (Frontend).
    - 4.2.2 Interactive Navigation (Click-to-Expand).

5.0 System Integration & Build

- 5.1 RAG Pipeline Integration: Retriever-Generator Link logic.

- 5.2 Description Extractor Integration: Parser-Database Hook.
- 5.3 Security Integration: PII Redaction Layer (Satisfying Security Lead requirements).

WBS Integration

The WBS goal is to control and validate the scope. It integrates within the project management process by breaking down the scope into works; for example, the “Infrastructure & Security” processes are separated into three different scheduled work sessions. By integrating with the Project Environment, it identifies environmental variable constraints, and it ensures that the security requirements (demanded by “Resistant” stakeholders) are addressed and implemented, rather than just being treated just has external constraints. It prevents Scope Creep and Gold Plating by clearly defining each work; for example, by limiting the “Interface & Client Integration” Project Codebase to be strictly a VS Code Plugin, excluding unapproved features such as being a browser plugin. It integrates with the project management process by aligning its work definitions with Omega.py System for Value Delivery; for example, by prioritizing the “Core AI Development” work phase to ensure that the Project Codebase end product will be a useful tool for software development, delivering the intended value of converting software engineering efficiency into financial gain.

References

Ucertify (n.d.). Lesson 6: Project Scope. Project Manager Professional (PMP) Based on PMBOK7. Ucertify. ISBN: 978-1-64459-415-5

Ucertify (n.d.). Lesson 7: Project Schedule: Project Scope. Project Manager Professional (PMP) Based on PMBOK7. Ucertify. ISBN: 978-1-64459-415-5