Internal Travel System (ITS)

Group Report

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| Course | ITEC 640 – Information Technology Project Management |
| Document | Group Project: Assignment #3 |
| Semester | Spring 2020 |
| Group # | 4 |

**Roles and Assignments**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Assigned Section | Internal Due Date | Est Hours |
| Brittany Kircher | Introduction | 03/24/2020 | 10 |
| Debashis Jena | WBS, Schedule Management Plan, Project Estimates, QA Plan | 03/24/2020 | 10 |
| Eugene Kim | Change Management Plan, Closeout plan, Execution deliverables | 03/24/2020 | 10 |
| Didimus Kimbi | Risk and Issue Management Plan, Communication Plan | 03/24/2020 | 10 |

**Internal Schedule**

|  |  |
| --- | --- |
| Deliverable | Due Date |
| Initial Draft | 3/15/2020 |
| Initial Draft Review | 3/17/2020 |
| Final Draft | 3/22/2020 |
| Final Draft Review | 3/24/2020 |
| Submission | 3/29/2020 |

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# **Introduction**

## **Project Description**

Silver Springs, LLC will embark on a journey to build an enterprise-wide centralized travel system to modernize its infrastructure, reduce overhead and travel costs, and create standard operating procedures. One modernization project that was conducted a year ago, the implementation of the enterprise-wide Office 365, has already proven to reduce overhead costs, standardize practices and procedures, and create interoperability within the company. Silver Springs, LLC will capitalize on this past success to build a next-generation travel system that will meet the organization’s needs for a secure, high-performing environment. The travel system will be implemented within the company by using Agile methodologies over the project lifecycle, which will enable the team to capture user stories and implement first-class technological solutions (Project Management Institute, 2017).

## **Project Scope**

### ***Project In-Scope Activities***

The internal travel system (ITS) will be built leveraging the newest Cloud technology. In-scope activities will include project management, design, validation, testing, and deployment. The end service intends to support business roles and functions for internal stakeholders. Activities in-scope focus on the necessary components required for a system build and maintaining scope throughout the project's lifecycle; each project artifact is tailored for ensuring effective management of project activities (Project Management Institute, 2017).

### ***Project Out-of-Scope Activities***

Out-of-scope activities for the ITS are activities that are included in other projects. ITS will not address these activities as they are products to be completed by other functional areas.

* Negotiating contracts for third-party usage within the ITS.
* End-user training once the system is in operation and maintenance.
* Reports for business best practices. While the ITS is built on the foundation of streamlining processes and saving costs, other projects will produce products intended to serve as guidelines.

### ***Project Dependencies***

The ITS project objectives are to provide an integrated, enterprise-wide system to be used by all internal stakeholders. The system will provide the company with the tools and resources needed to standardize, interoperate, and create best practices and procedures.

* Reduce duplication of efforts by providing a centralized system for all travel processing.
* Manage and secure information and data sets in a cost-effective manner.
* Provide access to functional areas to onboard employees, produce reports, etc.

## **Success Criteria**

The following are the minimum project success criteria to be considered an organizational enabler (Project Management Institute, 2018)

* Delivered according to the approved schedule, within budget, and with specified features and functions.
* Current employees have been onboarded in the system.
* Multiple active users can access information, run analytics and reports, and consume data as needed.
* ITS services are highly available and reliable to provide stability to the enterprise.
* The use of ITS reduces overall operating costs for the company.

## **Project Assumptions**

Significant assumptions identified by the team are:

* Third-party data will always be available for display within the user interface.
* Administrative records will be delivered to ITS for implementation into the system.
* Some modifications to information to administrative records such as user address, name, or phone number will be necessary to standardize data.

## **Project Dependencies**

Significant project dependencies identified by the team are:

* Acquisition of needed software and data.
* Identification and application of third-party software for booking flights, cars, hotels.
* Resources for internal stakeholders. The accounting team must have time to dedicate to producing a workflow and charge codes for invoicing and payments.

## **Project Constraints**

Significant project constraints identified by the team are:

* The project is constrained by the timeline for implementation before overhead costs for the company are overrun.
* The project is constrained by project and staff resources for internal stakeholders. The availability of these staff is critical for components of the system to be complete and accurate.

# **Managerial Plan**

As the project is defined above, ITS will a computer application which is intended to be used by the employees, accounting department and then an administrator. The current scope has a desktop-based application. This application will be an addition to the HR-related apps and will be a fixed budget project. The project will go through a traditional waterfall model with some specific activities which are elaborated below.

## **Work Breakdown Structure**

As the inception phase of the project is complete, the system architecture is created in the elaboration phase. Highly experienced developers and enterprise architects will get together to create the architecture of the application. Based on the architecture, the entire project requirement can be broken down into multiple submodules. The following figure shows activities and efforts for each of the development phases.

A screenshot of a cell phone

Description automatically generated

The project will go through the below phases as the WBS structure is laid out.

1. Stakeholder identification – This is one of the important phases, where the stakeholders, decision-makers or the key contacts are identified. Initial stakeholder meetings are done to discuss the high-level expectation of the project.
2. Requirements phase – The analysts and the business users meet frequently and have interviews to gather more feature level requirements. Joint Application Development (JAD) meetings are held to brainstorm what the best technical approach might be for meeting the customer's needs.
3. Design – This is a purely technical phase and has two parts.
   1. System and functional design – The system architect and developers meet to come up with application design. Data flow diagrams (DFD) and Context diagrams are created to create a visual representation of the system. A detailed design of databases with Entity relationship diagram (ERD) may be created.
   2. Test design – The quality assurance team gets together to plan for the testing of the application in each phase such as modular testing, integration testing and then system testing.
4. Implementation phase – ITS will consist of many components. Each of the components will be built separately and synchronously. They will be integrated into the later part of this phase.
5. QA and Acceptance phase – As each of the modules is built, they will be tested separately with some stubs in place. As they are integrated, each of the integration points is tested, followed by a full system test. As all high and medium severity defects are fixed, the application will go through user acceptance testing (UAT), which will take place in the customer's environment.
6. Deployment – The codebase will be deployed to the production system as the application passes the acceptance testing phase by the users or some of the stakeholders. Then a round of smoke testing will be done in the live environment.
7. Closing – This will be the final phase of the project, where the deliverables will be sent to the customer which will include a user manual and maintenance guide. The customer may deploy an internal team or the entire development team for maintenance or any further up-gradation of the application.

## **Schedule Management Plan**

ITS is a midsize project with many components and potential third-party integrations. The project plan and estimation will be complex. The project plan is based on a bottom-up approach. This approach essentially starts with the modular application development and then the system is built by connecting. The entire process will consist of a list of activities and milestones.

### ***Activity List***

Activities are defined as any task that is aligned to the only objective, that is the successful completion of the project. Each activity will be a scheduled phase in the project with a start and end date. It is not limited to technical tasks. Below is the list of activities that are performed in each of the phases during the development process.

1. Stakeholder meetings to define the scope of the project.
2. JAD meetings for requirement gathering.
   * Feasibility study
   * Requirement elicitation and analysis
     + Requirement Discovery
     + Requirement classification and organization
     + Requirements prioritization and negotiation
     + Requirements specification
   * Requirement specialization
   * Requirement validation
3. Procurement
   * Requirement management tools like JIRA or Trello
   * Salesforce for inbuilt user management and approval process management
   * Enterprise travel system API like TrekkSoft or TripAdvisor
   * AWS for API integrations, environments and external databases
   * Automation testing tool
4. Architecture meeting to create the system design
   * Architectural design
   * Interface design
   * Component design
   * Database design
   * Algorithm design
5. Implementation
   * Front end application to collect travel expense information
   * Travel expense approval process automation
   * Integration with payroll system
   * User admin creation
   * System authentication and authorization
   * Documentations
   * Unit tests
   * Planned releases to QA environment
6. Testing the application
   * Test plan creation
   * Test cases from requirements and use cases
   * Validation
   * Regression testing in every release
   * Defect documentation and retest
7. User acceptance testing
8. Deployment
   * Preparing production and staging (pre-prod) environment
   * Deployment to staging first and then to production
   * Smoke test in both the deployments
9. User training, closing
   * Creating user manual
   * User training sessions

### ***Milestones***

Each of the above activities is an essential and integral part of the project lifecycle. There are going to be a few major milestones across the project. There will be some internal milestones within each of the phases too, which are going to be managed by the leaders of the phase. For example, for the implementation phase to be completed before the scheduled time, the lead architect and the lead developer(s) will keep some internal milestones to be achieved for each of the activities. However, below are the project milestones at a high-level.

1. Requirements creation complete
2. Requirements and scope definition signoff and approval
3. Procurement complete
4. Design complete and approved
5. Implementation milestones

* Salesforce interface creation complete
* Approval process automation complete
* Integration with travel system APIs like TripAdvisor
* Integration with payroll system complete
* Other AWS backend jobs complete

1. Test plan complete and approved
2. Internal testing complete

* Individual component testing complete
* Integration testing complete
* System testing complete

1. UAT complete
2. User training complete

### ***Dependencies***

#### Logical Dependencies

#### ITS project will be based on some of the assumptions and dependencies. Since the ITS development project will follow the traditional methodologies, the tasks in the project plan will have a typical FS (Finish-to-Start) dependency amongst the tasks. As the phases of the process are inter-dependent, so as the preceding task within one phase is finished, the succeeding task can commence.

#### However, there may be some overlaps and synchronisms between a few tasks. For example, independent development tasks can be finished without being dependent on each other. Similarly, when the modules are completely developed, the module-specific testing can be performed, as the developers are working on the integration.

#### Resource Dependencies

#### Since the project is highly dependent on specific technical systems, the knowledge of it is vitally important. The skillful developers are big dependencies for this project.

#### Tools, platforms are another part of the resource-based dependencies.

## **Project Effort Estimation**

### ***Basis of Estimates***

As mentioned above, the bottom-up approach enables the estimation of each of the low-level efforts first, which will eventually aggregate to calculate the final project estimate. Therefore, creating the WBS upfront helps in estimating each of the modules. For example, in the above WBS, the system design phase consists of Architecture, system design, functional design, and test creation. "Design" as a whole, is a large activity and hard to estimate without a WBS. In this case, as each of the modules is estimated separately, that will constitute the phase level estimate. Similarly, as other phase level estimates are calculated the final project level estimate will be calculated.

The estimation is typically calculated with a man-hour unit. As mentioned above, the man-hour estimates will be gathered for each of the modules and then the final project estimates will be given with man-hour or man-days unit. As there is a time constraint, the project must have a plan to increase or decrease the number of resources and staff as required. It is highly recommended to have some buffer time for each of the module completion (Misutka, 2017). The ITS project will also utilize organizational process assets and lessons learned from previous projects to assist with project estimates.

## **Quality Assurance Plan**

ITS development project will be based on a combination of business and test-driven framework. The goal is to fulfill the customer requirements, therefore validation of the same is important. The acceptance criteria are assessed during this phase of the project.

### ***Approach***

Validation can be done during each phase of the development process.

#### Unit tests

#### It will be created to validate each of the modules and submodules.

#### Some of the modules will be test-driven development and would require a certain percentage of code coverage

#### Unit tests will be utilized for continuous integration and continuously deliver (CICD)

#### Integration tests

#### It will be done to verify the connections and other integration points.

#### Test tools such as Runscope or SoapUI will be used to automate some of the integration.

#### System tests

#### It may be performed by a dedicated Quality Assurance team.

#### Test cases will be written for each of the requirements and will be traced back to the requirement using a requirement traceability matrix.

#### Functional tests will be automated using a tool like Selenium.

#### UAT

#### It will be followed by the user acceptance testing done by a group of end-users.

#### After the UAT is finished in the development environment, it will also be performed in the live environment.

### ***Activities***

The major activities that may be performed during the QA phase are as follows.

#### The test cases will be extracted from the requirement and converted to executable steps and test data.

#### Both functional and nonfunctional tests will be performed to ensure the overall quality of the end product. Functional tests may cover the requirement validation, whereas nonfunctional testing is to tune the performance of the application.

#### Non-functional tests are as critical as the functional ones and may cover both load and performance aspects of the application.

## **Change Management Plan**

Change management ensures that the change is effectively managed on both the technical side and the people side (Prosci, n.d.). Proper change management is necessary to effectively deliver a project to completion by providing guidelines for stakeholders to utilize the changes introduced by the project.

Change management is a continuous process that takes in feedback from end-users to integrate into the project deliverables, and managing these change requests is also important to ensure that a project can accommodate the needs of stakeholders in the best way possible.

### ***Change Management Guidelines***

#### **Request Changes**

Change request guidelines refer to requests made to change project deliverables or direction. These guidelines outline how requests will be evaluated and affect the schedule.

|  |  |
| --- | --- |
| Project | * Project change Requests will go through the project manager and will be evaluated as necessary * Necessary changes are those that are required by the project to function. These can include policy updates or technical blockers * Changes that are improvements to user experience or functional improvement will not be considered but will be documented in the project closeout plan |
| Schedule | * Schedule changes will be addressed to the project manager and any relevant stakeholders * An online calendar will be used to track PTO, holidays, and any absences * Pending no change in the overall scope of the project, there will be no effect. * Failure to notify schedule changes may result in the delay of project deliverables |
| Requirements | * Requirement changes must be addressed to the project manager before implementation. * Requirements requests will be reviewed as necessary or improvements by technical leads * Requirements will be sized and prioritized accordingly by the technical leads |

#### **Approval Changes**

Project change approval guidelines are used after receiving a project change request. These requests will be subject to these guidelines when reviewed by the project sponsor

|  |  |
| --- | --- |
| Project | * + - Project change approvals must be made by the project sponsor and documentation must be sent out to the project team for visibility and transparency |
| Schedule | * + - Schedule approvals will be made by the project manager pending no change to the overall project delivery date     - If a delivery date is affected, the project sponsor will also need to approve |
| Requirements | * + - Same guidelines as project change approvals |

#### **Implementation and Tracking**

Project change implementation implemented in parallel to other work if possible. If the work is in the critical path of the project, it will be prioritized as soon as possible. All changes will be documented and shared out to at least the project manager and sponsor as well as any other stakeholders. Project Changes must be sent out to the entire project team. Schedule changes will be sent out to the project manager, sponsor, and technical leads. Requirements changes will be sent out to the project manager, sponsor, and relevant stakeholders involved with the requirement.

### ***Individual Roles and Responsibilities***

The project manager will handle project execution including creating the project schedule, milestones, and deliverables. His responsibilities include keeping track of project deadlines, milestones, and changes and acting as a liaison between technical leads and project sponsors.

Technical development leads to handle sizing and development of project deliverables and direct development teams towards building the final product. Technical leads will design the overall system and determine the scope of work.

The project sponsor handles the management and organization of the project. They ensure that project changes are in line with the project requirements and goals and work with other company stakeholders to ensure that proper budgeting and funds are in place for the project.

Other groups and stakeholders may be necessary to work with depending on the scope of the project. They should respond in a timely manner regarding any changes to the project.

## **Closeout Plan**

*Staff Reassignment*

* Contractors and staff on the project will be maintained to ensure ease of transition and future maintenance and upgrades on the system

*Archiving of Project Materials*

* Project materials and documentation will exist on Confluence, an online wiki tool, and SharePoint, a cloud document storage system for reference and review.

*Metrics Recording*

* After project completion, final metrics and project evaluation will be collected and provided to the project sponsor.

*Tracking Lessons Learned*

* Pain points and lessons will be documented throughout the project cycle and collected
* Feedback from the project team will be requested on their experience throughout the project cycle.
* All of these data points will be summarized and collected in a document to be shared on Confluence and stored on Sharepoint.

*Project Closeout Report*

* The project closeout report will include a review of the final requirements, an overview of the developed system, final metrics for success, pain points, lessons learned, and a transition guide
* The report will be shared with the project sponsor and stored on Sharepoint

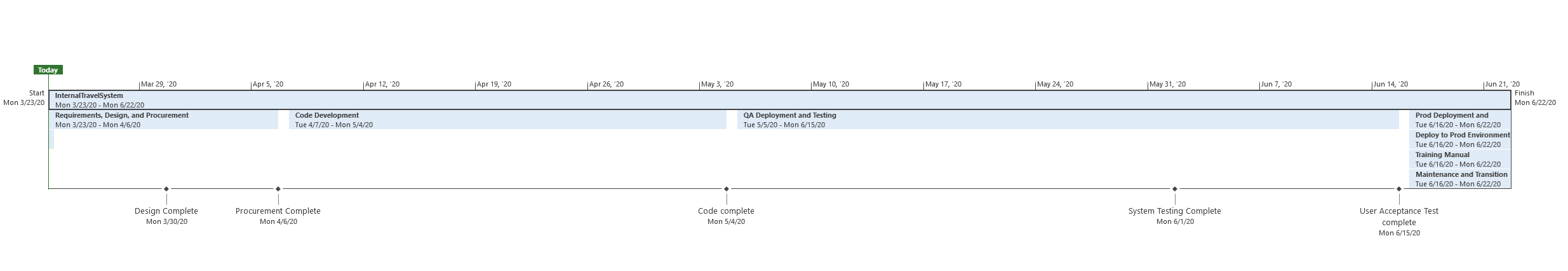
*Transitioning*

* Members of the project team will remain in the company to provide future maintenance and improvements to the system.
* If a major upgrade or change is needed, a new project team will come to gather requirements and develop a new system.

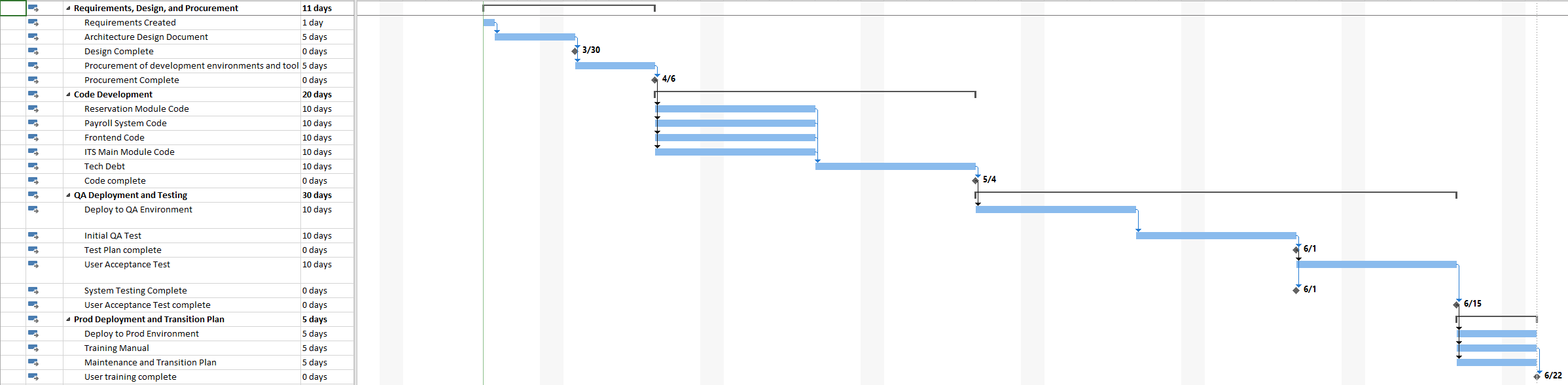
## **Execution Deliverables**

|  |  |  |
| --- | --- | --- |
| **Deliverable** | **Acceptance Criteria** | **Who Reviews (R) or Accepts (A)** |
| Architecture Design Document | Stakeholders approve of architecture design. | Technical Lead  Project Sponsor |
| Procurement of development environments and tools | Developers have access to development, test, and production environments and have the necessary tools to accomplish a job. | Finance |
| ITS Main Module Code | Documentation and code available in the code repository | Technical Lead |
| Reservation Module Code | Documentation and code available in the code repository | Technical Lead |
| Payroll System Code | Documentation and code available in the code repository | Technical Lead |
| Other Backend Service code | Documentation and code available in the code repository | Technical Lead |
| Frontend Code | Documentation and code available in the code repository | Technical Lead |
| Deploy to QA environment | QA Environment stood up  Services deployed for QA testing | Technical Lead |
| Initial QA Test Plan | QA Test Plan created and implemented  Any resulting bugs or changes fixed | Technical Lead |
| User Acceptance Test Plan | User Acceptance Test plan created and implemented  Feedback incorporated into the application | Developers  Project Sponsor |
| Deploy to PROD environment | PROD environment stood up  Services deployed to PROD | Project Sponsor |
| Training Manual | Training Documentation available to stakeholders for review | Project Sponsor |
| Maintenance and Transition Plan | Maintenance and Transition Report available to stakeholders for future releases and improvements | Technical Lead  Project Sponsor |

## **Project Timeline**



## **Gantt Chart**



## **Risk and Issue Management Plan**

Risk management is structured into phases to assess risks depending on the phase on the project. A risk checklist from similar projects will serve as a baseline of potential risk. The project sponsor and technical leads will identify risks that are specific to the ITS project. As a best practice, at every phase of the project, the checklist of risks is updated and evaluated (Project Management Institute, 2019).

* Initiation
  + Brainstorming unknown potential risks
    - Although potential project risks can be identified from past projects, brainstorming sessions should be held to get a comprehensive list of the risks. Typically, these sessions should include the participation of the whole project team, and members should be encouraged to actively and openly suggest any risk without being criticized.
  + Risks to choosing the design of the project:
    - Scope creep is one of the major risks in choosing the design of a project. Normally, this occurs as a result of requirements change. Schedule and cost estimations are also another design risks. Typically, this risk can occur as a result of underestimating or overestimating the project budget or the schedule.
  + Assign low and high risks
    - Generally, a risk with a low probability of occurrence and has a low impact if it occurs is a low risk. This type of risk can be ignored. In contrast, high risk is a risk that has a high probability of occurrence and a high impact on the project if it occurs. Such a risk can lead to project termination (National Academy of Sciences, n.d.).
* Planning Phase
  + Risk analysis of the planning phases after project approval
    - Risk avoidance
      * Risk avoidance is a risk management and mitigation strategy that seeks to eliminate risk. This strategy is aimed at reconfiguring the project to deflect or to avoid exposure to events or activities that can hinder the success of a project.
    - Risk sharing
      * Risk sharing is a risk management strategy that is used to maximize an opportunity that results from the occurrence of positive risk. Generally, it involves partnering with another company to take advantage of an opportunity so that each party benefits depending on its investment.
    - Risk reduction
      * Risk reduction is a risk mitigation strategy that consists of deploying necessary measures that can reduce the probability of a risk occurring or to minimize its impact on the success of a project.
    - Risk transfer
      * Risk transfer is a risk management strategy that involves transferring risk to a third-party. Usually, an organization pays a risk premium to an insurance company or a risk-service provider to delegate the ownership and the management of a risk to the provider.

* Implementation Phase
  + Update the list of risk as a task performed
    - During the project implementation phase, the number of risks can significantly decrease as the project's activities are performed successfully. Accordingly, the project list risk register should be updated to check off risks associated with activities that have been completed successfully.
  + Evaluation of risks and contingency plans
    - During the implementation phase, any risk identified should be evaluated to determine its impact on project success. Accordingly, contingency plans should be employed before a risk occurs to eliminate it or reduce its impact, or after it has occurred to reduce its impact (Watt, n.d.).
* Closeout Phase
  + Risk sharing and risk transfer are concluded
    - During this phase, risk sharing and risk transfer agreements should be concluded. Depending on the risks that might have occurred, the parties review the terms of agreements to ensure that each is contented before the project is officially closed.
  + Verify closure and mitigation of risks
    - This phase also involves a review of the risk breakdown structure to assess whether risks that occurred during the whole project lifecycle, whether they were avoided or mitigated, as well as the cost, incurred.

|  |  |
| --- | --- |
| *Risk Event* | *Mitigation Strategy* |
| *Insufficient technical resources* | Provide technical training throughout the project. |
| *Failure to integrate system components* | Communication should occur early and often, particularly for cross-workstreams. |
| *Inadequate testing* | Identify and create a plan for system testing. |

## **Communication Plan**

This communication plan provides a framework for informing, involving, and obtaining buy-in from all participants throughout the project. Generally, a communication plan is used throughout the project lifecycle to keep all the project’s stakeholders informed about the progress of the project. It is used to make sure that each project stakeholder receives the right information at the right time to make informed decisions.

Typically, a communication plan should clearly define the information to be communicated, the sender and the recipient of the information, when it should be communicated, as well as the mode of communication. Among the various modes of communication include meetings, email, written reports, project websites, conversations, among others. However, factors such as the available technology, urgency of information, technological expertise of stakeholders, the geographical location of stakeholders, among others should be considered before selecting the appropriate mode.

Defining these requirements will ensure that stakeholders receive appropriate and timely information to make informed decisions.

* Audience
  + Project Sponsor
    - Acting on behalf of the top-level management, the project sponsor participates in project charter formulation, guides the project manager, approves ideas, negotiates funding, and reviews changes.
  + Technical Leads
    - Technical Leads is a group of project individuals that are project planning, business analysis, requirements gathering and documentation, system analysis, and design, system testing, project monitoring, risk assessment, system implementation review, among others.
  + Developers
    - Developers or software developers are individuals with the technical expertise of developing, implementing and testing the software product that satisfies the business needs. Using the requirements specification document and system designs, developers translate these requirements into functional computer programs.
  + SMEs
    - Subject matter experts (SMEs) are project team members with extensive knowledge and expertise in particular subjects (Reh, 2019). Using their expertise, SMEs validates requirements, helps the project team to solve problems, to understand equipment, processes, and technology, as well as testing the final product.
  + Users
    - Users are the end-users who will be using the system after it has been successfully implemented. They should actively participate throughout the whole project lifecycle to guide the technical leads, and SMEs in requirements identification, system analysis, and design, as well as during system testing.
* Communications Methodology (Top-bottom, Bottom-up, and Middle-out)
  + Middle-out: Full support at all levels where changes will be implemented. Communicating specific benefits of changes and groups taking personal stakes for project success.
* Communications events
  + Monthly status reports: Project sponsor provide monthly written reports tracked against the project plan
    - Task completed
      * Tasks completed are first communicated to the project manager. Late, the manager communicates the task to the project sponsor during the monthly team status meeting. The project sponsor reviews the task and approves it if it satisfies the requirements specification.
    - Task scheduled
      * The project manager is mandated to delegate and communicate scheduled tasks to appropriate team members. Accordingly, all the task's instructions, allocated resources, the desired results, roles assigned, and the task deadline should be communicated.
    - Issues and resolutions
      * In addition to the task completed and scheduled, monthly status reports are also used to record issues that have occurred by the time of writing the report, their impact, as well as how they were resolved.
  + Bi-monthly Team status meeting
    - Bi-monthly team status meetings are held by the project team to discuss the progress of a project. It helps the team to identify if the project is progressing towards the right direction to also identify the proactive measures that can be implemented if the project is not on track.
  + Centralized communications: SME and users share at the discretion
    - Rather than allowing SME and users to communicate through multiple channels, a centralized communication medium should be used to avoid incidents of lost communications. By storing all the relevant information and documentation on a single repository, SME and users can be able to communicate and to access the hub.

## **Stakeholder Groups**

|  |  |  |
| --- | --- | --- |
| ***Stakeholder Group*** | ***Description*** | ***Stakeholder Issues/Concerns*** |
| Project sponsor | Executive stakeholder management | Funding and business strategies/ project critical success factors and approve deliverables |
| Project Manager | Stakeholder management | Project success and completion |
| Technical leads | Code and implement | Deployment and testing |
| Project team members | Document, code, and implement | Deployment and testing |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Type of Communication*** | ***Description*** | ***Distribution Channel*** | ***Audience*** | ***Frequency*** |
| Meeting Summaries | Summary of tasks complete, scheduled and issues/concerns | Meeting room and web conference | Project Sponsor, Project Manager  Technical Leads | Monthly |
| Presentations | Presentation from teams | Meeting room and web conference | Project sponsor, Project Manager | Monthly |
| Standups | Short daily status updates | Direct communication | Technical leads and team members | Daily |
| Status reports | Written project status tracked against the project plan | Email and company SharePoint | Project Manager and Project sponsor | Bi-Monthly |

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