

**PROJECT MANAGEMENT**

**IN-COURSE ASSESSMENT – GROUP ASSIGNMENT**

**CT050-3-3**

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# Acknowledgement

For this project, we would like to send our gratitude to ……

# Workload Matrix

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *PROJECT MEMBERS* | **Balram A/L Krishna Kumar (TP035446)** | **Ang Chee Siah**  **(TP038259)** | **Muhammad Izzat Bin Mohd Jamil (TP035719)** | **Yeo Zhi Yin**  **(TP035402)** |
| **GROUP COMPONENTS** | | | | |
| **Project Methodology** | - | 100% | - | - |
| **Project Charter** | 25% | 25% | 25% | 25% |
| **Scope Statement** | - | - | - | 100% |
| **Issue Mapping** | 100% | - | - | - |
| **Gantt Chart & Network Diagram** | - | - | 100% | - |
| **Cost Budgeting** | - | - | - | 100% |
| **Quality Management** | - | 100% | - | - |
| **Cutover Strategy and Transition Plan** | - | 100% | - | - |
| **INDIVIDUAL COMPONENTS** | | | | |
| **Human Resource Management** | - | - | 100% | - |
| **Procurement Management** | 100% | - | - | - |
| **Communication Management** | - | 100% | - | - |
| **Risk Management** | - | - | - | 100% |
| **SIGNATURE** |  |  |  |  |

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# 1. INTRODUCTION

## Project Methodology Definition

Project methodology is a necessary system that would be normally used when conducting a **project-based activity**, especially of those in a tremendously large scale. The system involves consideration of every aspect possible from skillsets, milestones to quality standards using various tools and techniques to create an efficient **working flow** for all individuals and departments in charge of the project developments, with the aim of **meeting the scope of project requirements**. The project usually requires the deliverables to be able to address any needs and concerns from all stakeholders.

Depending on the project’s content and workload, different types of methodology could be applied to suit the project best, but all of them ultimately ties to the following ‘ground rules’ (Cockburn, 2000):

* The **larger** a project is, the **larger** its **methodology** should be.
* More critical or important aspects of the project require **more attention** and ‘*publicly visible correctness in its construction’.*
* Any **small increase** in methodology size or density would **drastically increase** the project cost.
* **Face-to-face interaction** is the most effective communication method in conveying ideas and concepts.

## Selected Project Methodology

The project methodology applied to complete the project based on the case study scenario is the **Waterfall Model**. Waterfall model, at its core, is a **series of main phases** being arranged in a **sequential development model** (S. Balaji, 2012), as shown in the diagram in ***FIGURE 1.1***:



***FIGURE 1.1: Waterfall Model Basic Outline***

Waterfall model is an infamous development methodology for having the project scopes identified in advance, and having the project to **progress according the pre-defined phases** made from the identified scopes. In order to advance to certain phase, any phases before the said phase must be completed and verified.

Despite it being a rigid structure with low flexibly level, waterfall model is a nice methodology to refer with when working on similar **projects that has been attempted before**, or one that people has been familiar with its milestones entirely. The ISCMP, according to the case study, is a project where other countries such as China and Thailand have developed with years ago, and thus enabled a clear milestone reference in the current situation based on their attempts as well.

Also, due to the 4-month time restriction from the failure of previous management, the team would be in low levels of morale where most participants would lose motivation to continue with the project. Therefore, waterfall model would serve as a guideline for each participating unit so all of them would be **clear on their respective responsibilities in the shortest time possible**.

In exchange of low level of team coordination and synchronization, there is a **lower level of risk** of failing this project based on waterfall model, as conflicts between project teams and external organizations would be reduced to a minimum.

## Methodology Implementation

In this Integrated Supply Chain Management Project, the tasks would be divided into phases that would be formed into a hierarchy, where the priority of each project has been identified beforehand. Although creating a hand-written waterfall model as a project development guideline in this situation is applicable, the lack of time would make such process time-consuming for preparation alone.

Therefore, a suggestion of using the online-available software ***SpiraTeam***, where it provides a project overview, activities and lists of tasks along with risks in web application environment, which means the project model could be viewed and modified by using web-browser. The progress of each processes could be updated directly via such means, as shown in ***FIGURE 1.2***



***FIGURE 1.2: SpiraTeam Waterfall Model Sample***

Based on the progress report, the coverage and priority level of each tasks could be identified easily among all departments and ensures an easier approach of follow-up to the waterfall model to complete the project.

## Project Management Process

The project management is divided into 5 phases according to their respective processes, which are **Initiating**, **Planning**, **Executing**, **Monitoring** **and** **Controlling**, and **Closing**.

1. **INITIATING**

In initiation process, the organization is required to **identify the project**, its content including objectives and phases. Once all elements of the project have been identified, the project will start on the Project Manager’s cue, in most situations.

The activities conducted in this phase normally involves **creating a project charter** to understand the key information and project specifics (Kerzner & Kerzner, 2017), while **identifying the stakeholders** of the project to determine everyone’s influence on the project’s development.

1. **PLANNING**

Planning is when the project is in the stage of writing a **guide for project executions**. All available resources would be accounted for to devise an efficient plan to complete the project and meet its requirements.

That includes the process of creating a proper **Work Breakdown Structure** (WBS), project **scope statements**, **project** **schedules** (usually in Gantt Chart format), and list of **potential risks** during the development (Kerzner & Kerzner, 2017).

1. **EXECUTING**

The project officially begins during the execution phase, where all units of the project development team are **producing the output of the project**. In the meantime, the project manager would take the role of coordinating all departments and resolve all challenges arose during the process.

While creating the **project deliverables** is usually the output from this process, **milestone reports** tend to be accompanied along with the output to ensure a brief description on the deliverables from each team during progress checking (Kerzner & Kerzner, 2017).

1. **MONITORING AND CONTROLLING**

While all the planned processes have been set in motion, the progress checking on those actions are vital to ensure the project not to be derailed via **correction actions**.

Several changes in requests or updates might occur while creating project deliverables, and thus **performance reports** and **update requests** are essential as output from this process (Kerzner & Kerzner, 2017).

1. **CLOSING**

When all the processes have been completed and corrected, the **project output would be delivered to all stakeholders** and/or potential consumers to review the product, provide feedback, and determine if the output is suitable for public release.

Regardless of the acceptance of the project deliverables, this process should produce a **completed project documentation**, **self-reflection reports** and relevant **presentation aids** as a wrap-up of a project being closed entirely (Kerzner & Kerzner, 2017).

## Knowledge Areas

The applicable knowledge areas regarding the project management on this assessment includes the following elements:

1. **Project Integration Management**

Project integration is a segment where any changes that occur during the project’s life cycle must be identified, evaluated and resolved by **coordinating all knowledge areas involved** in it (Fuller, et al., 2017).

1. **Project Scope Management**

In scope management, all objectives required by the project are determined and **devise required deliverables of the project** to ensure the process successfully addresses all the work needed for it (Fuller, et al., 2017).

1. **Project Time Management**

As the title suggests, time management is a section that deals with estimating time needed to complete the project, it’s relevant processes and create a **working schedule** that could utilize all departments in project development (Fuller, et al., 2017).

1. **Project Cost Management**

Like time management, cost management estimates the capital the project has been allocated to and determines the suitable **amount of budget** allocated to each department to ensure a smooth workflow of each processes (Fuller, et al., 2017).

1. **Project Quality Management**

While all the processes in a project must be completed within allocated periods, quality management is necessary to **make sure the deliverables from every processes meet its requirements** that was from the scope management segment (Fuller, et al., 2017).

1. **Project Human Resource Management**

**Allocating people to their respective roles** in project development comes into the responsibility of the human resource management, where each participating individuals’ skillsets and interests are analyzed to make sure highest level of efficiency could be achieved from the process (Fuller, et al., 2017).

1. **Project Communication Management**

Planning, managing and controlling the communications within the project teams is a vital aspect in managing a smooth development flow, where **project information can be collected, stored, and relayed** to desired departments in an appropriate and timely manner (Fuller, et al., 2017).

1. **Project Risk Management**

While meeting the project scopes, the risk management is a segment that is normally in charge of **identifying and analyzing the potential risks** that might occur to the project development, while respond and **resolve it immediately** when one happens in the process of project execution (Fuller, et al., 2017).

1. **Project Procurement Management**

In several occasions, procurement management is necessary to **acquire goods and services from outside of the project team or organization**, usually with aim of integrating the goods and services into the project development to increase the quality of the project deliverables or reducing the cost of creating one from scratch (Fuller, et al., 2017).

# 2. PROJECT CHARTER

## 2.1 Background

In this scenario, we were assumed the role as project management team from a company named *Good Life Pte. Ltd. (GL),* with the project entitled **‘Integrated Supply Chain Management Project’ (ISCMP)**.

ISCMP is a project aimed to **enhance supply chain operations**. Therefore, ISCMP features **a Supply Chain Management (SCM) software** supported by a centralized data warehouse to manage all users’ respective region’s inventory in a faster pace. While the created system has business intelligence capable of **inventory** management for markets in South East Asia region, the system also covers **transportation** management, **order** management, **yard** management, **labor** management, and **warehouse** optimization.

While the project was scheduled to be completed in 6 months, the previous project manager’s attempt on the project for the first 2 months could be summarized as ‘failure’. Therefore, we as a new management team were instructed to **complete the ISCMP in the next 4 months**, while resolving all issues that arose from the previous management.

## 2.2 Aim and Objectives

**AIM**

To implement a centralized data warehouse that can provide business intelligence services, which allow users to make optimum decisions in their regional inventory management.

**OBJECTIVES**

* Enable production entry by removing raw materials and automatically updating finished goods in the accounting system.
* Able to anticipate the product demand by the amount of item recorded in warehouse, customer sales and other relevant aspects.
* Calculation of manufacturing costs from raw material to labor cost for cost analysis.
* Enable documentation of required raw materials, created product, and labor amount for production
* Include automated demand planning where what materials are needed to be ordered and what products are needed for higher production rate based on anticipated demand
* All market users in the South East Asia region can manage inventory, order, yard, and labor information from a centralized data warehouse.

## 2.3 Scope

### 2.3.1 Product Deliverables

* Inventory management system
* Product management system
* Order management system
* Yard management system
* Labor management system
* Warehouse optimization system

### 2.3.2 Project Scope

* Complete a supply chain management system that is integrated for users in South East Asia markets
* The management system must contain common functions of a typical supply chain management software.

## 2.4 Constraints

1. Some of the budget was used in the first 2 months, and therefore the leftover budget is limited for the recovery effort
2. The deadline is set to 4 months later, which is a time constraint from the previous 2 months being non-productive
3. The project is currently deemed a failure from the feedback report
4. Several required software development skills were lacking
5. The information of the project stakeholders remains unknown

## 2.5 Estimation Budget

|  |  |
| --- | --- |
| **Estimated Budget** | **$280,000.00** |
| Hardware | $50,000.00 |
| Development Software | $80,000.00 |
| Manpower | $100,000.00 |
| **RESERVE** | **$50,000.00** |

## 2.6 Roles & Responsibilities

| **Role** | **Source / SME-Department** | **Responsibility** |
| --- | --- | --- |
| Project Manager | Internal (GITS – Project Management Centre/PMAC) | * Prepare project management plan and revision(s) as deliverables * Define Project Scope, Aim & Objectives |
| Project Sponsor | Internal (GITS) | * Approving key project deliverables * Initiating and participating in project reviews and providing directions |
| Project Manager Advisor | Internal (GITS – Project Management Centre/PMAC) | * Assist Project Manager in determining the essential plans required for the project * Relay necessary information regarding project updates and changes |
| Software Engineer | Internal (GITS – Application Management Centre/AMC; Data Center Operations/DCO) | * Develop the core mechanics of the software * Fulfil the software requirements as stated in Product Deliverables that could function normally. |
| UI Designer | Internal (GITS – Application Management Centre/AMC) | * Create a user-friendly user interface for the system’s controls |
| Software Tester | External (Market – Human Resources Dept/HR) | * Test-running the software prototype * Uncover bugs from testing and submit relevant reports to the software development teams. |
| Quality Control Manager | Internal (GITS – IT Operations/ITO) | * Compile feedbacks from software tests and generate feedback & improvement report to software developers |
| Technical Assistant | Internal (GITS – IT Security) | * Resolve all errors occurred in the development software and hardware that could prolong the development process |
| Communication Officer | External (Market – Procurement/PROC) | * Contact potential project sponsors for assistance in project development. |
| Procurement Officer | External (Market – Procurement/PROC) | * Identify potential sponsors as stakeholders * Audit available resources of procurement from project sponsors |

## 2.7 High Level Risks

Several high-level risks have been identified for the project to be successful, including:

* Failure of uniform communication means between departments of project.
* Missing of a proper organizational structure that could clearly divide the development team to their respective ‘specialty tasks’.
* Severe lack in specific areas of software development, the network and security section among the areas in question.

## 2.8 Major Project Milestones

|  |  |  |
| --- | --- | --- |
| **Milestones** | **Date** | **Descriptions** |
| Start Project | 11/6/2018 |  |
| Receive Project Approval | 19/6/2018 |  |
| Complete Planning Phase | 13/7/2018 |  |
| Complete ISCMP Requirements | 24/7/2018 |  |
| Complete ISCMP Development | 20/9/2018 |  |
| Complete Testing | 9/10/2018 |  |
| ISCMP Installation | 15/10/2018 |  |
| Functional ICSMP | 22/10/2018 |  |
| Project End | 30/10/2018 |  |

## 2.9 Critical Success Factors

Several success criteria have been identified as critical success factors that would lead to effective completion of the project, in which include:

1. Complete the project within the allocated budget of $280,000.00 with no budget overruns.
2. Efficient usage of capable resources would be selected from the SME-departments as within the organization structure of **Good Life Pte. Ltd.** and **Global IT**.
3. The created system must be able to be supported by current IT infrastructure.
4. It is mandatory for related departments in Global IT Service to provide approval and signoff for system implementation
5. All support staff and users must have access to the developed system with relevant Access Level (ACL) privileges
6. The current system must be replaced in phases by ISCMP.
7. The cutover and transition from the current system with the newly developed system must be in **parallel**

## 2.10 Signature

|  |  |  |  |
| --- | --- | --- | --- |
| **SIGNATURE** | | | |
|  |  |  |  |
| Good Life Pte. Ltd.  Company Executive Officer | Project Manager | Project Manager Advisor | Project Sponsor |

# 3. WORK BREAKDOWN STRUCTURE

|  |
| --- |
| **Integrated Supply Chain Management Project (ISCMP)** |
| **1 Initiating** |
| **1.1 Identify Stakeholders** |
| **1.2 System Proposal** |
| **1.3 Feasibility Studies** |
| 1.3.1 Technical Feasibility Study |
| 1.3.2 Schedule Feasibility Study |
| 1.3.3 Financial Feasibility Study |
| 1.3.4 Resource Feasibility Study |
| **1.4 Develop Project Charter** |
| 1.4.1 Determine Project Aim & Objectives |
| 1.4.2 Determine Project Scope |
| 1.4.3 Determine Project Budget |
| 1.4.4 Determine Project Roles |
| 1.4.5 Determine Project Risks |
| 1.4.6 Determine Project Milestones |
| **2 Planning** |
| **2.1 Develop Project Plan** |
| 2.1.1 Identify Phases & Activities |
| 2.1.2 Create Project Planning Schedule |
| **2.2 Develop Resource Plan** |
| 2.2.1 Identify Types of Tasks |
| 2.2.2 Identify Number of Staff |
| 2.2.3 Identify Needed Equipment |
| 2.2.4 Identify Equipment Types & Quantity |
| **2.3 Develop Financial Plan** |
| 2.3.1 Identify Labour Costs |
| 2.3.2 Identify Equipment Costs |
| 2.3.3 Identify Miscellaneous Costs |
| **2.4 Develop Quality Plan** |
| 2.4.1 Identify Customers Requirements |
| 2.4.2 List Project Deliverables |
| 2.4.3 Define Quality Standards for Deliverables |
| 2.4.4 Customer Approval for Set Targets |
| **2.5 Develop Risk Plan** |
| 2.5.1 Identify Project Risks |
| 2.5.2 Categorize & Prioritize Risks |
| **2.6 Develop Communication Plan** |
| 2.6.1 List Communications Stakeholders |
| 2.6.2 Define Communication Needs |
| **2.7 Develop Procurement Plan** |
| 2.7.1 Determine Procurement Requirements |
| 2.7.2 Identify Needed Procurement |
| 2.7.3 Create Financial Justification |
| **3 Execution** |
| **3.1 Requirement Gathering** |
| 3.1.1 Client Interview |
| 3.1.2 Construct Use Case |
| 3.1.3 Prototyping |
| **3.2 Procurement** |
| 3.2.1 Compare Supplier Prices |
| 3.2.2 Negotiate Prices |
| 3.2.3 Obtain Hardware |
| 3.2.4 Obtain Software |
| **3.3 Staff Management** |
| 3.3.1 Recruits Interview |
| 3.3.2 Allocate Human Resources |
| 3.3.3 Labour Tracking |
| 3.3.4 Training Tracking |
| 3.3.5 Time Tracking |
| **3.4 Development** |
| 3.4.1 Functional Development |
| 3.4.2 Technical Development |
| 3.4.3 Application Development |
| **3.5 Testing** |
| 3.5.1 Application Development Centre Testing |
| 3.5.2 IT Regression Testing |
| 3.4.3 User Acceptance Testing |
| **3.6 System Setup** |
| 3.6.1 Hardware Installation |
| 3.6.2 System Installation |
| **4 Monitoring & Controlling** |
| **4.1 HR Management** |
| 4.1.1 Control Man Days |
| 4.1.2 Monitor Staff Progress |
| **4.2 Procurement Management** |
| 4.2.1 Quantity Control |
| 4.2.2 Quality Control |
| **4.3 Quality Deliverables** |
| 4.3.1 Testing Reports |
| **5 Closing** |
| **5.1 Documentation** |
| 5.1.1 Procurement Report |
| 5.1.2 Financial Report |
| 5.1.3 Project Documentation |
| 5.1.4 Stakeholders Approval & Signature |
| **5.2 Formal Acceptance & Information** |
| 5.2.1 Inform Stakeholders |
| 5.2.2 Stakeholders Approval & Signature |
| 5.2.3 End Staff Employment |
| 5.2.4 End Supplier Contract |

# 4. SCOPE STATEMENT

## 4.1 Project Scope Description

The scope of this project is to restore the order and maintain morale of the developing team and make sure the product is produced with quality within deadline.

## 4.2 Acceptance Criteria

## The conditions of the acceptance criteria are that the system should be able to provide the common functions that can be found in typical SCM software, supported by centralized data warehouse log which provides business intelligence capacities for user to make quicker decision in managing such as inventory managing. The system should be covering features like transportation management, yard management, labor management and warehouse optimization.

## 4.3 Project Deliverables

The end product of this project would be a software designed specialized for Supply Chain Management. The end product provides the common functions that can be found in any SCM. Other than that, the system is also supported by a huge centralized data warehouse which provides business intelligence capabilities in facilitating users to make quicker decision in managing inventory in their own region. The system also covers transportation management, order management, yard management, labor management and warehouse optimization.

## 4.4 Project Exclusions

Stakeholders can expect a completed bug-free software by the end of the project period, excluding:

1. Lack of advanced security services on database protection.
2. Capped logs duration.
3. System access limited to high-ranked staffs only.
4. Lack of multi-language support to non-English users

## 4.5 Project Constraints

* **Time frames**: The project need to be done with 4 months left.
* **Resources**: The hardware technical specifications are not up to date.
* **Activity performance**: Team members are focusing more on their daily operation support rather than task assigned.

## 4.6 Project Assumptions

* The project team might need an experienced advisor to advise the project manager on leadership and interpersonal skills.
* Better hardware might be needed to speed up developing progress.
* Time management might need to be implemented to manage the efficiency of the team members.

# 5. TABLE OF ISSUES

|  |  |  |  |
| --- | --- | --- | --- |
| **Knowledge Area** | **Issue No. & Content** | **Project Management Proses** | **Tools & Technique** |
| Project Integration Management | 13. There was no clear project organizational structure to manage the project. | Planning | Organization Chart:   * With organization chart, clear organizational structure is developed start from the highest management till the individual responsibility. |
| 10. …… |  |  |
|  |  |  |

# 6. GANTT CHART AND NETWORK DIAGRAM

## 6.1 Gantt Chart

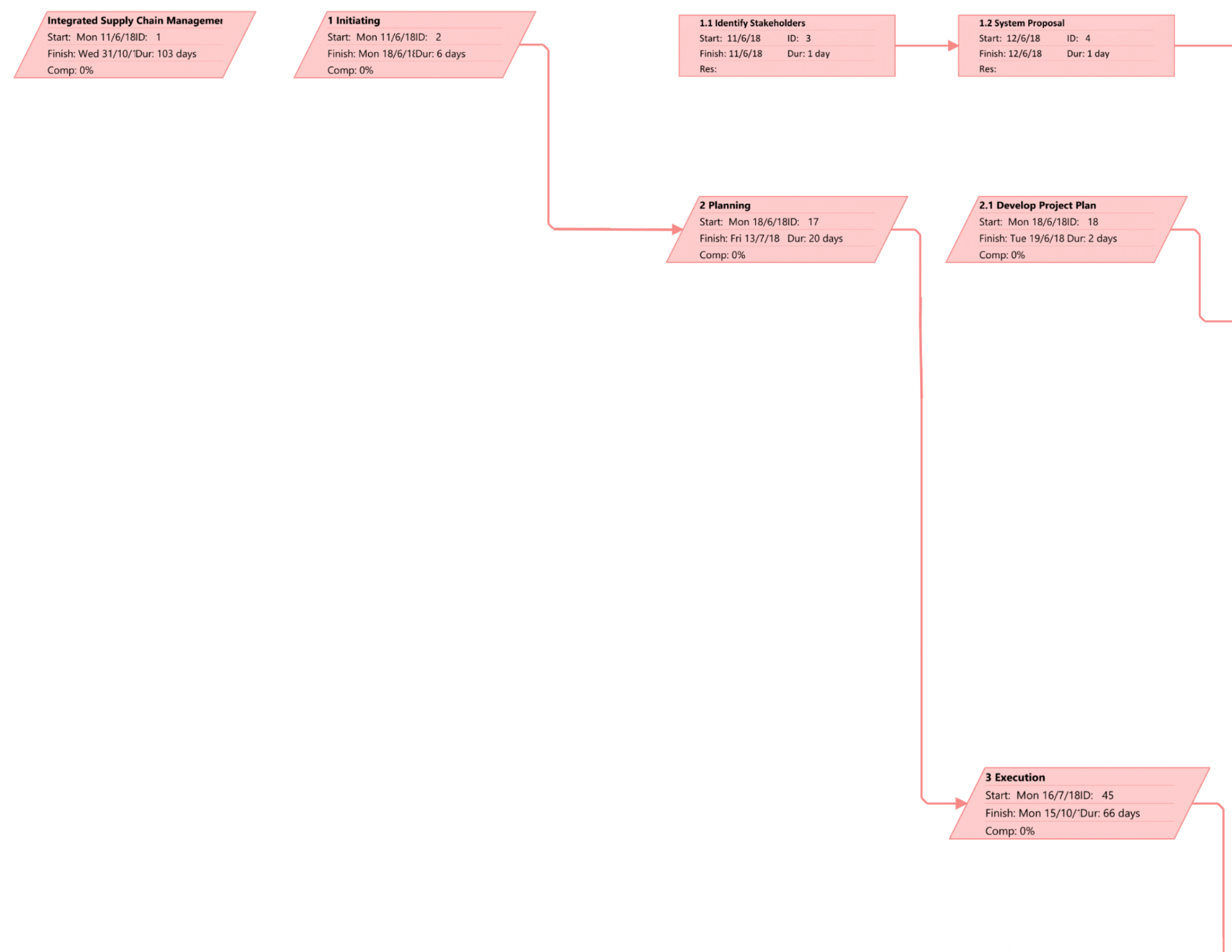


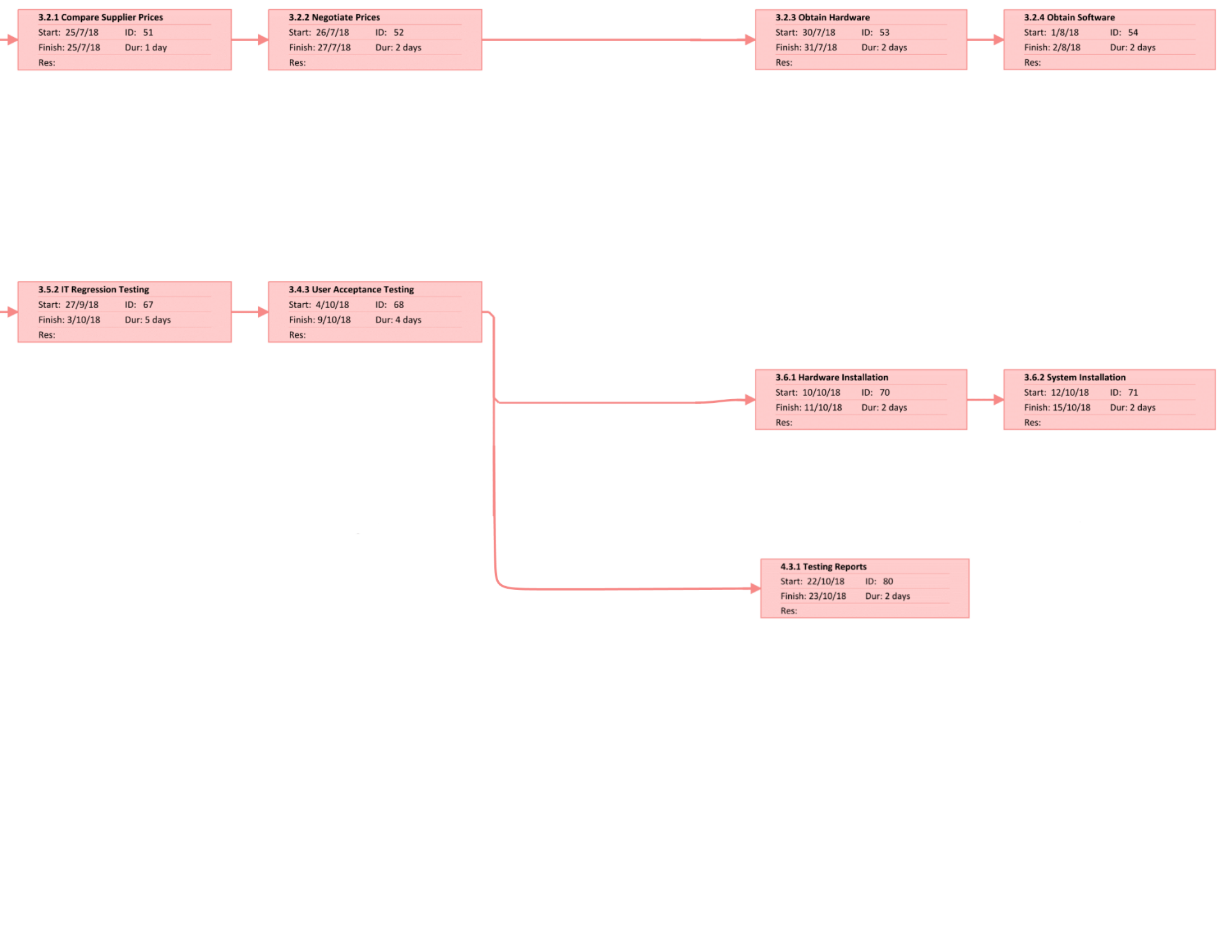
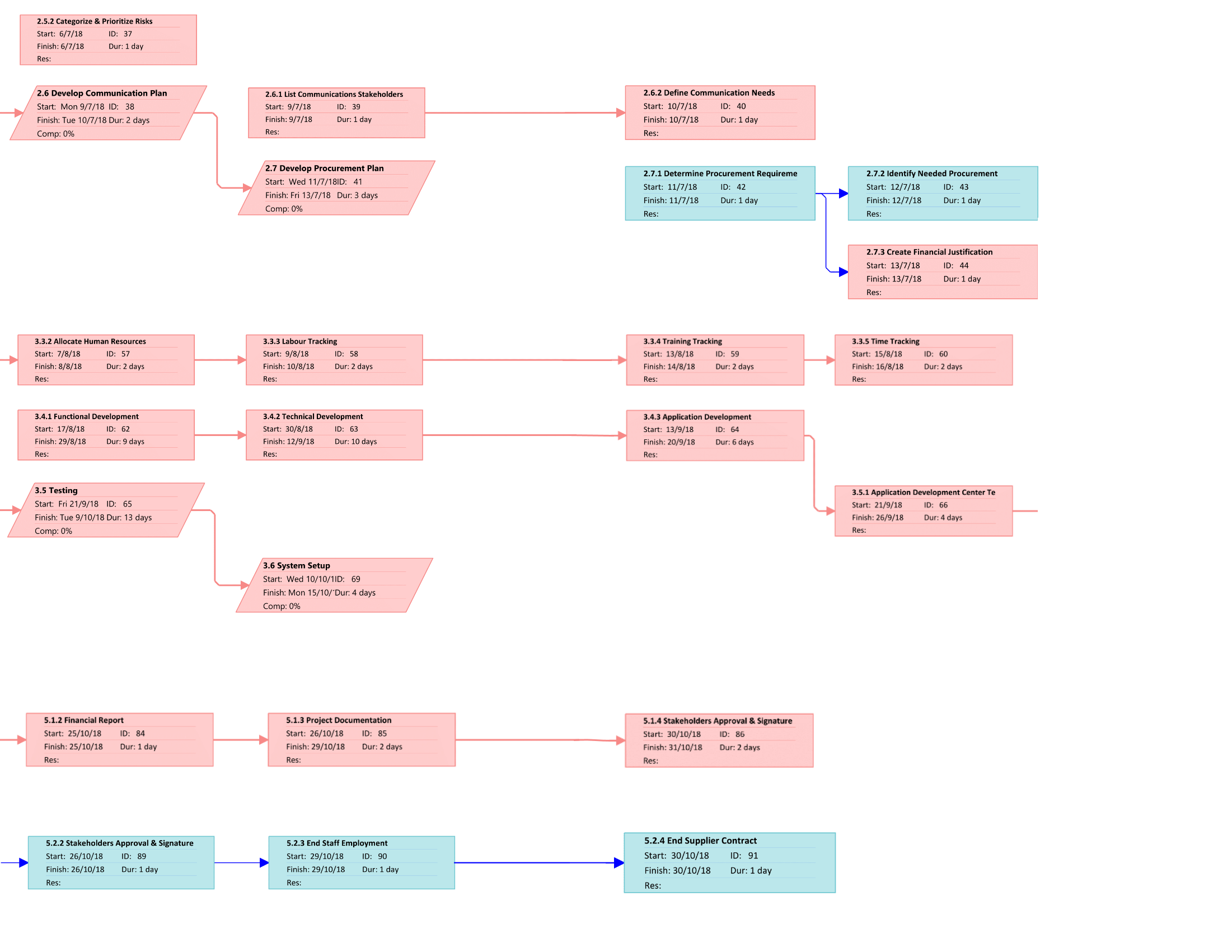
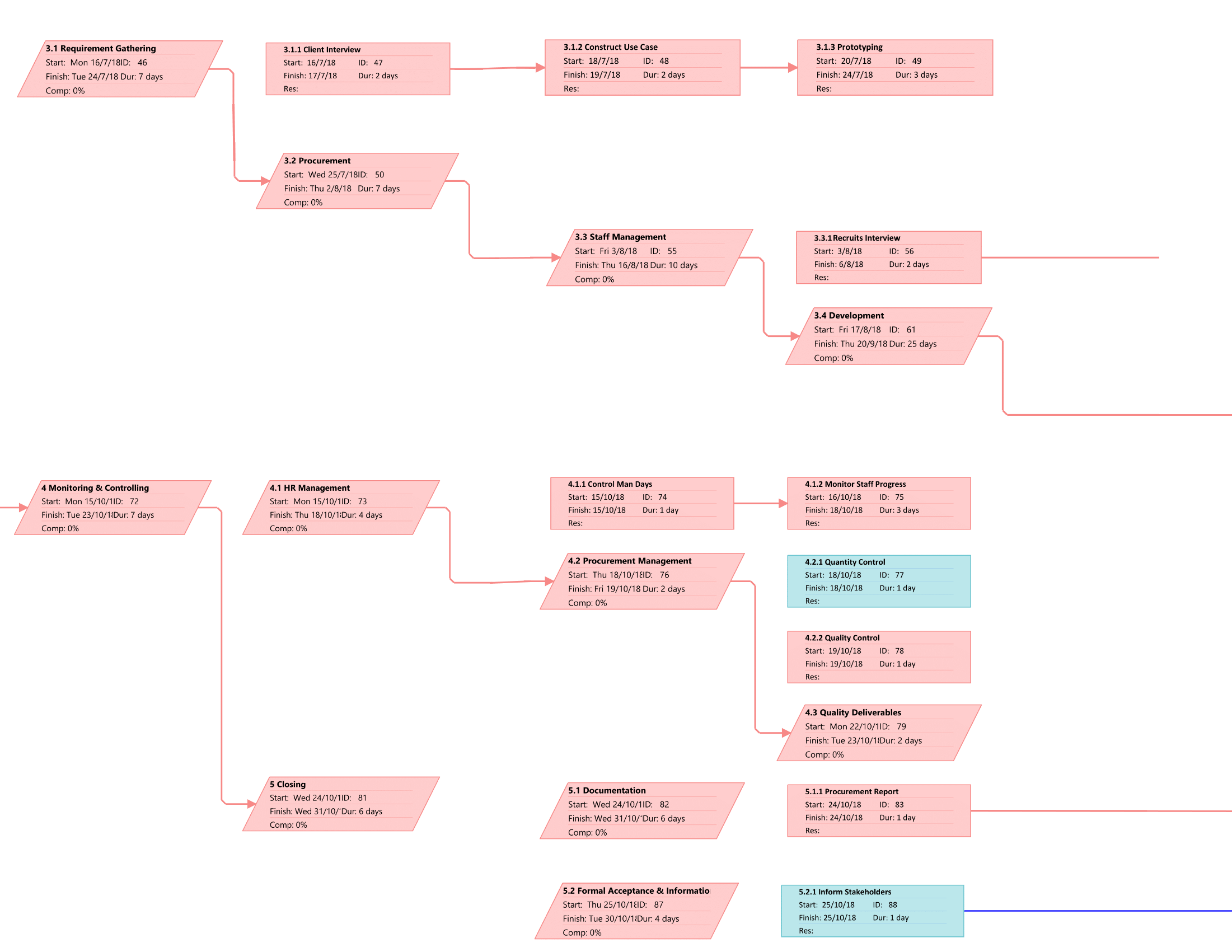
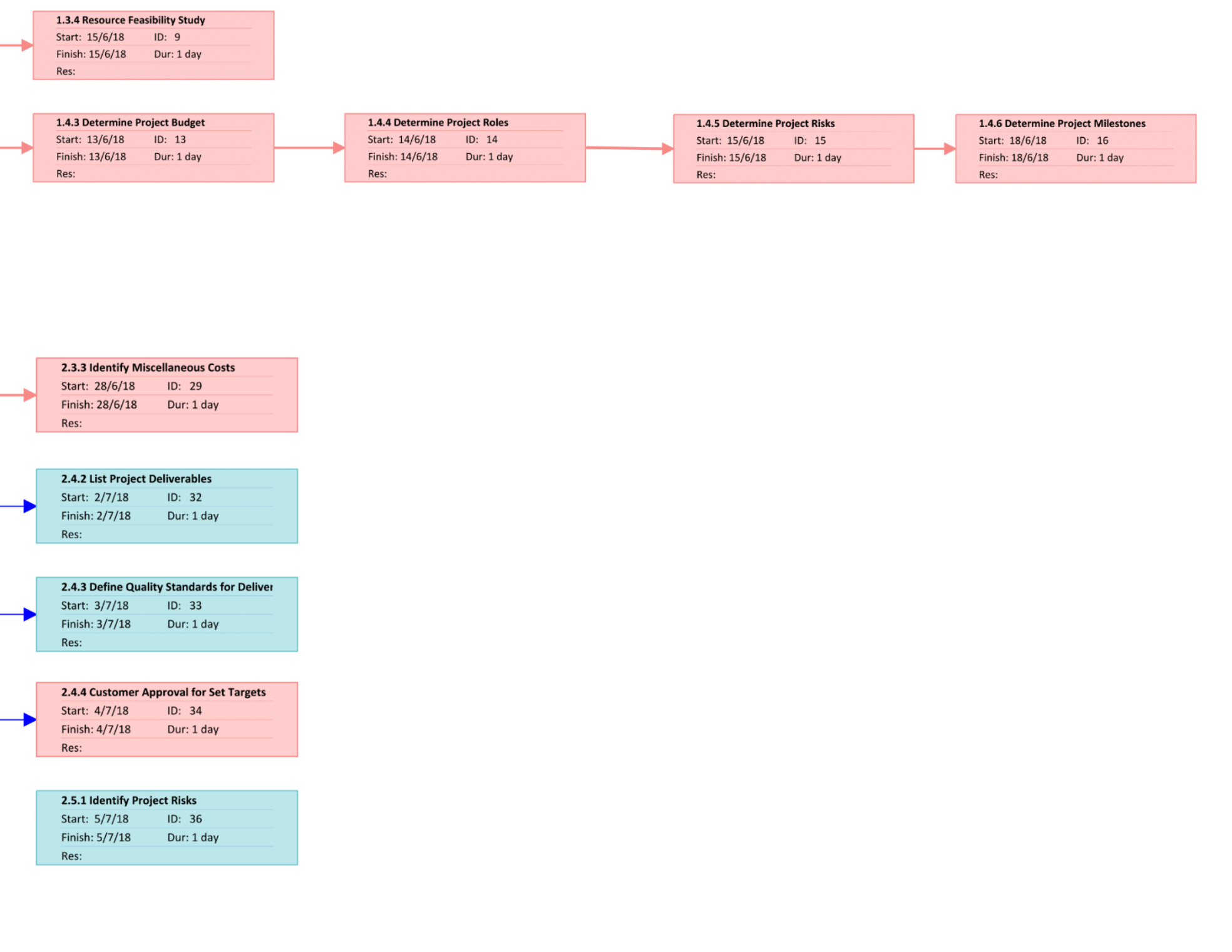
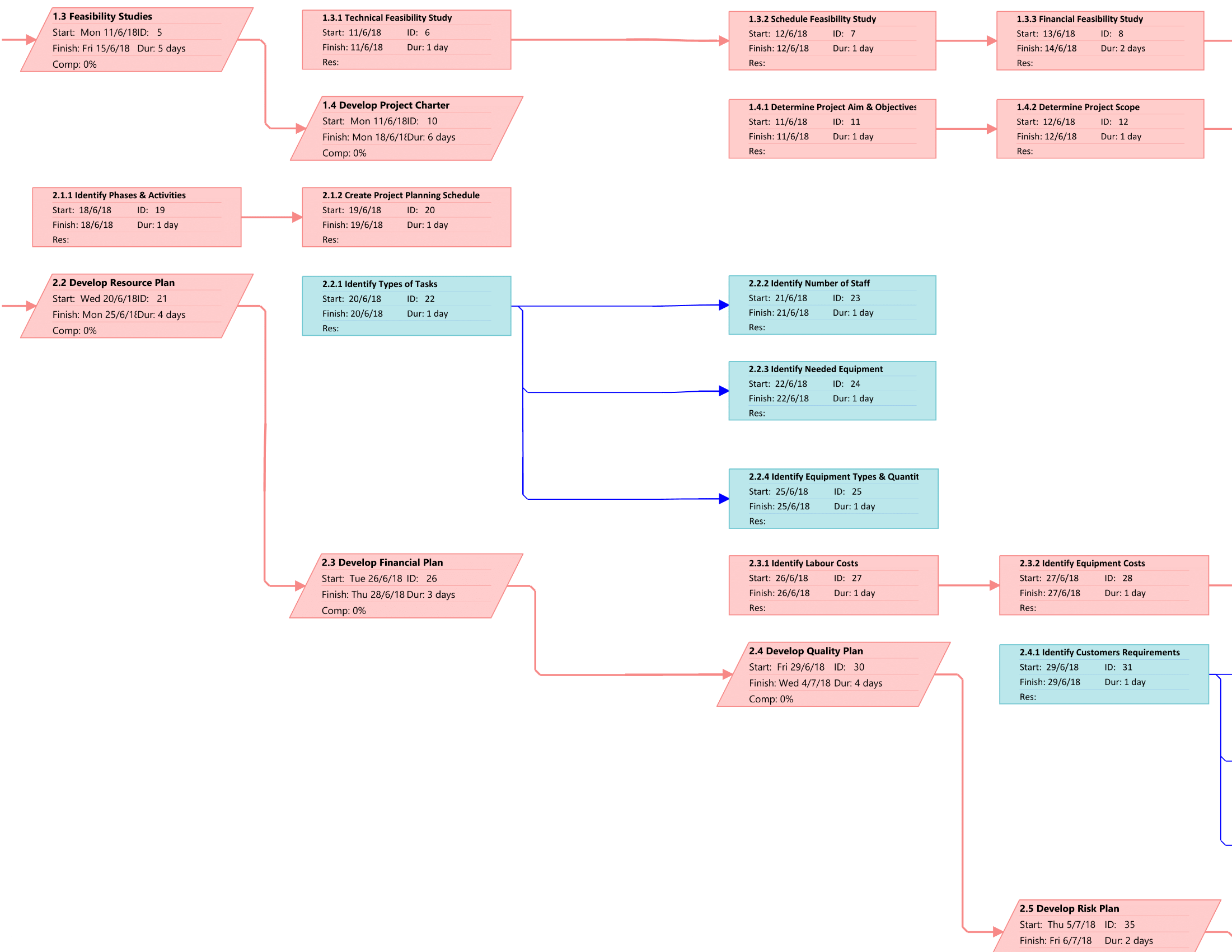






## 6.2 Network Diagram





# 7. COST ESTIMATION AND BUDGETING

## 7.1 Task Cost Breakdown

## 7.2 Resources Cost Breakdown

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Resource Name** | **Amount** | **Std. Rate** | **Working Duration** | **Calculation** | **Cost** |
| Project Manager | 1 | $3000/mon | 4 Months | 7000 x 4 | $28,000 |
| Software Engineer | 3 | $2200/mon | 4 Months | 2200 x 4 x 3 | $26,400 |
| UI Designer | 1 | $1800/mon | 4 Months | 1800 x 4 | $7,200 |
| Software Tester | 1 | $1000/mon | 1 Month | 1000 | $1,000 |
| Quality Control | 1 | $1700/mon | 4 Months | 1700 x 4 | $6,800 |
| IT Security | 1 | $1800/mon | 4 Months | 1800 x 4 | $7,200 |
| Technical Assistant | 1 | $1800/mon | 4 Months | 1800 x 4 | $7,200 |
|  |  |  |  | **Total:** | **$83,800** |

# 8. QUALITY MANAGEMENT PLAN

Quality management is an element that was introduced since the early stages of project management’s definition, sharing the same status as cost and time (Atkinson, 1999). It is an important aspect in project management where the performance of the product – the Integrated Supply Chain Management System in this scenario – is matching the required quality as mentioned in the project’s scope. For ensuring the quality of the product in development, actions and policies would be undertaken in form of three major processes:

* **Plan Quality Management**;
* **Performing Quality Assurance**; and
* **Performing Quality Control**

And in those three processes, some tools and techniques would be applicable in managing the project’s output quality, where it includes quality metrics, checklists, Pareto Charts, quality control charts, fishbone diagrams, maturity models and many others (Marchewka, 2014).

*Table of Issue – Quality Part (Balram)*

## 8.1 Plan Quality Management

Planning would be the focus of this process. The content of planning includes **identifying which quality standards** are relevant to the project, and **methods required** to meet those standards. This is done to anticipate situations and prepare appropriate actions to bring out the needed outcome.

To devise a plan to an overall quality management, it is required to have a project management plan, stakeholder register, environmental factors and other available assets to deliver not only a quality management plan, but also quality metrics, checklists and relevant updates to the project’s documentation such as process improvement plan (Kima, et al., 2012).

While producing the deliverables, several tools and techniques could be adapted, in which **cost-benefit analysis** would be among the main methods to determine the capital required to create a system with high enough performance. Since the system in question has already developed by other regions, **benchmarking** techniques are applicable to compare for most suitable practices such as the database design (Cooper, et al., 2010). **Design of experiments** technique is also applicable to produce list of factors for the product in development (Gyung-Jin, 2007).

## 8.2 Perform Quality Assurance

As the project is progressing, quality assurance is required to be performed to ensure all processes of the project can meet the relevant quality standards, in the meantime able to **achieve continuous quality improvement besides satisfying the minimum requirements** (Wandersman, et al., 2012).

While this process requires the input of most outputs from the planning process of quality management such as the quality management plan, process improvement plan and quality metrics, the process should be able to deliver a complete list of change requests, updates on project management plan and its documentation, including required improvements on the available assets (Taylor, 2018).

The deliverables of this process could be created with **quality management and control tools** like from the planning phase, such as leaning and benchmarking to maximizing output efficiency and minimizing waste, while ensure a compete-able quality with potential competitors (Larson & Gray, 2013). **Quality audits** are necessary too to measure how well is the monitoring of the project development matches the standard as per the project requested, identifying any lessons learned that could further improve the project’s output (Taylor, 2018). In the same time, **process analysis** would be conducted to examine the development processes so that in case of sidetracking, the processes could be tailored to align with the project requirements (Vergidis, et al., 2008).

## 8.3 Control Quality

Quality control is a set of procedures that **verifies the quality of the project’s output**, determining that it is reaching the desired standards of the project scopes. This process is a vital aspect to measure the total quality of the project output, while identify any issues that needs to be resolved to meet the requirements set by the project stakeholders (Larson & Gray, 2013).

In this process, all data obtained from the planning and quality assurance processes would be inspected and further analyzed, and delivered not only quality control measurements, but also the validated changes and updates on the project output, along with feedback on work performance and approved change requests. In some occasions, updates on the organizational process assets would be conducted as well (Marchewka, 2014).

For precise data collection on quality control, **statistical sampling** plays an important role to understand the needs and details of features for the product in development (Martinez, et al., 2017). The **7 basic quality tools** that applies the use of storing collected data such as cause-and-effect diagram, flowcharts, to Pareto charts could help in organizing the data for clear input in data analysis (Soković, et al., 2009) to produce precise quality control measurements. However, in most cases a more direct approach, **inspection** on the workplace, would be taken to be able to provide performance feedback immediately. In the meantime, several **reviews on the change requests** would be conducted to determine those that require approval from high-ups such as project sponsors to be proceed.

# 9. CUTOVER STRATEGY AND TRANSITION PLAN

## 9.1 Definition

Cutover strategy is a set of **migration steps** that would be applied in **implementing a new system** and **replace the existing system** in the process. The cutover strategy is also referred as implantation strategy for this reason. While there are multiple types of cutover strategies available, it must include these basic steps, which are to:

1. Design and perform **final system test** and **user acceptance tests**
2. **Transfer system control** to the users of the implemented system

Thus far, there are 4 types of cutover strategies available, in which they are named **Direct Cutover**, **Parallel Operation**, **Pilot Operation**, and **Phased Operation** respectively

## 9.2 Types of Cutover Strategy

**Direct Cutover**



***FIGURE 9.2.1: Direct Cutover Outline***

Direct cutover strategy is a type of cutover strategy that **immediately replaces the old system with the new system** in a simultaneous order, as shown in ***FIGURE 9.2.1***. The old system would be shut down entirely so there would be no transition period where both systems are active.

While it is **less costly** for the system to be implemented, it has a **high-level risk** of the newly implemented system being entirely unusable to the client. The new system users would face many challenges to get used to the newly implemented system as well.

**Parallel Operation**



***FIGURE 9.2.2: Parallel Operation Outline***

In parallel operation strategy, the **new system is implemented while the old system is still available to use**. After a designated duration of time, the old system would be removed entirely, and the new system takes precedence as shown in ***FIGURE 9.2.2***.

Parallel operation is a strategy that could be adapted with **low risk** and **safe approach**, and thus is usually recommended to critical applications. The downside, however, being having two systems run simultaneously for a period of time and led to **high cost** of operation.

**Pilot Operation**



***FIGURE 9.2.3: Pilot Operation Outline***

Pilot operation is a system where **only part of the new system is implemented into the old system** as a means to measure its impact and effectiveness. Once the ‘pilot’ performs in satisfactory level, the replacement of the old system into the new one takes place immediately, as demonstrated in ***FIGURE 9.2.3***.

While pilot operation proves as an effective strategy in **testing new system performance** without much changes to the old system, there might be **risks of system overlap** if the system is of a large scale. Therefore, this strategy is usually applicable to moderately critical systems.

**Phased Operation**



***FIGURE 9.2.4: Phased Operation Outline***

Phased operation is a strategy where the **new system is slowly phased into the operational system**, replacing the old system in regular intervals until the new system is completely implemented as shown in ***FIGURE 9.2.4***. The part of system added in each phase could be referred as subsystems or units.

This cutover strategy is highly recommended for any critical system implementations since it has **relatively safe and conservative approach** compared to parallel and pilot operations. The new system user could be able to gradually get used to the system controls from such operation. The problem, however, lies in the **large amount of time** **required** to implement the new system this way, and the **higher cost** compared to direct cutover approach.

## 9.3 Selected Cutover Strategy

The selected cutover strategy for ISCMP is **Parallel Operation**, where the newly created centralized supply chain management software would be implemented with the old system still operative for a set amount of time until the new system is able to entirely replace the old system. The amount of time is decided by how the new system is tested or how well the new system users are trained.

Although this would be a costly operation strategy, this attempt is recommended since the supply chain management software is classified as a **‘critical application’** as the implemented system has a centralized database system that require high level of maintenance. Besides, since the core feature of the system is totally different than that of the current system (as current system relies on local database instead), it would be proven a difficulty to delegate the system in pilot operation or phased operation.

The **implementation** would carry out in the form where the newly developed system, along with its required software and hardware, are installed firsthand. While the new system is in setup, the old system, along with its local database server, are used as a **placeholder with backups** made in case of new system being corrupted or incompatible to the new system users. The users would then be **provided theory and practical training** by the system trainers until the users are familiar with the system controls.

During the period of training, the system also undergoes **regular performance and user acceptance test** to ensure its performance level and impact to the users. Once the new system reaches the point where the user could master its usage, the cutover process would be ended with approval from the project team and system clients. At that period, the old system would be removed entirely with the backup deleted from the operating system as well.

While there are no strict requirements on the system implementation, the borderline **requirements** need the user to have **matching version of the operating system** with the new system to ensure there would be no errors from version incompatibility. Secondly, a **local client-server** must be prepared along with the new system, so it could be connected to the host server that houses the centralized database for supply chain management process.

# LESSON LEARNED REPORT

Throughout the project management from this scenario, our team has learned the importance of proper management in development-based projects that especially utilized time and resource management. With the lack of sufficient time and resources in the mentioned scenario, the team has learned to organize the tasks required to complete the project based on their respective priorities, whilst identifying suitable approaches to complete the project’s planning and implementations, such as the usage of selecting applicable Project Methodology, Work Breakdown Structure, Cost Breakdowns, and so on. Besides, the team also learnt to consider multifarious aspects in delegating project activities based on not only the stakeholders’ requirements, but also the project development team’s capability and skillsets in overall. That also led to the adaption of analysis in Project Quality Management where identification of several issues required to be resolved via quality planning, assurance and control were recommended for the project plan as well.

## 10.1 Human Resource Management **[Muhammad Izzat Bin Mohd Jamil, TP035719]**

## 10.2 Procurement Management **[Balram A/L Krishna Kumar, TP035446]**

## 10.3 Communication Management **[Ang Chee Siah, TP038259]**

## 10.4 Risk Management **[Yeo Zhi Yin, TP035402]**

# 11. CONCLUSION