CHAPTER 5

SOLUTION IMPLEMENTATION

5.1 Implementation Strategy

The Deliverable Structure Chart of the ELO KMS project shows the overview of the projects plan from initiation to closing in the following diagram:

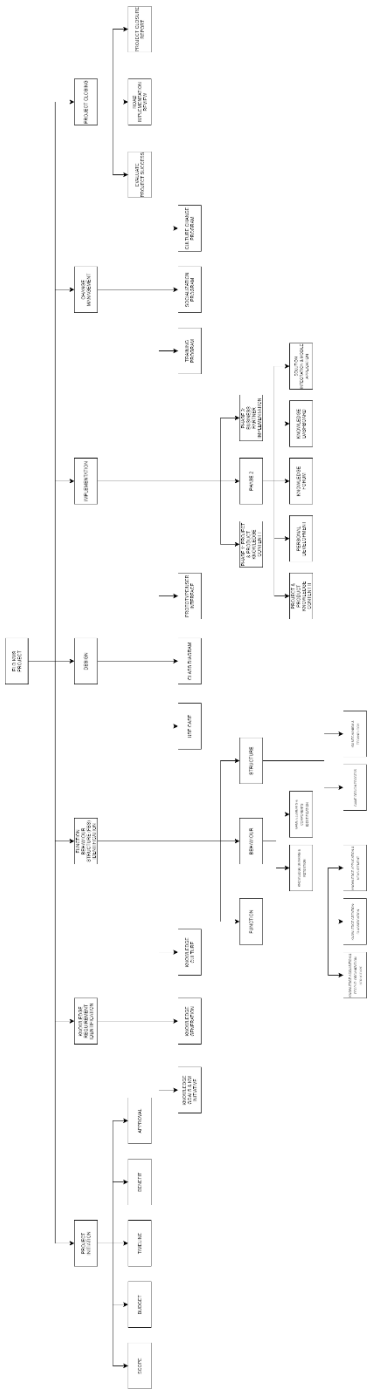

Figure 5.1 - Project Deliverable Structure Chart

It starts with the project initiation in which the scope, budget, timeline, benefit, and approval is defined. Followed by the knowledge requirement, function-behavior-structure identification, and system design as elaborated in the project methodology. Continued by the implementation stages planned for the which are divided into three phases as follows:

Table 5.1 - Implementation Phase

Phase	Implementation Stage	Features Included
1: Knowledge Content Management	Project and Product Knowledge Content, I	• Knowledge classification and ontology of Project, Product and Use Case Standard Operating Procedure, Rules and Regulation Documentation in the Content Management System • Knowledge Workflow processes for implementation stage 1 and 2
2: KMS Application and Gamification	Project and Product Knowledge Content II	• Product Information Navigation • Project Workspace and Content Dashboard
	Personal Development	• Employee knowledge matrix as a performance indicator for personal development • Learning path-based courses of product • Training program for project and product • Game-based missions on project and product use cases • Mentoring Program • Webinar Session • Game element incorporation to user activities
	Knowledge Forum	• Sharing based forum for question and answer between users
	Knowledge Dashboard	• Management dashboard of knowledge evaluation • Personal dashboard for user evaluation
	Mobile Application & Solution Integration	• API integration between ELOenterprise and the web based KMS application • Development of the package solution as a mobile application
3: Expansion	Implementation to Business Partners	• Release application for existing Business Partners of ELO Indonesia in the Asian Region

The project is conducted through an agile method thus analysis, design, development, testing until the go-live of the project is done for each implementation phase. The implementation timeline is defined as follows:

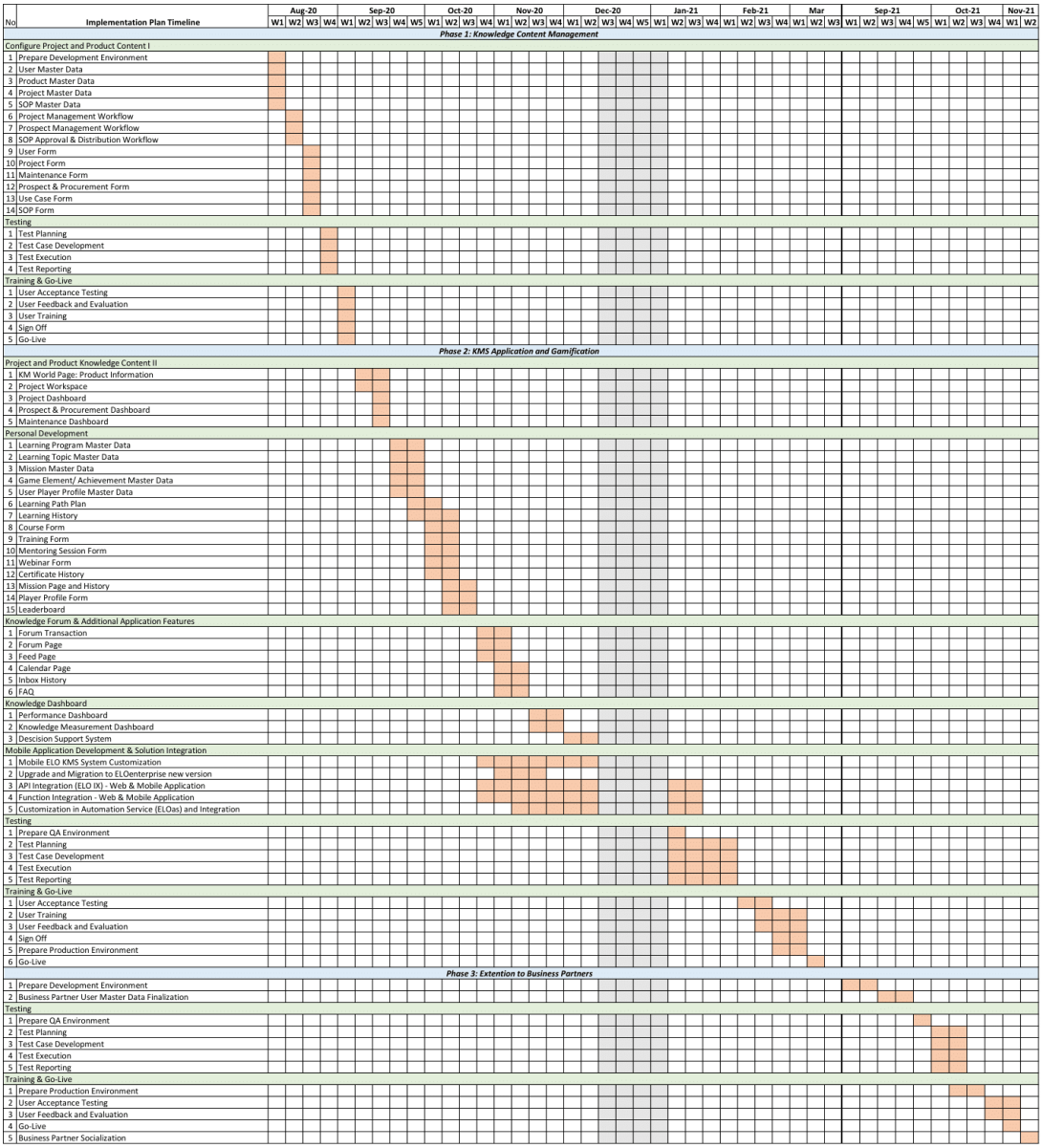

Figure 5.2 - Implementation Timeline

1. Phase 1: The phase will be done for 5 weeks from the August 2020 which involves the creation of the master data, workflow, and form in the content management software (ELOenterprise) for the project and product knowledge required.
2. Phase 2: After the first phase completion, the development for the web application on the additional project and product knowledge, personal development, forum, and dashboard with gamification components will be done for three months in parallel with the mobile application development. Before integrating the

application and the content management system (ELOenterprise), the system is to be upgraded and migrated to the next version to be released in October 2020.

3. Phase 3: Implementation to Business Partners

   The last phase is planned to be released to the business partners and resellers for their training and product or project inquiries in the following year, after the KMS system is evaluated internally.

Change Management is conducted after the implementation of the knowledge management system. The main purpose is not to help the users to be prepared in using the system, however it is to shift the culture and behavior of people in the organization to adapt to a new knowledge-centered general, specific and cross-cultural organization culture. Applied methods of change management is done throughout each phase and after completion of the project implementation by the following activities:

1. Training Program:

   After implementation of the of the knowledge management system, trainings will be conducted to ensure that the users and admin will be able to use the application optimally as part of their daily operation for the employees of ELO Indonesia divided into the following trainings:

   a. Admin Training

      The selected admin for the ELO KMS and the IT Admin will be the ones who are required to join the training first as they will be managing the contents and permissions of the system. They will be provided with the materials needed during the training, materials to train the employees, and for support when a help request is sent through the system.

   b. Employee Training

      Employee trainings will be conducted in shifts which will be done per department and be trained by the admin who have previously completed the training. Set schedule will be arranged, however, if the user is unable to attend to the training session, they can make up and register to a next session by joining other users.

   c. Management Training

      Management will be required to train as well to be able to evaluate the users performance within the system, only the main management features will be focused during the training such as the dashboard and documentation area, and

the remaining features will be delivered in the training briefly unless requested for more detail.

The topic of the training will uncover the basic knowledge within ELO and ELO KMS, the objective of the initiation of the project, the description of tools and features available, and a roadmap for the knowledge management success. In all the training sessions for employees, the users will be provided a handbook or manual as an additional guidance reference to using the systems from the directory, rules, know-how on the features and explanation of symbols, buttons or keywords within the systems. All the trainings will be provided with a presentation, video clips and demonstration for the users to understand better through visualization and audio.

2. Socialization Program
    a. Internal Socialization

        For the socialization of the application after implementation, email notification on the features within the system will be internalized as well as an announcement on a regular basis and whenever there is an update on the system's features or an important notice within the ELO KMS shown as a link in the communication platform, Microsoft Teams.

    b. Business Partner Socialization

        While for business partners, guidance for the application can be referred to the help section, where they can communicate with the admin of the ELO KMS to be able to ask questions or help in the system.

3. Culture Change Program

    To further enhance the effectivity of the KMS from a dynamic process perspective of the organization cultural change, the activities planned in the program are categorized 4 components as follows:

    a. Result: activities realized by the top management
        i) Establish an overview of the knowledge organizational result in a dashboard for management to obtain detailed information based on the criteria in knowledge measurement from the user's contribution, engagement and activity, knowledge activity such as the graphical report representation of the number of projects that are turned to use cases and marked as best practice or lessons learned.

ii) Create condition for rewards for employees from the gamified KM functions in knowledge generation, acquisition, creation, sharing, retention, and application within the system, in which for each activity category different level of achievement and punishment is obtained by the users, the initial level scheme is defined in the solution design but can be changed when required

iii) Ensure of information awareness is understood by the employees of the function in the system, achievement principles and impact to performance in the kick-off and socialization program

b. Confront: activities that stimulate the individuals in the organization through a constructive direction

i) Inform the employee on the importance on shifting to use the knowledge management system as a tool in project collaboration, obtaining product information, learning, and sharing during the training and kick off program

ii) Encourage users to be able to openly evaluate documented results, questions, or other users' contribution that is shared in their inbox or announcement that doing so will increase their points in the system

c. Assess: activities that relates to the assessment of the employees by management and co-workers

i) Evaluate user's engagement, contribution, learning, skill and social appraisal result by the management and peers that can is represented in the badges obtained in the ELO KMS

ii) Rank the activity results based on the weights of each component within the system in the following category order contribution, learning, engagement, social, and fun as reflected on the badges achieved.

d. Reward: activities that involves giving recognition and reward to the employees based on their criteria

i) Determine the achievement matrix and weight for each activity based on the category and overall participation to the system

ii) Give appraisals and recognition to top achievers in the system

iii) Distribute reward levels by different role groups and department to employees who are participating in the system. The higher the engagement, contribution, and participation, the higher the reward.

iv) Add the gamified reward result in engagement, contribution, learning, fun and rewarded appraisals from the employee's individual account in the KMS as a criterion in their personal performance indicator

Project Closing is last stage of the entire project phase, in which users would have confirmed the evaluation conducted for the system and ensure it has met the requirements within the project scope.

5.2 Project Requirement

As part of the implementation strategy for the project, several project requirements in hardware, software, and connectivity should be fulfilled.

5.2.1 Hardware

To be prepared for the implementation, the following are the hardware requirements for this project:

Table 5.2 - Hardware Specification

No	Hardware Required	Description	Min. Specification
1	VPN Server	The server used to ensure that users are connected to the system through a private network by enabling the hosting and delivery of VPN Services.	a. Processor: 2.4 GHz or faster b. Built in switch
2	Web Server	This server is dedicated for the knowledge management web application by processing the incoming network requests over the HTTPS protocol.	a. Processor: 4 GHz or faster b. Memory: 16 GB c. Storage: 500GB
3	Application Server	This server is dedicated for the application for ELO.	a. Processor: 4 GHz or faster b. Memory: 16 GB Storage: 500GB
4	ELO Server	This is the standard server required for the installation of the ELO application	a. Processor: 16 GHz or faster b. Memory: 32 GB c. Storage: 1TB
5	ELO IX Server	This server is a part of the standard integration module in ELO for the content management system to be able to be embedded to the design ELO KMS system.	-

No	Hardware Required	Description	Min. Specification
6	iSearch and Storage Server	The server dedicated for the system's storage and search functionalities as the application in the ELO KMS would involve metadata and content searching.	a. Processor: 4 GHz or faster b. Memory: 16 GB c. Storage: 3 TB
7	Backup Server	This server is used to backup as part of the disaster recovery center (DRC) that would be readily accessible for users to obtain information in case of any abnormal situation that disrupt the company's operation.	a. Processor: 16 GHz or faster b. Memory: 32 GB c. Storage: 5TB

5.2.1.1 Software

Software requirements should be prepared as well to support the implementation of the project with the specification as shown in table 5.3 below:

Table 5.3 - Software Specification

No	Software Required	Description	Application Suggested
1	Standard Operating System	The operating system to management the computer's resources, both hardware and software, in which this case would be applicable and supported for the ELO Application.	Microsoft Windows Server 2019
2	Database	The relational database management system to store and retrieve data for the application designed and supported for the ELO Application.	Microsoft Windows SQL Server 2019
3	ELO Client	Web and mobile client for the users to access and the java (desktop) client for the admin to administer settings for the ELO KMS and ELO Application	ELO ECM Suite 12 – ELOenterprise
4	ELO IX Client	The integration user client as part of the standard integration module in ELO with automation functionality and API services.	ELO Index Server 12
5	Firewall	This is required to prevent unauthorized web users from accessing the system's application through the private network.	1 GHz, 32-bit (x86) Pentium Dual Core processor or equivalent. 2 GB RAM 5 GB Hard disk storage
6	Standard Business Application	The standard office application used to be able to open, edit and manage documentation stored in the content management system.	Office 365
7	Meeting Application	To be used for communication requirements for operational use and within the knowledge management system	Microsoft Teams, Zoom

5.2.2 Network Diagram

The server infrastructure is design for both the web application and the ELO ECM Suite application. The ELO KMS' server and storage will be in cloud while the application infrastructure for ELOenterprise is on-premise. Thus, the project will be implemented with a hybrid infrastructure. The application and data will be accessible by authorized users, employees, and business partners, through their laptops or mobile devices. In the building of the main office located in Tangerang and the branch located in Jakarta, the employees will be able to access the application with their devices or computers. Disaster recovery center for backup is also prepared with the server, firewall, and database, to prevent data loss from application malfunctions, virus, force majeure, or other causes for system failure. Zero tolerance down time rate will be ensured for the system's design so that the application can be accessed at any time or anyplace. Access for information to the application will go through VPN to ensure the security of the system and the confidentiality of information. The figure 5.4 below shows the simple network diagram for the project:

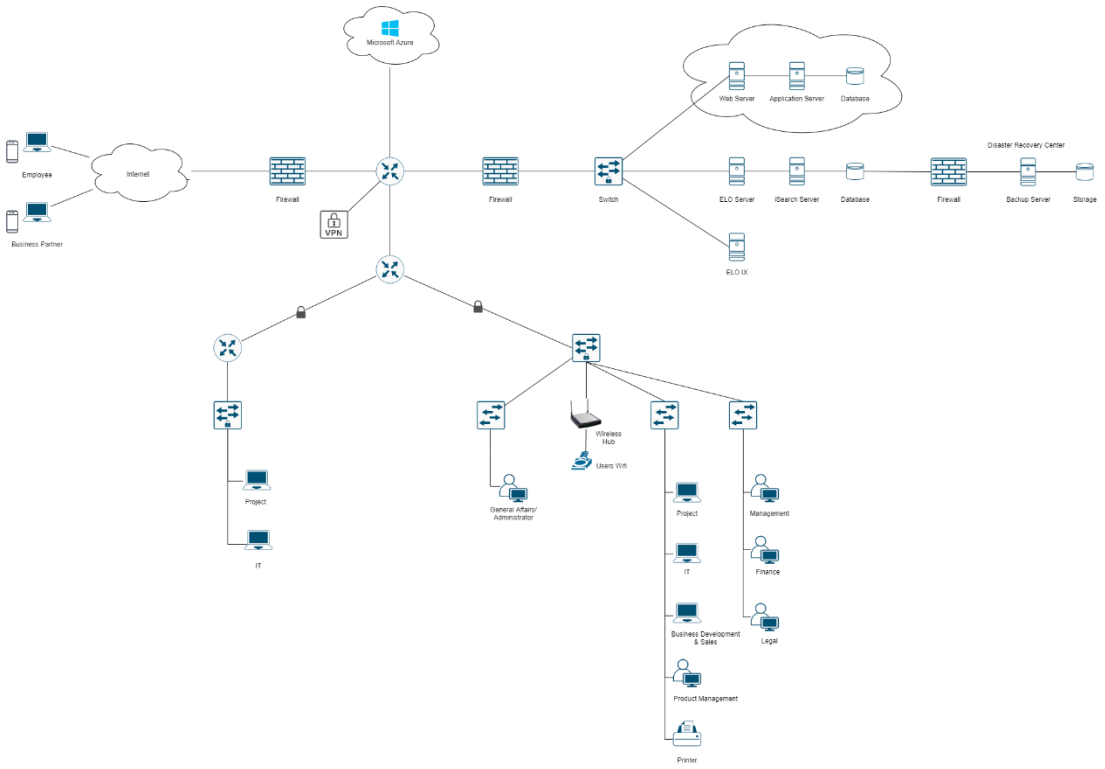

Figure 5.3 – ELO KMS Network Diagram

5.2.3 Integration Solution Design

For the project's implementation, the infrastructure, application, and platform shall be prepared as part of the requirement. This includes the integration requirements of ELO Indonesia's existing application, ELOenterprise, ELO Forum Business Solutions with the constructed Knowledge Management Web-based system. The following figure 5.4 shows an overview requirement for the integrated solution design:

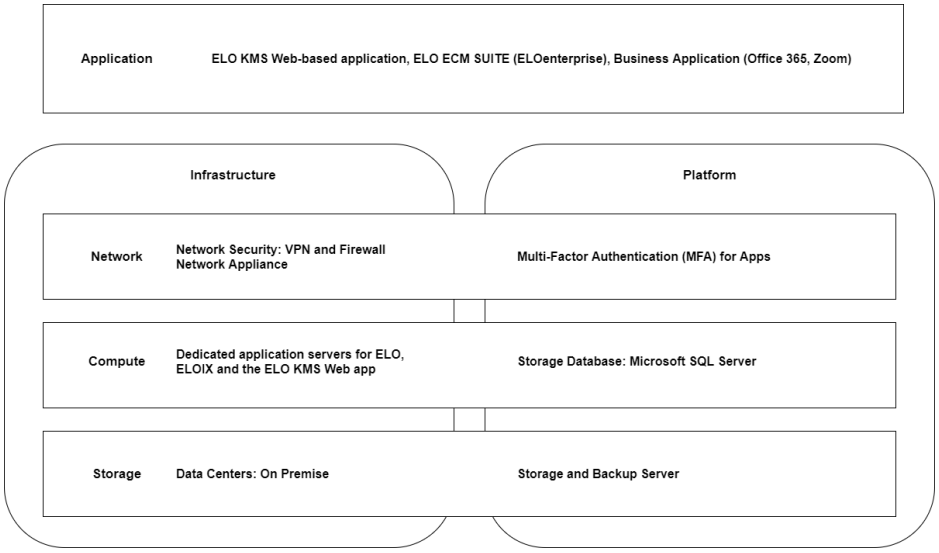

Figure 5.4 - Integrated Solution Design

Integration between the created ELO KMS web application and the ELOenterprise will be handled by the ELO Index Server (ELOIX) module. ELOIX provides the web service function in which the ELOenterprise application is based on this API and the REST service. the API can be accessed via SOAP or proprietary binary protocol. The following figure 5.5 shows the overview of integration with ELOIX of the ELO KMS and ELOenterprise system:

Figure 5.5 - Application Integration