# SWE 387

## Software Project Management Plan (SPMP)

The document in this file is an annotated outline for specifying Software Project Management Plan, adapted from the IEEE Standard for Software Project Management Plans (Std 1058-1998) and from other online resources.

Tailor this to your needs, removing explanatory comments as you go along. Where you decide to omit a section, you might keep the header, but insert a comment saying why you omit the data.

# Project Plan
# for
# <MyInventiry web-app>

<Team., 6>

<1.2>

<12/16/2022>

# Document History and Distribution

## 1. Revision History

| Revision # | Revision Date | Description of Change | Author |
|---|---|---|---|
| 1.0 | 10/2/2022 | Initial Document sections 1 - 3 | Team 6 |
| 2.0 | 10/25/2022 | Added sections 4 – 5.5 | Team 6 |
| 2.1 | 11/1/2022 | Modified sections 1 - 3 | Team 6 |
| 2.2 | 11/15/2022 | Modified sections 4 – 5.5 | Team 6 |
| 3.0 | 12/8/2022 | Added sections 5.6 - 7 | Team 6 |
| 3.1 | 12/15/2022 | Modified sections 1 - 7 | Team 6 |

# Contents

# 1. Overview

myInventory aims to provide a comprehensive solution for small and medium businesses to manage their inventory and logistics. The application will allow users to create and manage to-do lists, shipments, invoices, and automatic tasks, as well as monitor the progress of shipments and manage carriers and land logistics entities. It will also provide features for carriers and land logistics entities to register with logistics providing agencies and manage requests and shipments.

The project was inspired by the challenges faced by small and medium businesses during the COVID-19 pandemic, particularly in the areas of logistics and inventory management. Many small and medium businesses do not have specialized teams for these tasks and may find it difficult to manage them effectively. myInventory aims to address this need by offering a user-friendly application that can streamline these processes and make them more efficient. The project is targeted at small and medium businesses such as family restaurants and small startups.

# 2. Goals and Scope

## *2.1 Project Goals*

One of the goals of is to make myInventory app share 10% of the market in the first year and in an increasing rate of 7% each year. The app services will be provided in first on web browser, then on the mobile operating systems such as Android & IOS in the second year of the application.

Since the application will focus only on small and medium family businesses, it comes up with some features that will make the management processes typically easier for these types of groups. The features of the application will allow the users to manage and control their business from four aspects:

1. Logistic Clerk:
    a. Create and manage:
        i. To-do lists
        ii. Different types of shipments
    b. Consolidate and split shipments based on different criteria including costs, destination, etc.
    c. Produce invoices that incorporate charges from several shipments.
    d. Create automated tasks for various sorts of shipments.
    e. Track the progress of shipments as they travel through various phases; “pending job”,
    f. “Confirmed bookings“, “open job”, and “closed job”.
    g. Add, modify, and delete carriers.
    h. Manage and send AWB & eAWB (electronic Air Way Bill)
    i. Automate the creation and distribution of customizable shipment documentation through email.
    j. Being able to:
        i. reuse existing shipment data.
        ii. import shipment data from external sources.
    k. Add, modify, and delete land logistics entities.

2. Carriers:
    a. Register with logistics service providers.
    b. Accept, edit, and manage
        i. eAWB
        ii. requests received
    c. Update the status of accepted shipments.

3. Branch offices:
    a. Being able to send and receive shipment data & statuses between
        i. Origin
        ii. destination offices

4. Land logistics entities:
    a. Register with logistics service providers.
    b. Accept, edit, and manage
        i. AWB
        ii. requests received
    c. Update the status of accepted shipments.

## *2.2 Project Scope*

### 2.2.1 Included

- Processing shipment data
    - Involves adding, changing, and deleting the shipment's status, shippingaddress
- Creating shipment data
    - Mainly used for new shipments, merging shipments, and splitting shipments.
- Programmable automation system
    - Used for creating automation tasks for multiple types of shipments.
    - Automatically generate customizable shipment documents and send them
- Integration with external carrier services
    - Calculate shipping cost and time of delivery from a selected carrier.
- Processing electronic Air Way Bill data (eAWB)
    - Grants the ability to send and manage eAWBs.
- Importing shipment data from outside the system
    - Import shipment data
- Integration with logistics providing agencies
    - Grants the ability to register with logistics providing agencies

### 2.2.2 Excluded

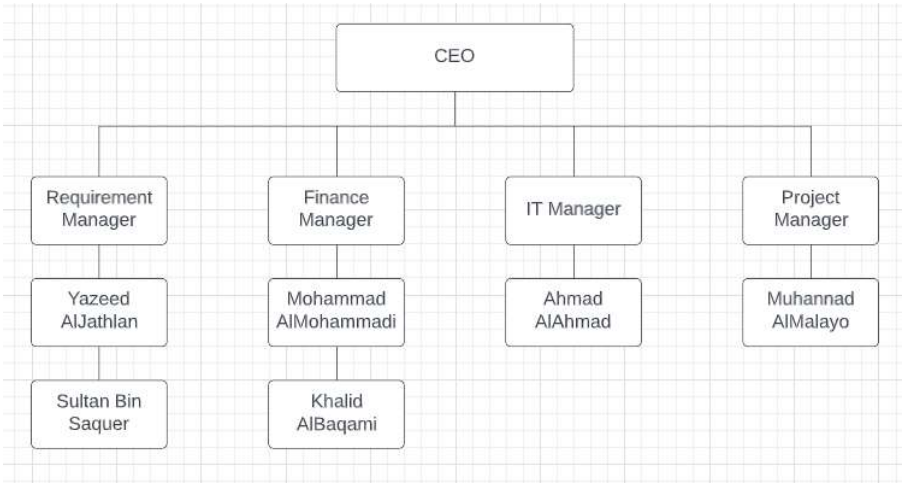
- Creating and managing to-do lists by a third-party app is excluded.
- Logging in the web-based application ("myInventory") via KFUPM authenticationsystem is excluded.
- Updating the status of accepted shipments in seconds is excluded.
- *Sending eAWB (electronic Air Way Bill) data to selected carriers via private domain(example@myinventory.com) is excluded.*
- *Merging two accounts into one in the app is excluded.*
- *Consolidate shipments item wise is excluded.*

## *2.3 References*

Project_Guidelines_221, 9/18/2022, King Fahad University for Petroleum & Minerals

# 3. Project Organization

## *3.1 Project Organizational Structure*

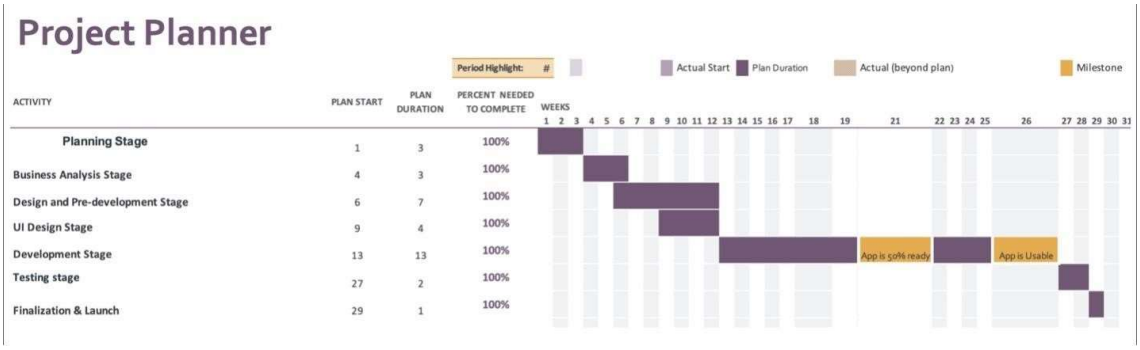



### 3.1.1 Project Team

| Team member | Role | Involvement duration (# of months) | Comment |
|---|---|---|---|
| Khalid Albaqami | Finance manager | 1 | - |
| Mohannad Almalayo | Project manager | 2 | - |
| Ahmad Alahmad | IT manager | 1 | - |
| Mohammad Almohamadi | Finance manager | 2 | - |
| Sultan Bin Saqer | Requirement manager | 1 | - |
| Yazeed Aljathlan | Requirement manager | 1 | - |

# 4. Schedule and Budget

## *4.1 Schedule and Milestones*




**1.1. Planning Stage**

1.1.1. Communication Management Plan
1.1.2. Resource Procurement and Management Plan
1.1.3. Scope Development
1.1.4. Risk Management Plan
1.1.5. Quality Management Plan
1.1.6. Budget
1.1.7. Scheduling
1.1.8. Document Change Control Processes

**1.2. Business Analysis Stage**

1.2.1. Evaluate Existing Processes

1.2.1.1. Document All Existing Users and User Roles
1.2.1.2. Regulatory Compliance
1.2.1.3. Audit Control
1.2.1.4. Reporting
1.2.1.4.1. End User
1.2.1.4.2. Management
1.2.1.4.3. System Administrative / Technical
1.2.1.5. 3rd Party interconnects

1.2.2. Evaluate Legacy Application(s)

1.2.2.1. 3rd Party Interconnects
1.2.2.2. Evaluate Legacy Data

1.2.3. Define New Business Rules
1.2.4. Define New Workflow
1.2.5. Define Specific UI Requirements
1.2.6. Define Specific Technology Requirements
1.2.7. Requirements Documentation

**1.3. Design and Pre-development Stage**

1.3.1. Functional Specifications

1.3.1.1. Process Models
1.3.1.2. User Interface
1.3.1.3. nTier Logic
1.3.1.4. Database Model

1.3.2. Technical Specifications

1.3.2.1. Platform Specifications
1.3.2.2. Development Language Specifications

13.3. UI Design
1.3.4. Client Signoff

**1.4. Development Stage**

1.4.1. Create Code Design Document

1.4.1.1. Define Features Included in Each Release

1.4.2. Implement Code Control System
1.4.3. Setup Development Environment
1.4.4. Code Development

1.4.4.1. Release Testing
1.4.4.2. Bug Fixes

**1.5. Testing Stage**

1.5.1. Test Environment Setup
1.5.2. Test Plan
1.5.3. Unit Testing
1.5.4. UAT
1.5.5. Results Reporting

**1.6. Finalization and Launch**

1.6.1. Production Data Migration
1.6.2. Operations Switch Over
1.6.3. Documentation

1.6.3.1. End User Documentation
1.6.3.2. Application Administration Documentation
1.6.3.3. System Administrator Documentation
1.6.3.4. Disaster Recovery

1.6.4. Training

1.6.4.1. End User Training
1.6.4.2. System Administrator Training

## *4.2 Cost and Budget*

### 4.2.1 Cost estimation

123000 SAR

### 4.2.2 Budget

| Category | Budget for Period in SAR | | | | | |
|---|---|---|---|---|---|---|
| | Months | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Human Resources | 15000 | 13000 | 11000 | 9000 | 9000 | 9000 |
| Purchases | 2000 | 2000 | 2000 | 1000 | 1000 | 1000 |
| Training | 32000 | 10000 | 5000 | 1000 | 0 | 0 |
| … | | | | | | |
| Total | 49000 | 25000 | 18000 | 11000 | 10000 | 10000 |
| **Total cumulated** | **123000** | | | | | |

# 5. Management Plans

## *5.1 Integration Management*

### 5.1.1 Configuration Management Plan

Jira and Bitbucket will be initially used. Jira provides all the solutions in one place and can be integrated with other DevOps tools, if needed. Bitbucket will handle the releases and control the configurations using the pipelines feature.

### 5.1.2 Change management plan

Both the requirements manager and the project manager have the authority to approve any changes to the project. However, only the project manager will be able submit any changes to the project after the approval.

### 5.1.3 Delivery Plan

| # | Deliverable | Planned Date |
|---|---|---|
| D1 | Initial Design | 2/13/2023 |
| D2 | Shipment Management System | 2/27/2023 |
| D3 | Integration with Carrier Services | 3/7/2023 |
| D4 | Admin Hierarchy System | 3/16/2023 |
| D5 | Working Prototype | 4/5/2023 |

## *5.2 Scope Management Plan*

| Name | Role | Responsibilities |
|---|---|---|
| Muhannad AlMalayo | Project manager | • determine and document project scope<br>• secure sign off<br>• oversee change control |
| Ahmed Alahmad | Change Controller | • manage change control process<br>• coordinate evaluation of change requests |

| | | |
|---|---|---|
| | | • organize change control meetings<br>• communicate and document outcomes of change requests<br>• update project document upon approval of all scope changes |
| Yousef Hassan | Project Sponsor | • Formal acceptance of project scope statement<br>• Baseline chair panel to assess change requests<br>• Formal acceptance of products |
| Khalid Albaqami | Workstream A team Leader | • recommend scope baseline and specifications for workstream a<br>• evaluate the impact of scope change requests for workstream a<br>• communicate outcomes of scope change requests to team |
| Mohammad AlMohammadi | Workstream A team Leader | • contribute to scoping<br>• contribute to scope change impact assessments |

| change process | Name | Role/s |
|---|---|---|
| Initiation | Khalid Albaqami, Yousef Hassan | Workstream A team Leader, Project sponsor |
| *Evaluation* | *Ahmed Alahmad, Mohammad AlMohammadi* | *Change Controller, Workstream A team Leader* |
| *Documentation* | *Ahmed Alahmad* | *Change Controller* |
| Authorization | Muhannad AlMalayo | Project manager |

## *5.3 Procurement Management Plan*

Statement of work (SOW)

I. Scope of work: MyInventory will need to use medium sized databases to store the data for each user and give them some functionalities to manipulate the data. Hence, things be bought are:
   - Servers
   - Database management system (software)

   And these items will be bought from a supplier that provides both of them in one integrated system. And the supplier is the one who will be responsible for the maintenance. The team that will be responsible for database should be trained to be applicable to use the system.

II. Location of work: Both software and hardware will be in our data center where also the employees can perform their job directly in our offices.

III. Period of performance: The work will start before the web launch by 40 and it ends after 20 days of the start, it will need nearly 160 billed work hours of online meetings, evaluations, shipments, training, and integration

IV. Deliverable schedule

| Work | Hours needed |
|---|---|
| Online meetings | 16 |
| Evaluating proposals | 24 |
| Acquiring shipments and build the system | 56 |
| Training | 32 |
| Integrate the web and the database | 32 |

V. Applicable standards: The company must have ISO 9001

VI. Acceptance criteria: The company must be experienced in databases management systems and have at least 5 years of experience and previous projects.

VII. Special requirements: The trainers must have at least 3 years of experience, and has oracle database certificate.

## *5.4 Schedule Management Plan*

5.4.1 Management Approach

The purpose of this schedule management plan is to establish the criteria and the activities for developing, monitoring, and controlling the project schedule. When this plan is approved, no schedule changes will be permitted unless a request for change is processed in accordance with the procedures set forth in the change management plan. The project manager will assume overall responsibility for schedule management. The people listed below will assume the following schedule management responsibilities:

5.4.2 ROLES AND RESPONSIBILITIES

| Names / Roles | Responsibilities |
|---|---|
| Project Manager | Planning and monitoring the project, create team, resolve conflicts, solve issues, manage resources. |
| Project Sponsor | Provide approval and funding, be accessible and approachable, encourage recognition, making key decisions for the project. |
| Project Team Lead | Resolve conflicts, set team members responsibilities, make decisions, |
| Project Team Members | Contributing to the overall project objective, complete their tasks within time and budget, teamwork, |
| Project management Scheduler | Planning schedule management, defining activities, Developing the schedule, Controlling the schedule |
| Project Stakeholder | Identify project constraints, naming project risks, giving feedback |
| Project Business analyst | Define project, establish project goals, document technical requirements |

5.4.3 Scheduling Tool and Method

In this project we will use notion tool, and we will plan for this project using the critical path method (CPM). The critical path method calculates the minimum project duration and determines the amount of scheduling flexibility on the logical network paths within the schedule model.

## *5.5 Cost Management Plan*

The PM (scrum master) is responsible for managing project costs with the corporate's accountant. While the corporate accountant is the only one authorized to issue budget changes.

To measure the performance of spendings we have developed the monthly budget chart which allows us to compare actual monthly costs to planned costs. We will be monitoring the accuracy of planned costs using the costs performance index.

## *5.6 Quality Management Plan*

By fulfilling all of the deliverables that the application's users have requested, we will ensure the project's quality. To ensure proper quality control and the use of the supplied tools, such as control sheets and flowcharts, we will also give acceptance decision, rework, and process adjustments. The testing engineer and team are in charge of ensuring that the program complies with specifications.
These elements are mentioned in the quality management plan:

1. Project processes and deliverables:
The major objective of this portion is to please the user when using the application. We also need to ensure that everything goes as planned and that as we update, there are fewer bugs.

2. Quality Control Activities:
We must ensure that everything complies with the organizations and the general standards.
Next, we must ascertain whether stockholders are satisfied (we should control as the customer need if customer need high efficiency, we need to control this by applying some steps)

3. Requirements for Product Quality:
In order to ensure that the final result will satisfy the
needs of the customer; we must deliver and evaluate our work against standards.

4. Quality Assurance Activities:
Because we are using the Waterfall methodology, we may take measures at each phase to verify that the quality is met, thus we need to make sure that what was planned for quality by standard and customer will be done.

## *5.7 Resource Management Plan*

At A~, resource allocation is especially important because our developers and other specialists often work on several projects simultaneously. We make sure to use the best practices of resource allocation in software project management at our company**.**

**Resources needed:**

- Project manager
- Business analyst
- UI/UX designer
- Visual designer
- Lead engineers
- Senior engineers
- Junior engineers
- Web developer
- Mobile developer (or frontend developer)
- Quality assurance specialist
- Manual testers
- Automation testers

| Resource | Activities That Need The Resource | Total Duration |
|---|---|---|
| Project manager | All | 33 Weeks |
| Business analyst | Business analysis stage | 3 Weeks |
| UI/UX designer | Design and Pre-development Stage, UI Design Stage | 11 Weeks |
| Visual designer | Design and Pre-development Stage | 7 Weeks |
| Lead engineers | Development Stage, Finalization & Launch | 14 Weeks |
| Senior engineers | Development Stage, Finalization & Launch | 14 Weeks |
| Junior engineers | Development Stage, Finalization & Launch | 14 Weeks |
| Web developer | Development Stage, Finalization & Launch | 14 Weeks |
| Mobile developer (or frontend developer) | Development Stage, Finalization & Launch | 14 Weeks |
| Quality assurance specialist | Testing Stage, Finalization & Launch | 3 Weeks |
| Manual testers | Testing Stage | 2 Weeks |
| Automation testers | Testing Stage | 2 Weeks |

## *5.8 Communication Management Plan*

- Reporting shall be in monthly bases
- The type of reports sent to managers shall be more abstract, and include progress information and phases of the project
- Reports shall be sent via emails and CC for those who are in interest
- Meetings shall be taken daily in context of discussing the progresses and challenges of the application
- Project manager will oversee communicating with the CEO

## *5.9 Risk Management*

**1. Planning risk management: deciding how to approach and plan the risk managementactivities for the project**

*i. Contingency plans: predefined actions that the project team will take if an identified risk event occurs*

*ii. Fallback plans: developed for risks that have a high impact on meeting project objectives, and are put into effect if attempts to reduce the risk are not effective*

*iii. Contingency reserves or allowances: funds included in the cost baseline that can be used to mitigate cost or schedule overruns if known risks occur*

*iv. Management reserves: funds held for unknown risks that are used for management control purposes*

**2. Identifying risks: determining which risks are likely to affect a project and documentingthe characteristics of each**

*i. Brainstorming*
*ii. Interviewing*
*iii. SWOT analysis*

**3. Performing qualitative risk analysis: prioritizing risks based on their probability and impactof occurrence**

*i. Probability/impact matrixes*
*ii. The Top Ten Risk Item Tracking*
*iii.Expert judgment*

**4. Performing quantitative risk analysis: numerically estimating the effects of risks on projectobjectives**

*i. Decision tree analysis*
*ii. Simulation*
*iii. Sensitivity analysis*

**5. Planning risk responses: taking steps to enhance opportunities and reduce threats to meetingproject objectives**

i. response strategies for negative risks
1. *Risk avoidance: eliminate risk causes (use an old version that works)*
2. *Risk acceptance*
3. *Risk transference*
4. *Risk mitigation: reduce the impact of the risk by reducing the probability of the risk*
5. *Risk escalation*

*ii. response strategies for positive risks*
1. *Risk exploitation: do whatever to make sure the positive risk happens*
2. *Risk sharing: share the ownership of the risk with other party*
3. *Risk enhancement: changing the size of the opportunity*
4. *Risk acceptance*
5. *Risk escalation*

6. **Implementing risk responses: implementing the risk response plans**

7. **Monitoring risk: monitoring identified and residual risks, identifying new risks, carrying out risk response plans, and evaluating the effectiveness of risk strategies throughout the life of the project**

| Responsibility of the risk management | | |
|---|---|---|
| name | Position | Risk to manage |
| IT manager | Ahmad Al-Ahmad | *No testing* |
| Project manager | Muhannad Al-Malayo | *Stakeholder delays project* |
| Finance manager | Mohammad Al-Mohammadi | *Business Case becomes obsolete* |
| Finance manager | Khalid Al-Baqami | *No clear budget constraints* |
| Requirement manager | Yazeed Al-Jathlan | *Missing requirements* |
| Requirement manager | Sultan bin Saquer | *Project scope not clear* |
| Director | Yosef Hassan | *Delayed project deliverables* |

## *5.10 Stakeholder project management*

| Name | Position | Internal/external | Engagement level | Desired engagement level | Project role | Interest | power | Contact information |
|---|---|---|---|---|---|---|---|---|
| Yusuf Hassan | Director | Internal | Leading | Leading | Senior manager, approve funds | High | High | yshassan@kfupm.edu.sa |
| Ahmad Al-Ahmad | IT manager | Internal | Supportive | Leading | Change controller | High | Low | s201969490@kfupm.edu.sa |
| Muhannad Al-Malayo | Project manager | Internal | Leading | Leading | Project manager | High | High | 201915790@kfupm.edu.sa |
| Mohammad Al-Mohammadi | Finance manager | Internal | Supportive | Leading | Team Leader | High | Low | s201971510@kfupm.edu.sa |
| Khalid Al-Baqami | Finance manager | Internal | Supportive | Leading | Team Leader | High | Low | s201934770@kfupm.edu.sa |
| Yazeed Al-Jathlan | Requirement manager | Internal | Supportive | Leading | Team member | High | Low | s201969010@kfupm.edu.sa |
| Sultan Bin Saquer | Requirement manager | Internal | Supportive | Leading | Team member | High | Low | S201662600@kfupm.edu.sa |
| Muath Al-Majed | Software engineer | Internal | Neural | Leading | Team member | Low | Low | 201818540@kfupm.edu.sa |
| Yazeed Al-taweel | consultant | External | Supportive | Supportive | Project consultant | High | High | Yazeed@gmail.com |
| Salman Al-robie | Supplier | External | Unaware | Supportive | Supply software | Low | High | Salman@gmail.com |
| Zyad Al-Harthi | VP of operations | Internal | Neural | Leading | Project sponsor | Low | High | Zyad@gmail.com |
| Bader Al-Masud | Supplier | External | Supportive | Supportive | Supply hardware | High | High | Bader@gmail.com |
| Abdulrahman Al-khalid | Investor | External | Unaware | Leading | Project sponsor | low | High | Abdulrahman@gmail.com |

### 5.10.1 Risk Register

| No. | Risk | Description | Root Cause | Triggers | Risk Owner | Probability | Impact |
|---|---|---|---|---|---|---|---|
| 1 | Delayed project deliverables | the project not being completed on time | Waterfall method | changed requirements | Project manager | Medium | Low |
| 2 | Business Case becomes obsolete | changes that make the project not needed happen | No well-defined contract | Stakeholder vision change | Project team | Low | High |
| 3 | Stakeholder delays project | Stakeholder delays the project | no project priority | Other project more important takes priority | Project team | Medium | Low |
| 4 | unexpected events and disasters | A natural disaster happens | weather | unknown | Everyone | Low | Medium |
| 5 | Teammates leaving development | A member stops working on the project | Change in motivation | a change in a member's life | Project team | Low | Medium |
| 6 | Missing requirements | needed requirements aren't available | Miscommunication | Requirement Engineer not collecting info | Project manager | Low | Meduim |
| 7 | Miscommunication of a feature | team members are not clear with each other | members not asking each other for needed info | info exchange outside of meeting | Project members | High | Medium |
| 8 | Project scope not clear | the deliverables of the project are not documented well | Missed points when writing scope statement | error when collecting requirements | Project manager | | |
| 9 | Quality not up to standard | quality is not up to the stakeholder's requirement | unclear requirements | error when collecting requirements | Project team | Medium | High |
| 10 | No testing | the product is not tested enough before deployment | no clear plan for deployment | testing not included in the plan | Stakeholders | Low | High |
| 11 | No clear budget constraints | the cost of the project is not well evaluated | no proper planning | Requirement Engineer not collecting info | Project Manager | Low | High |

# 6. Development Process

Agile was chosen due to the unique nature of the project. The team has not worked on a project that involves managing packages before. Additionally, the team is most comfortable with agile, as most of the project management tools incorporate Kanban and Scrum. As a result, the project will need the stakeholders to work closely together, which makes the waterfall approach unfeasible.

# 7. Abbreviations and Definitions

CPM: critical path method
SAR: Saudi Arabian riyal
UAT: user acceptance testing
AWB: air way bill
UI: user interface
UX: user experience
ISO: International Organization for Standardization
SWOT: Strength, weakness, opportunities, threats
KSA: Kingdom of Saudi Arabia