UNIVERSITY FOR INTERNATIONAL COOPERATION
(UCI)

Project Management Plan to Create a Virtual Library for the Invisalign Pro Clinical
Advisors

Lorena Barboza Retana

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Cristian Soto
_____
Full name must be written
TUTOR

Fabio Muñoz Jiménez
_____
Full name must be written
REVIEWER No.1

Sara Fonseca Bolaños
_____
Full name must be written
REVIEWER No.2

Lorena Barboza Retana
Student full name
STUDENT

DEDICATION

To my beautiful Lolita, a three legged cat.

ACKNOWLEDGMENTS

Thanks to the Invisalign Pro department, for giving me the chance to elaborate this project.

To the University for all the support.

Special thanks to my tutor Professor Cristian Soto for all the support given throughout this process.

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ABBREVIATIONS AND ACRONYMS

CA Clinical Advisor

FGP Final Graduation Project

PMBOK Project Management Body of Knowledge

PMI Project Management Institute

WBS Work Breakdown Structure

EXECUTIVE SUMMARY (ABSTRACT)

Align Technology is a company, like many other companies, that is constantly changing. At Align Technology, the Invisalign Pro Clinical Department is made of a group of Doctors of Dental Science; also known as Clinical Advisors, whose main goal is to educate their clients from the United States and Canada.

Continuing education is required for the Invisalign Pro Department workers to stay on top of industry trends with the latest developments, skills, and new technologies required for their fields. Overall, continuing education is considered a way for professionals to keep abreast of their fields so they don't lag behind.

Currently there are several platforms where the Clinical Advisors can have access to information, such as books, articles, podcast, videos, webinars, among others in order for them to pursue their continuing education. The Clinical Advisors access those platforms during their spare time, and in some occasions, they go to those platforms during the training they are giving to our clients. Finding the right information is time consuming, specially, when they have to run from platform to platform.

The purpose of performing this Project Management Plan was to create a virtual library, for the Invisalign Pro Clinical Advisors, where they can have access to all the resources in one single platform. Thus, eliminating the time consuming issue they were facing.

The specific objectives were to create a project charter to get approval to start the project, thus, procuring the Project Manager with the authorization to produce the project management plan. To create a scope management plan to ensure it includes all the work required in order to successfully complete the project. To create a time management tool to support the development and management of a project schedule enabling the completion of the project within the time constraints. To create a cost management plan to define the processes for developing and managing the project budget to ensure the project is completed within the budget constraints. To develop a quality management plan to identify the quality requirements for the project in order to ensure the results meet expectations for approval within the time, cost and, scope constraints. To create a resource management plan to ensure that all resources are identifiable, and managed effectively to complete the project within the time, cost and scope constraints. To develop a communication management plan to ensure timely and effective communication of the project status and other key information. To create a risk management plan to identify and examine risks for the successful completion of the project, and to develop plans to minimize the likelihood of the risks. To develop a stakeholder management plan to identify and support all the project stakeholders to ensure effective stakeholder engagement.

The methodology used for the research was analytical. The main sources used to gather information included A Guide to the Project Management Body of

Knowledge (*PMBOK® Guide*) Sixth Edition, interviews and meeting minutes perform within the organization and stakeholders. The analysis of the information created each subcomponent of the subsidiary plans used to develop the Project Management Plan for the creation of the virtual library.

The Project Management Plan was developed using the *PMBOK Guide* sixth Edition, this provided a new methodology for the project team to build a more thorough project management plan for any future projects helping improve the way the Invisalign Pro department would manage the projects. It is recommended that the project team consider the use of the planning process and documents developed during the development of the Project Management Plan for the creation of the Virtual Library as a basis for implementing a methodology for projects in the future. Furthermore, it is necessary for the Invisalign Pro department to implement a specific number of changes allow in the projects.

1. INTRODUCTION

1.1 Background

Align Technology is a global medical device company that is changing lives through better smiles. We reimagine and reinvent the way orthodontic and restorative treatment is presented and delivered to millions of people around the world.

In 1997 five employees founded the company with a simple concept in mind, how to leverage technology to straighten teeth. Without knowing, those five employees started a movement, and, nowadays they are the pioneers in clear orthodontics market.

Today the company has helped treat over 10 million patients with the Invisalign system and have been driving the evolution in digital dentistry ever since.

The company's goal is to become a powerful tool to enhance the practice of the orthodontist and the general practitioner, Align Technology Inc. is a revolutionary company, not only do selling the product, but, also committed in helping the customer reach a high confidence level in treating patients with clear aligners.

Align Technology Inc. believes in constant education; that is why in 2016 the company created a department that specializes in educating the customers to teach them how to make the best of our product by helping them translate their conventional orthodontics knowledge into clear aligners.

That educational department consists of Doctors of Dental Science who educate American and Canadian doctors on how to better enhance the use of the clear aligners. Dental professionals have a responsibility to keep learning constantly to

improve their performance through continuing education. It is important for every

dentist to develop expertise and specialize in the practice of dentistry.

The knowledge that the Clinical Advisor needs to acquire is very technical, they

need to be experts on Orthodontics. More importantly experts on clear aligners.

With that being said, the Clinical Advisor needs to have access to all the latest

techniques, books, articles, journals, and studies.

1.2 Statement of the problem

As of now, all the information shared with the Clinical Advisors can be found in five

different platforms, that makes it difficult for them to access it. Having to find the

right information is time consuming since they have to run from platform to

platform.

The idea of this project is to develop a Project Management Plan to create a Virtual

Library. This way we can have all the information needed to assist our Clinical

Advisors, the Virtual Library will be where they can access all the information in just

one platform, making it easier for them to take time to study in order to give our

customers the best experience possible.

The Project Management Plan is going to add structure, and guidance to help them

organized all the needed tasks. The team will create each element of the Project

Management Plan, along with all of the tools, techniques and concepts used to

justify each management decision selected for application.

1.3 Purpose

The purpose of this study is to develop a Project Management Plan by detailing the

management of all critical aspects of the project. Each step is to be coordinated

strategically to develop all of the subsidiary documents, which will be used as a

guide during the execution of the project. The research proposal will explore the Project Management Plan, providing justification for the decisions made while developing the project's integration, scope, time cost, quality, human resources, communication, risk, and stakeholder management plans. Procurement plan will not be develop on this project since there is no purchase needed for this project. This Procurement Management Plan is not part of the objectives. A make or buy analysis will not be used for this project as the only needed purchase is the Orthodontic Journal, on which there is no contract.

1.4 General objective

To develop a Project Management Plan to Create a Virtual Library for the Invisalign Pro Clinical Advisor.

1.5 Specific objectives

1. To create a project charter to get approval to start the project, thus, procuring the Project Manager with the authorization to produce the project management plan.

2. To create a scope management plan to ensure that it includes all the work required to complete the project successfully.

3. To create a schedule management plan to support the development and management of a project schedule to ensure the completion of the project within the time constraints.

4. To create a cost management plan, to define the processes for developing and managing the project budget to ensure the completion of the project within the budget constraints.

5. To develop a quality management plan to identify the quality requirements for the project in order to ensure the results meet expectations for approval within the time, cost and scope constraints.

6. To create a resource management plan, to ensure that all human resources are identifiable, and managed effectively to complete the project within the time, cost and scope constraints.

7. To develop a communication management plan to ensure timely and effective communication of the project status and other key information.

8. To create a risk management plan to identify and examine risks for the successful completion of the project, and to develop plans to minimize the likelihood of the risks.

9. To develop a stakeholder management plan, to identify and support all the project stakeholders to ensure effective stakeholder engagement.

2. THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

Align Technology is a medical device company dedicated on transforming the way we see orthodontics, by designing, manufacturing and marketing our products. Our clear aligners have revolutionized the way dental professionals are moving teeth. (Align Technology Inc. 2020).

Our clear aligners are tailor-made for each patient, made to fit each specific patient's needs, Doctor's all over the world can design the treatment, review it on the computer with a 3D model that will be the exact bite of the patient. If there are no further modifications, they can approve the case. (Align Technology Inc. 2020). The doctor's practitioners are responsible for the patient's treatment plan and monitoring of the case. (Align Technology Inc. 2020).

2.1.2 Mission and vision statements

2.1.2.1 Mission

Align Technology is dedicated to transforming lives by improving the journey to a healthy, beautiful smile. (Align Technology Inc. 2020).

2.1.2.2 Vision

Our goal is to become an indispensable partner to dental professionals worldwide while building a great company. (Align Technology Inc. 2020).

2.1.3 Organizational structure

Figure 1 shows Align Technology Inc. organizational structure.
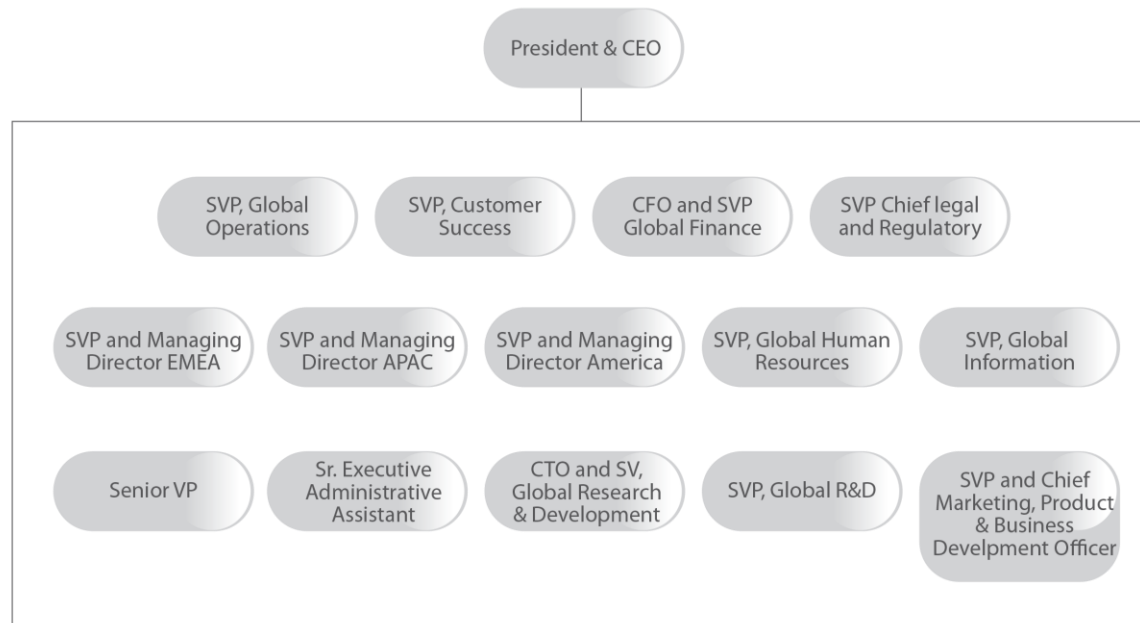
Figure 1 Organizational structure (Theorg, 2020)

2.1.4 Products offered

Align Technology designs, manufactures and markets clear aligners, a revolutionized product made to treat a broad of malocclusions. (Align Technology Inc. 2020).

Aligners are tailor-made for each patient. In addition, every week they need to be changing the aligners in order to move the teeth, close monitoring is important, and the treating Doctor of Dental Science performs it. (Align Technology Inc. 2020).

2.2 Project Management concepts

2.2.1 Project

The Project Management Body of Knowledge (PMBOK® Guide) describes a project as a temporary endeavor undertaken to create a unique product, service or result. (PMI, 2017)

A project has a define beginning and end. Which means that a project is temporary, and it does not necessarily mean that the project has a short duration, their deliverables may exist beyond the end of the project. (PMI, 2017)

2.2.2 Project management

The Project Management Body of Knowledge (PMBOK® Guide) defines project management as the application of knowledge, skills, tools and techniques to meet the project requirements. (PMI, 2017)

2.2.3 Project life cycle

Project life cycle, refers to the four-step process that the PM follows on project management when moving through stages of project completion. The project life cycle provides a framework for managing any type of project within a business. Teams achieve project success by a standard process. The four-step process of the project life cycle is shown in Figure 2. (PMI, 2017)
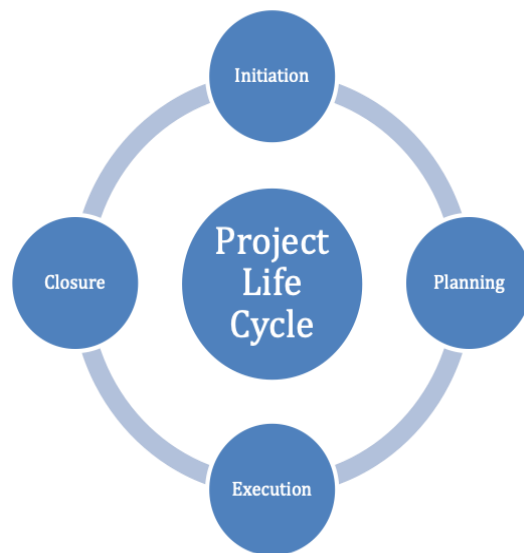
Figure 2 Project Life Cycle (Own elaboration, 2020)

2.2.4 Project management processes

PMBOK® Guide sixth edition refers to a process as a set of interrelated actions and activities performed to create a pre-specified product, service or result. (PMI, 2017)

In the execution of each process, the PMBOK® Guide sixth edition notes that the process groups are iterative with many of the processes repeated during the project. This process is explained in Figure 3. (PMI, 2017)
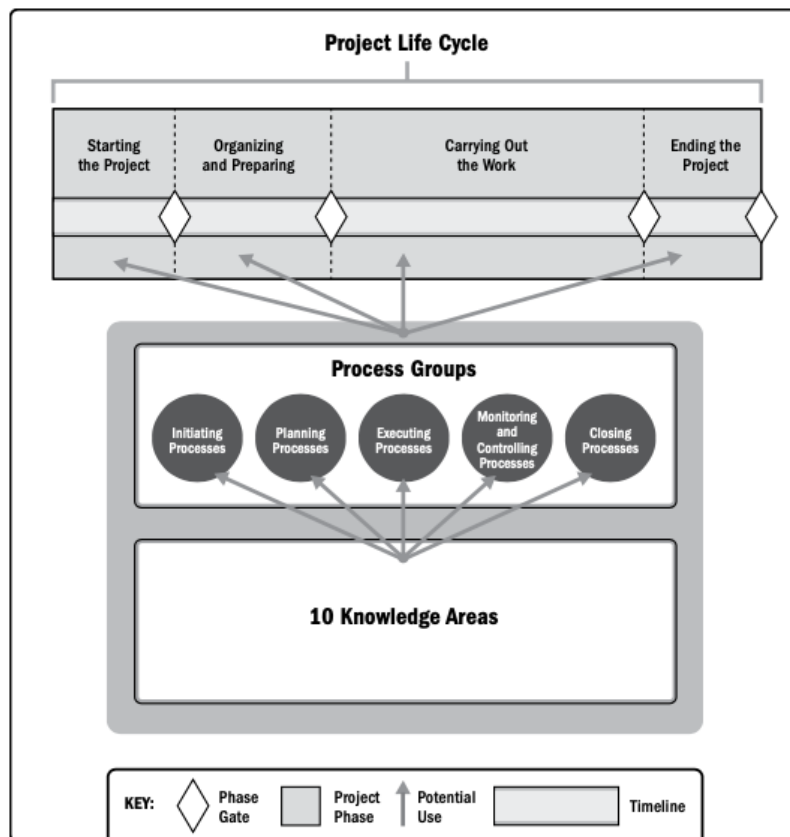
Figure 3 Project Life Cycle (PMI, 2017)

2.2.5 Project management knowledge areas

PMI (2017), describes a knowledge area as an identified area of project management defined by its knowledge requirements and described in terms of its component processes, practices, inputs, outputs, tools, and techniques. The ten project management knowledge areas describe on the PMBOK® Guide are shown in Figure 4.

Figure 4 Project Management Knowledge Areas (Own elaboration, 2020)

2.2.5.1 Project Integration Management

Is the coordination of all elements of a project, It is made of seven processes; these integration management processes occur throughout the entire project lifecycle. Those processes include coordinating tasks, resources, stakeholders and

any other project element in addition to managing conflicts between different

aspects of a project. (PMI, 2017)

The seven Project Integration Management processes are as followed; Developing

Project Charter, Developing Project Management Plan, Directing and Managing

Project Work, Managing Project Knowledge, Monitoring and Controlling Project

Work, Performing Integrated Change Control and Closing Project or Phase. Figure

5 shows a graphic representation of the Project Integration Management, with

inputs, tools and techniques, and outputs for each of the seven sections. (PMI,

2017)
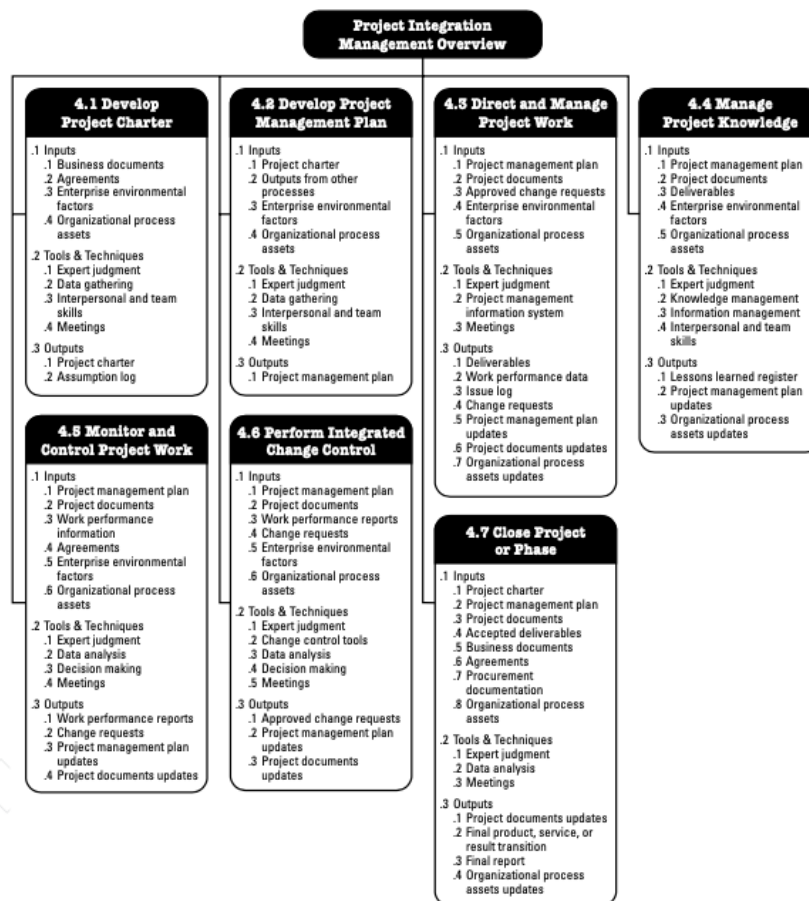
Figure 5 Project Integration Management Overview (PMI, 2017)

2.2.5.2 Project Scope Management

Project Scope Management refers to the set of processes that ensure a project's scope is accurately defined and mapped. The Project Scope Management enables Project Managers and supervisors to allocate the right amount of work necessary to complete a project successfully; concerning primarily with controlling what it is and what it is not part of the Project Scope. (PMI, 2017)

Project Scope Management has the following processes, Planning Scope Management, Collecting Requirements, Defining Scope, Creating WBS, Validating Scope and Control Scope. A graphical overview taken from the PMBOK® Guide of the Project Scope Management is found in Figure 6 with its inputs, tools, techniques and outputs of the six processes. (PMI, 2017)
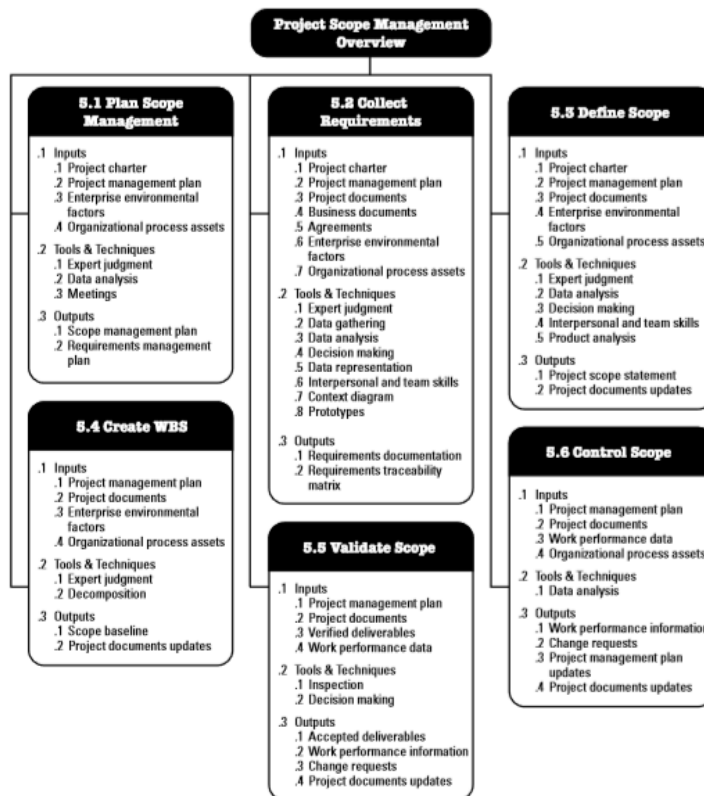
Figure 6 Project Scope Management Overview (PMI, 2017)

2.2.5.3 Project Schedule Management

Project Schedule Management helps finishing the project on time. The Project

Schedule processes are; Planning Schedule Management, Defining Activities,

Sequencing Activities, Estimating Activity Duration, Developing Schedule and

Controlling Schedule, the graphical visualization of the Project Schedule

Management Overview can be seen in Figure 7. (PMI, 2017)

Figure 7 Project Schedule Management Overview (PMI, 2017)

2.2.5.4 Project Cost Management

Project Cost Management is the process by which one plans and manages the budget of a project. It helps the project management and team estimate what the cost of the project will be; and set place controls by which they can reduce the chance of the project going over budget.

(PMI, 2017)

As seen below, Figure 8 shows the process part of Project Cost Management. Planning Cost Management, Estimating Cost, Determining Budget, Controlling Cost. (PMI, 2017)

Project Cost Management Overview

7.1 Plan Cost Management

.1 Inputs
.1 Project charter
.2 Project management plan
.3 Enterprise environmental factors
.4 Organizational process assets

.2 Tools & Techniques
.1 Expert judgment
.2 Data analysis
.3 Meetings

.3 Outputs
.1 Cost management plan

7.2 Estimate Costs

.1 Inputs
.1 Project management plan
.2 Project documents
.3 Enterprise environmental factors
.4 Organizational process assets

.2 Tools & Techniques
.1 Expert judgment
.2 Analogous estimating
.3 Parametric estimating
.4 Bottom-up estimating
.5 Three-point estimating
.6 Data analysis
.7 Project management information system
.8 Decision making

.3 Outputs
.1 Cost estimates
.2 Basis of estimates
.3 Project documents updates

7.3 Determine Budget

.1 Inputs
.1 Project management plan
.2 Project documents
.3 Business documents
.4 Agreements
.5 Enterprise environmental factors
.6 Organizational process assets

.2 Tools & Techniques
.1 Expert judgment
.2 Cost aggregation
.3 Data analysis
.4 Historical information review
.5 Funding limit reconciliation
.6 Financing

.3 Outputs
.1 Cost baseline
.2 Project funding requirements
.3 Project documents updates

7.4 Control Costs

.1 Inputs
.1 Project management plan
.2 Project documents
.3 Project funding requirements
.4 Work performance data
.5 Organizational process assets

.2 Tools & Techniques
.1 Expert judgment
.2 Data analysis
.3 To-complete performance index
.4 Project management information system

.3 Outputs
.1 Work performance information
.2 Cost forecasts
.3 Change requests
.4 Project management plan updates
.5 Project documents updates

Figure 8 Project Cost Management Overview (PMI, 2017)

2.2.5.5 Project Quality Management

Project Quality Management encompasses the processes and activities that are used to figure out and achieve the quality of the deliverables of a project. Figure 9 shows the Project Quality Management Plan with its three processes, being those processes; Planning Quality Management, Managing Quality and Controlling Quality. (PMI, 2017)

Project Quality Management Overview

8.1 Plan Quality Management

.1 Inputs
  .1 Project charter
  .2 Project management plan
  .3 Project documents
  .4 Enterprise environmental factors
  .5 Organizational process assets
.2 Tools & Techniques
  .1 Expert judgement
  .2 Data gathering
  .3 Data analysis
  .4 Decision making
  .5 Data representation
  .6 Test and inspection planning
  .7 Meetings
.3 Outputs
  .1 Quality management plan
  .2 Quality metrics
  .3 Project management plan updates
  .4 Project documents updates

8.2 Manage Quality

.1 Inputs
  .1 Project management plan
  .2 Project documents
  .3 Organizational process assets
.2 Tools & Techniques
  .1 Data gathering
  .2 Data analysis
  .3 Decision making
  .4 Data representation
  .5 Audits
  .6 Design for X
  .7 Problem solving
  .8 Quality improvement methods
.3 Outputs
  .1 Quality reports
  .2 Test and evaluation documents
  .3 Change requests
  .4 Project management plan updates
  .5 Project documents updates

8.3 Control Quality

.1 Inputs
  .1 Project management plan
  .2 Project documents
  .3 Approved change requests
  .4 Deliverables
  .5 Work performance data
  .6 Enterprise environmental factors
  .7 Organizational process assets
.2 Tools & Techniques
  .1 Data gathering
  .2 Data analysis
  .3 Inspection
  .4 Testing/product evaluations
  .5 Data representation
  .6 Meetings
.3 Outputs
  .1 Quality control measurements
  .2 Verified deliverables
  .3 Work performance information
  .4 Change requests
  .5 Project management plan updates
  .6 Project documents updates

Figure 9 Project Quality Management Overview (PMI 2017)

2.2.5.6 Project Resource Management

It manages the resources needed for the successful competition of the project; it identifies, acquires and manages the resources. The processes involved are as followed. Planning Resource Management, Estimating Activity Resources, Developing Team, Managing Team, Controlling Resources, Figure 10 shows the graphical visualization of those processes and of the Project Resource Overview. (PMI, 2017)

Figure 10 Project Resources Management Overview (PMI, 2017)

2.2.5.7 Project Communication Management

It specifies all project communications generated throughout the project, the target audiences, the information content and the frequency. It consists of two parts. The first part is developing a strategy to ensure communication is effective for stakeholders. The second part is carrying out the activities necessary to implement the communication strategy.

The following Figure 11 shows the Project Communications Management overview and its processes, Plan Communications Management, Manage Communications, and Monitor Communications. (PMI, 2017)

Project Communications Management Overview

10.1 Plan Communications Management

.1 Inputs
  .1 Project charter
  .2 Project management plan
  .3 Project documents
  .4 Enterprise environmental factors
  .5 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Communication requirements analysis
  .3 Communication technology
  .4 Communication models
  .5 Communication methods
  .6 Interpersonal and team skills
  .7 Data representation
  .8 Meetings

.3 Outputs
  .1 Communications management plan
  .2 Project management plan updates
  .3 Project documents update

10.2 Manage Communications

.1 Inputs
  .1 Project management plan
  .2 Project documents
  .3 Work performance reports
  .4 Enterprise environmental factors
  .5 Organizational process assets

.2 Tools & Techniques
  .1 Communication technology
  .2 Communication methods
  .3 Communication skills
  .4 Project management information system
  .5 Project reporting
  .6 Interpersonal and team skills
  .7 Meetings

.3 Outputs
  .1 Project communications
  .2 Project management plan updates
  .3 Project documents updates
  .4 Organizational process assets updates

10.3 Monitor Communications

.1 Inputs
  .1 Project management plan
  .2 Project documents
  .3 Work performance data
  .4 Enterprise environmental factors
  .5 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Project management information system
  .3 Data representation
  .4 Interpersonal and team skills
  .5 Meetings

.3 Outputs
  .1 Work performance information
  .2 Change requests
  .3 Project management plan updates
  .4 Project documents updates

Figure 11 Project Communication Management Overview (PMI, 2017)

2.2.5.8 Project Risk Management

Project Risk Management helps the project team identify known threats helping

them finish the project successfully; it calculates potential impacts on budget and

schedule. The Project Risk Management processes are; Planning Risk

Management, Identifying Risks, Performing Quality Risk Analysis, Performing

Quantitative Risk Analysis, Planning Risk Response, Implementing Risk

Responses, Monitoring Risks, as shown in Figure 12. (PMI, 2017)
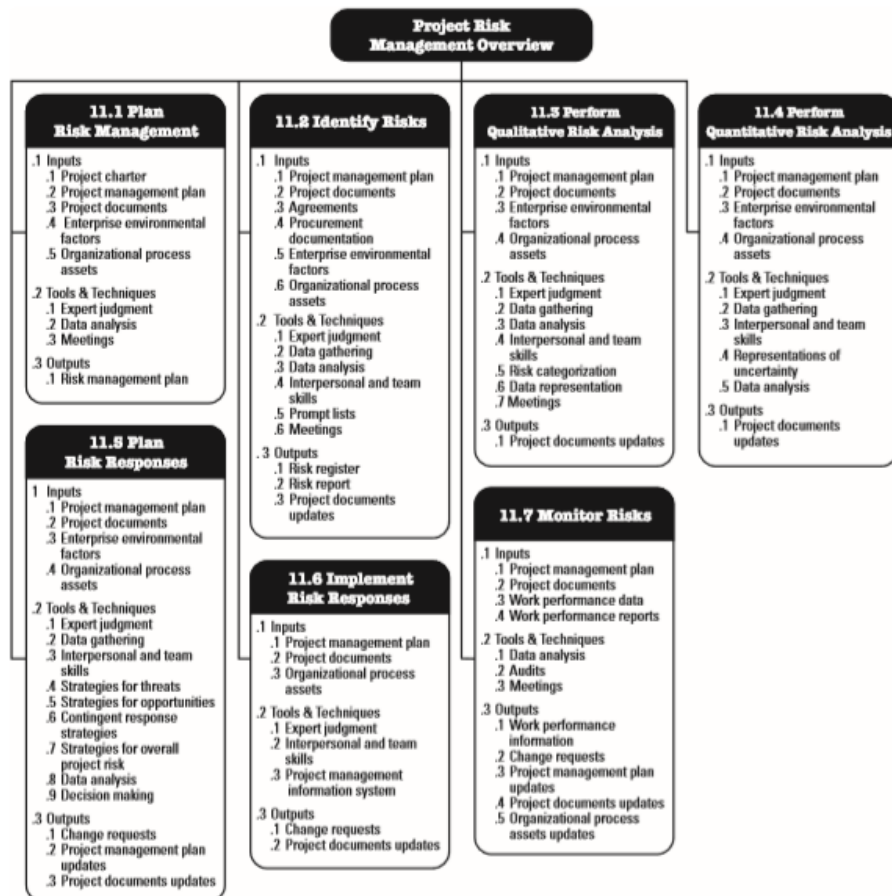
Figure 12 Project Risks Management Overview (PMI, 2017)

2.2.5.9 Project Procurement Management

The process of buying, rent or contract with some external resource to meet the project goal. Managing this means getting the best quality from the outside vendors. The Project Procurement Management processes include, Plan Procurement Management, conduct procurements, control procurements. Figure 13 explains the Project procurement management. (PMI, 2017)

Project Procurement Management Overview

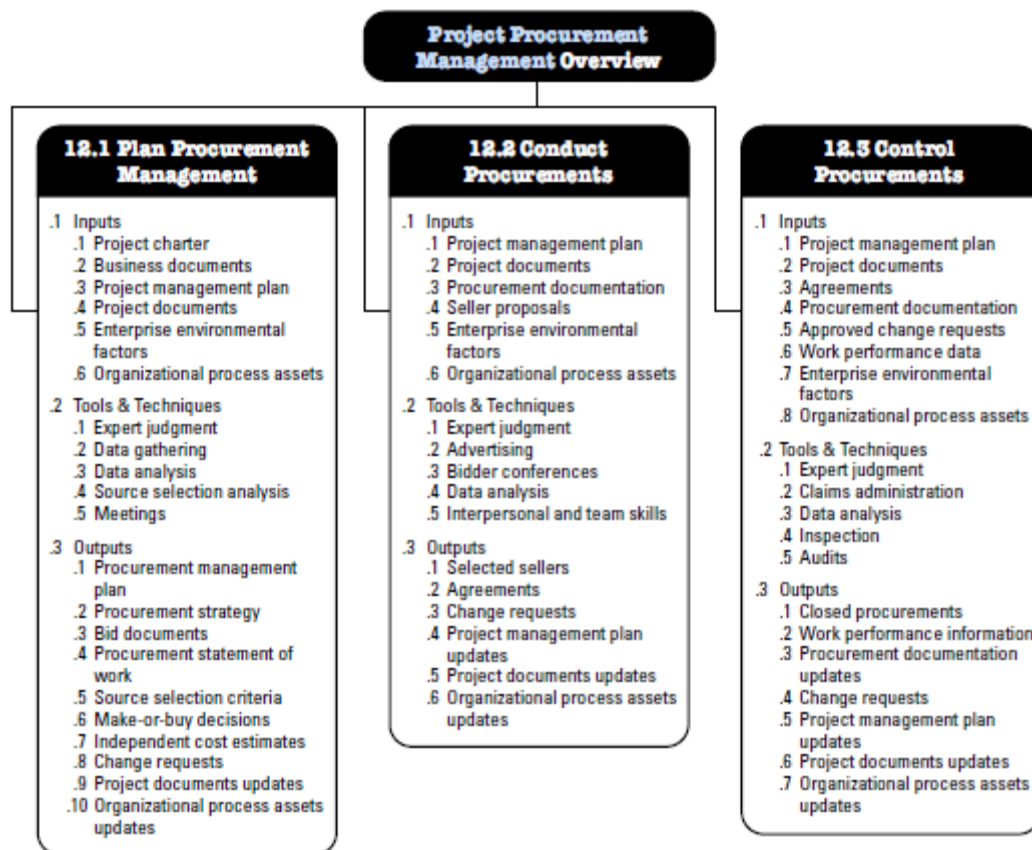| **12.1 Plan Procurement Management**	**12.2 Conduct Procurements**	**12.3 Control Procurements**

.1 Inputs
  .1 Project charter
  .2 Business documents
  .3 Project management plan
  .4 Project documents
  .5 Enterprise environmental factors
  .6 Organizational process assets
	.1 Inputs
	  .1 Project management plan
	  .2 Project documents
	  .3 Procurement documentation
	  .4 Seller proposals
	  .5 Enterprise environmental factors
	  .6 Organizational process assets
		.1 Inputs
		  .1 Project management plan
		  .2 Project documents
		  .3 Agreements
		  .4 Procurement documentation
		  .5 Approved change requests
		  .6 Work performance data
		  .7 Enterprise environmental factors
		  .8 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Data gathering
  .3 Data analysis
  .4 Source selection analysis
  .5 Meetings
	.2 Tools & Techniques
	  .1 Expert judgment
	  .2 Advertising
	  .3 Bidder conferences
	  .4 Data analysis
	  .5 Interpersonal and team skills
		.2 Tools & Techniques
		  .1 Expert judgment
		  .2 Claims administration
		  .3 Data analysis
		  .4 Inspection
		  .5 Audits

.3 Outputs
  .1 Procurement management plan
  .2 Procurement strategy
  .3 Bid documents
  .4 Procurement statement of work
  .5 Source selection criteria
  .6 Make-or-buy decisions
  .7 Independent cost estimates
  .8 Change requests
  .9 Project documents updates
  .10 Organizational process assets updates
	.3 Outputs
	  .1 Selected sellers
	  .2 Agreements
	  .3 Change requests
	  .4 Project management plan updates
	  .5 Project documents updates
	  .6 Organizational process assets updates
		.3 Outputs
		  .1 Closed procurements
		  .2 Work performance information
		  .3 Procurement documentation updates
		  .4 Change requests
		  .5 Project management plan updates
		  .6 Project documents updates
		  .7 Organizational process assets updates

Figure 13 Project Procurement Management Overview (PMI, 2017)

2.2.5.10 Project Stakeholder Management

The focus of the Stakeholder Management is not to manage Stakeholders per se, but instead, it is to manage their engagement to the project. This includes the processes to identify the people, group or organizations that could impact or be impacted by the project. (PMI, 2017)

The Project Stakeholder Management Processes are; Identifying Stakeholders, Planning Stakeholder Engagement, Managing Stakeholder Engagement, and Monitoring Stakeholder Engagement. Figure 14 explains the Project Stakeholder Management Overview. (PMI, 2017)
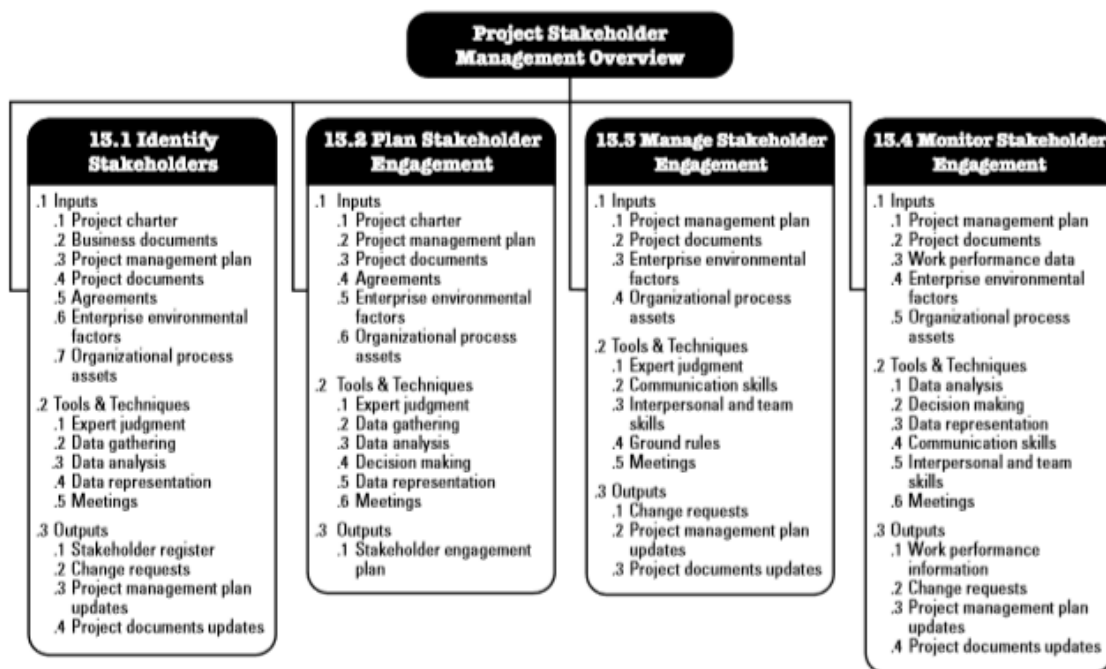

Figure 14 Project Stakeholder Management Overview (PMI, 2017)

3. METHODOLOGICAL FRAMEWORK

3.1 Information sources

Merriam Webster (2020) dictionary defines the word Information as the knowledge obtained from investigation or study, such as news, facts and data.

Oxford dictionary defines the word source as a place, person or thing from which something originates or can be obtained. (Lexico. 2020).

Therefore, information source is a place, person or thing from which facts or knowledge are learned.

3.2 Primary sources

Healey Library (2020) defines primary sources as the original materials on which other research is based. They are from the time period involved and have not been filtered through interpretation or evaluation.

In other words, primary sources are the more current and up-to-date than any other source of information.

The primary information sources to be used in this Project Management Plan are meeting minutes, company reports, and Align Technology website.

3.3 Secondary sources

Healey Library (2020, July 14), defines secondary sources as those less easily defined than primary sources. Generally, they are accounts written after the fact with the benefit of hindsight. They are interpretations and evaluations of primary sources.

In other words, secondary sources are a compilation of primary sources. They analyze, interpret and discuss information about the latter.

The secondary information sources to be used in this Project Management Plan are newspaper articles, websites, dictionaries and PMBOK® Guide.

3.4 Research methods

Kumar, (2008) defines research methods as all those methods and techniques used for conducting research. In other words, all the methods used by researchers during the course of studying their research problem are termed as research methods.

3.4.1 Analytical method

It involves the in-depth study and evaluation of available information in an attempt to explain complex phenomenon. The Analytical method is primarily concerned with testing hypothesis by analyzing the facts or information already available. (Bahadur, 2014).

3.5 Tools

PMI (2017) defines a tool as something tangible, such as a template or software program used in performing an activity to produce a product or result.

3.6 Assumptions and constraints

An assumption according to PMI (2007) is a factor, in the planning process, which is considered true, real or certain, without proof or demonstration.

A constraint according to PMI (2007) is a limiting factor that affects the execution of a project, program, portfolio or process.

As mentioned in section 3.1, 3.2 and 3.3, Chart 1 explains the primary and secondary sources used in this project.

Chart 1 Information sources (Own elaboration, 2020)

Objectives	Information sources	
	Primary	**Secondary**
To create a project charter to get approval to start the project, thus, procuring the Project Manager with the authorization to produce the project management plan.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide
To create a scope management plan to ensure the inclusion of all the work required to complete the project successfully.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide
To create a schedule management to support the development and management of a project schedule to ensure the completion of the project within time constraints.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide
To create a cost management plan to define the processes for developing and managing the project budget to ensure the completion of the project within the budget constraints.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide
To develop a quality management plan to identify the quality requirements for the project in order to make sure that results meet expectations for approval within the time, cost and scope constraints.	Meeting minutes, focus group, company reports, Align Technology website.	PMBOK® Guide

Objectives	Information sources	
	Primary	Secondary
To create a resource management plan to ensure that all resources are identifiable, and managed effectively to complete the project within the time, cost and scope constraints.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide
To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide
To create a risk management plan to identify and examine risks for the successful completion of the project and to develop plans to minimize the likelihood of the risks.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide
To develop a stakeholder management plan, to identify and support all the project stakeholders to ensure effective stakeholder engagement.	Meeting minutes, company reports, Align Technology website.	PMBOK® Guide

As seen on section 3.4 and 3.4.1 the next chart explains the research methods used for each specific objective for this project.

Chart 2 Research methods (Own elaboration, 2020)

Objectives	Research methods
To create a project charter to get approval to start the project, thus, procuring the Project Manager with the authorization to produce the project management plan.	The analytical method will be employed by using facts or information from the sources identified in Chart 1 objective 1 above, to drive decision making when creating the project charter.
To create a scope management plan to ensure the inclusion of all the work required to complete the project successfully.	The analytical method will be employed by using facts or information from the sources identified in Chart 1 objective 2 above, to drive decision making when creating the documents which comprise the scope management plan.
To create a schedule management to support the development and management of a project schedule to ensure the completion of the project within time constraints.	The analytical method will be employed by using information from the sources identified in Chart 1 objective 3 above, to drive decision making when creating the documents that will comprise the time management plan.
To create a cost management plan to define the processes for developing and managing the project budget to ensure the completion of the project within the budget constraints.	The analytical method will be employed by using information from the sources identified in Chart 1 objective 4 above, to drive decision making when creating the documents that will comprise the cost management plan.

Objectives	Research methods
To develop a quality management plan to identify the quality requirements for the project in order to make sure that results meet expectations for approval within the time, cost and scope constraints.	The analytical method will be employed by using information from the sources identified in Chart 1 objective 5 above, to drive decision making when creating the documents that will comprise the quality management plan.
To create a resource management plan to ensure that all resources are identifiable, and managed effectively to complete the project within the time, cost and scope constraints.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 6 above, to drive decision making when creating the documents that will comprise the resource management plan.
To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 7 above, to drive decision making when creating the documents that will comprise the communications management plan.
To create a risk management plan to identify and examine risks for the successful completion of the project and to develop plans to minimize the likelihood of the risks.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 8 above, to drive decision making when creating the documents that will comprise the risk management plan.

Objectives	Research methods
To develop a stakeholder management plan, to identify and support all the project stakeholders to ensure effective stakeholder engagement.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 9 above, to drive decision making when creating the documents that will comprise the stakeholder management plan.

To furthermore explain section 3.5; Chart 3 talks about the sources that will be used for each specific objective in this project.

Chart 3 Tools source (Own elaboration, 2020)

Objectives	Tools
To create a project charter to get approval to start the project, thus, procuring the Project Manager with the authorization to produce the project management plan.	Project Charter template.
To create a scope management plan to ensure the inclusion of all the work required to complete the project successfully.	Meetings, documentation template.
To create a schedule management to support the development and management of a project schedule to ensure the completion of the project within time constraints.	Schedule management template, Microsoft project.

Objectives	Tools
To create a cost management plan to define the processes for developing and managing the project budget to ensure the completion of the project within the budget constraints.	Expert judgment.
To develop a quality management plan to identify the quality requirements for the project in order to make sure that results meet expectations for approval within the time, cost and scope constraints.	Quality Management Plan template.
To create a resource management plan to ensure that all resources are identifiable, and managed effectively to complete the project within the time, cost and scope constraints.	Human resources management plan template, and responsibility assignment matrix.
To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	Communication management plan, and communication matrix.
To create a risk management plan to identify and examine risks for the successful completion of the project and to develop plans to minimize the likelihood of the risks.	Risk management plan template, risk register template. Risk identification.

Objectives	Tools
To develop a stakeholder management plan, to identify and support all the project stakeholders to ensure effective stakeholder engagement.	Stakeholder management plan, stakeholder management register template.

Chart 4 explains the assumptions and constraints for all the specific objectives, mentioned in section 3.6.

Chart 4 Assumption and constraints (Own elaboration, 2020)

Objectives	Assumptions	Constraints
To create a project charter to get approval to start the project, thus, procuring the Project Manager with the authorization to produce the project management plan.	The charter will be created before all other subsidiary document.	A sustainable amount of work has to be collected in short time.
To create a scope management plan to ensure the inclusion of all the work required to complete the project successfully.	A management plan will be developed.	Scope may change as the project progresses
To create a schedule management to support the development and management of a project schedule to ensure the completion of the project within time constraints.	A management plan will be developed.	There might be some delays during the project.

Objectives	Assumptions	Constraints
To create a cost management plan to define the processes for developing and managing the project budget to ensure the completion of the project within the budget constraints.	Budget will be developed.	Budget may vary.
To develop a quality management plan to identify the quality requirements for the project in order to make sure that results meet expectations for approval within the time, cost and scope constraints.	Stakeholders requirements will be analyzed.	Stakeholder requirements might change during the course of the project.
To create a resource management plan to ensure that all resources are identifiable, and managed effectively to complete the project within the time, cost and scope constraints.	All roles and responsibilities will be assigned.	Some resources may not be available.
To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	Everything will be documented and communicated to all stakeholders and team members.	Some communication methods may not be available to every stakeholder and team member.

Objectives	Assumptions	Constraints
To create a risk management plan to identify and examine risks for the successful completion of the project and to develop plans to minimize the likelihood of the risks.	All risk will be identified.	Some risk may occur due to other constraints.
To develop a stakeholder management plan, to identify and support all the project stakeholders to ensure effective stakeholder engagement.	All stakeholders will be identified.	Stakeholders might change during the project.

3.7 Deliverables

Deliverable is defined as any unique and verifiable product, result or capability to perform a service that is required to be produced to complete a process, phase, or projects. (PMI, 2017)

For the purpose of the project, Chart 5 shows the deliverables for each specific objective.

Chart 5 Deliverables (Own elaboration, 2020)

Objectives	Deliverables
To create a project charter to get approval to start the project, thus, procuring the Project Manager with the authorization to produce the project management plan.	Project charter

Objectives	Deliverables
To create a scope management plan to ensure the inclusion of all the work required to complete the project successfully.	Scope management plan
To create a schedule management to support the development and management of a project schedule to ensure the completion of the project within time constraints.	Schedule management plan
To create a cost management plan to define the processes for developing and managing the project budget to ensure the completion of the project within the budget constraints.	Cost management plan
To develop a quality management plan to identify the quality requirements for the project in order to make sure that results meet expectations for approval within the time, cost and scope constraints.	Quality management plan
To create a resource management plan to ensure that all resources are identifiable, and managed effectively to complete the project within the time, cost and scope constraints.	Resources management plan
To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	Communication management plan

Objectives	Deliverables
To create a risk management plan to identify and examine risks for the successful completion of the project and to develop plans to minimize the likelihood of the risks.	Risk management plan
To develop a stakeholder management plan, to identify and support all the project stakeholders to ensure effective stakeholder engagement.	Stakeholder management plan

4. RESULTS

4.1. Project Integration Management

In order to develop the Project Management Plan for the Virtual Library a project charter was the first process in the project integration management knowledge area. This was accomplished by doing interviews, meeting minutes.

4.2 Project charter

Project Charter as shown in Chart 6, is the first deliverable of the FGP, a project charter template was used to obtain the project purpose, objectives, description, risks, stakeholder list, assumptions among other relevant information regarding the FGP.

Chart 6 Project charter (Own elaboration, 2020)

Project Charter Invisalign Pro Virtual Library	
General Information	
Project Name	Invisalign Pro Virtual Library
Project Sponsor	Julio Rojas
Project Manager	Lorena Barboza
Organizational Unit	Commercial Operations (Invisalign Pro Program)
Process Impacted	Invisalign Pro Content Management, Invisalign Pro Education and Support
Expected Start Date	May 25th, 2020
Expected Completion Date	September 11th, 2020
Estimated Cost	$ 60,981.32
Describe the Problem, Issues, Goal, Objective and Deliverables of the Project	
Problem or Issue	As of now, the repository material can be accessed from 8 different platforms. It is time consuming to jump from one platform to another.

Purpose of Project	The purpose of this project is to create a Virtual Library through a SharePoint, to provide the users the organized information access to repository of information and services at knowledge base.
Goals	To make a Virtual Library where the knowledge can be centralized in just one platform.
Expected Deliverables	Virtual Library through a SharePoint

Define the Project Scope and Schedule	
Within Scope	Invisalign Pro Program Costa Rica, Clinical Content
Outside Scope	Invisalign Pro Raleigh, Management Content

Milestones Dates and Responsible			
Milestone	**Start Date**	**End Date**	**Responsible**
Developing Project Charter	05/25/20	05/29/20	Project Manager
Project Kick-off with Sponsor	06/05/20	06/05/20	Project Manager
Develop Preliminary SharePoint Draft	06/08/20	06/26/20	Designer
Incorporate Feedback on the Preliminary Draft	06/29/20	07/03/20	Designer
Design Approval	07/03/20	07/03/20	Project Manager, Project Sponsor
SharePoint Development	07/06/20	07/24/20	Engineer
Testing and Adjustments	07/27/20	07/31/20	Project Team
Development Approval	07/31/20	07/31/20	Project Manager, Project Sponsor
Development of Communication Plan	08/03/20	08/07/20	Assistant Project Manager
Implementation of Communication Plan	08/10/20	08/14/20	Assistant Project Manager

Communication Completed	08/14/20	08/14/20	Assistant Project Manager
Develop CA Training	08/17/20	08/21/10	Orthodontist, Orthodontist Assistance
Conduct CA Training	08/24/20	08/28/20	Orthodontist Assistance
Training Completed	08/28/20	08/28/20	Project Manager, Project Sponsor
Create Software Maintenance Team	08/31/20	08/31/20	Assistant Project Manager
Create and Implement a Survey	08/31/20	09/04/10	Assistant Project Manager
Post implementation Documentation	09/07/20	09/11/20	Project Manager
Define Project Resources			
Project Team	Ivan Sanchez, Esteban Aguello, Hector Contreras, Mariela Trujillo, Adriana Castro		
Support Resources			
Cost	$ 60,981.32		
Stakeholders	CA's Learning and Development, Management team Costa Rica		
Describe Project Risk, Constraints and Assumptions			
Risks	Not having enough time available from the collaborators to finish the project on time		
Constraints	Time off to develop the project, limited functionality of SharePoint platform		
Assumptions	Support form Senior Management		
Prepared by	Lorena Barboza		

4.2. Project Scope Management

4.2.1 Scope Management Plan

The Scope Management Plan provides the scope framework for this project. This plan documents the scope management approach; roles and responsibilities as they pertain to project scope; scope definition; verification and control measures; scope change control; and the project's work breakdown structure.

4.2.1.1 Virtual Library Invisalign Pro Program Introduction

This project is for the creation of a Virtual Library for the Invisalign Pro Program. As obtained in focus groups, it is a needed tool to enhance work time and increase productivity and continual education. In addition, the department management goals aligned with the creation of the Virtual Library.

4.2.2 Scope Management Approach

For the Virtual Library Project, scope management will be the sole responsibility of the Project Manager. The Scope Statement, Work Breakdown Structure (WBS), and the WBS Dictionary defines the scope for this project. The Project Manager, Sponsor and Stakeholders will establish and approve documentation for measuring project scope. An agile method will be used to deliver the project. The Project Manager, Stakeholders or any member of the project team may initiate proposed scope changes. All change requests will be submitted as change orders to the Project Manager, who will then evaluate the requested scope change. Upon acceptance of the scope change request, the Project Manager will submit the scope change request to the Sponsor and Stakeholders. The Project Manager is responsible for the approval of scope changes that are strictly technical in nature.

Whereas, the Project Sponsor is responsible for the approval of scope changes affecting time and costs parameters. Upon approval of scope changes, the Project Manager will update all project documents and communicate the scope change to all stakeholders through a change directive. Based on feedback and input from the Project Manager and Stakeholders, the Project Sponsor is responsible for the acceptance of the final project deliverables and project scope.

4.2.3 Roles and Responsibilities

The Project Manager, Sponsor and Team will all play key roles in managing the scope of this project. As such, the project sponsor, manager, and team members must be aware of their responsibilities in order to ensure that the work performed in the project is within the established scope throughout the duration of the project. Chart 7 defines the roles and responsibilities for the scope management of this project.

Chart 7 Scope management roles and responsibilities (Own elaboration, 2020)

Name	Role	Responsibilities
Julio Rojas	Project Sponsor	• Approve or deny scope change requests as appropriate • Evaluate need for scope change requests • Accept project deliverables

Name	Role	Responsibilities
Lorena Barboza	Project Manager	• Measure and verify project scope • Facilitate scope change requests • Facilitate impact assessments of scope change requests • Organize and facilitate scheduled change control meetings • Communicate outcomes of scope change requests • Update project documents upon approval of all scope changes
Ivan Sanchez	Assistant Project Manager	• Assist in the creation of the Project Management Plan • Communicate meeting minutes • Report the Project Manager on changes and updates made to the project • Collecting daily reports from the site management team • Broadcasting daily site reports to relevant stakeholders as directed by the Project Manager
Esteban Arguello Hector Contreras Adriana Castro Mariela Trujillo	Team Members	• Participate in defining change resolutions • Evaluate the need for scope changes and communicate them to the project manager as necessary

Name	Role	Responsibilities
Stakeholders	Site Workers	• Can propose scope changes • Will execute change directives issued by Project Manager

4.2.4 Scope Definition

The project deliverables were generated based on the requirements collection

process and input from the stakeholder's focus groups, meetings and interviews

from expert judgement from the engineer team. This process of expert judgement

provided feedback on the most effective, and easy ways to meet the original

requirements of creating a Virtual Library.

4.2.5 Project Scope Statement

The purpose of this project is to create a Virtual Library through a SharePoint, to

provide the users the organized information access to repository of information and

services at knowledge base.

4.2.6 Scope description, product acceptance criteria, and project

deliverables.

The project includes the creation of a Virtual Library through a SharePoint.

The initial scope is as follows:

- Proposed platform:

  o Online platform, easy to use, easy to update material, user-friendly,

    appealing to catch user's attention. Aligns with the company

    collaboration and document management. Cost effective option.

- Description of the project:

- o There has to be a section for videos, books, articles, podcast, clinical

    cases, and training material.

- Proposed date and duration:

    - o Start date May 25th 2020

    - o May 2020 – September 2020

- Budget:

    - o Workforce sunk cost $ 60,231.32

    - o Orthodontic Journal annual membership $750

    - o Total cost $ 60,981.32

- Project exclusion:

    - o Management content, this will be added once the first stage is

        delivered.

- Project constraints:

    - o There are some SharePoint limited functionalities, SharePoint may

        not be the most appealing looking platform available. There might not

        be enough time to finish on time.

4.2.7 Work Breakdown Structure

The next figure provides a graphical view of the project and helps the project team organize the work.
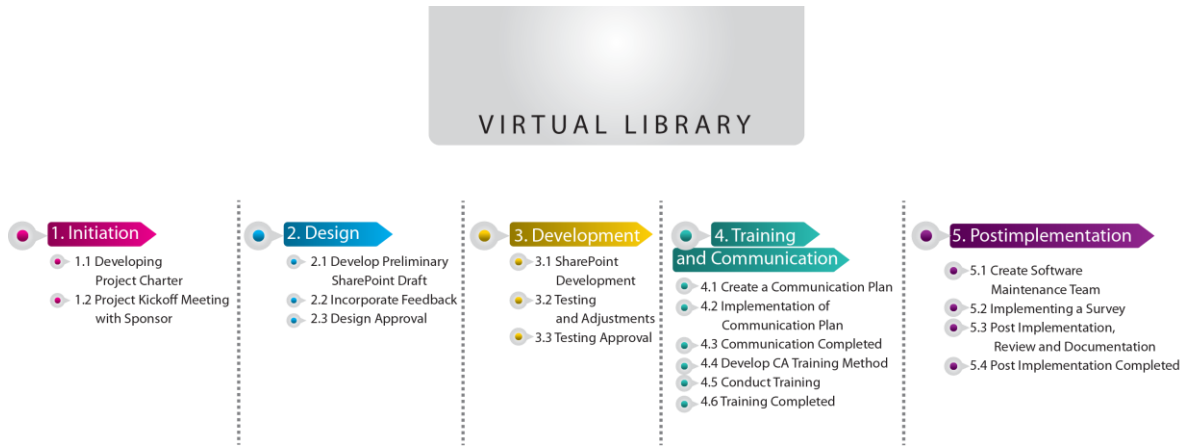
Figure 15 Work Breakdown Structure (WBS) (Own elaboration, 2020)

4.2.8 Work Breakdown Dictionary

The project team will use the WBS Dictionary presented in Chart 8, as a statement of work for each WBS element.

Chart 8 Work breakdown structure dictionary (Own elaboration, 2020)

Level	WBS Code	Element Name	Description	Deliverable
1	1.1	Developing Project Charter	Project Charter	Project Charter
1	1.2	Project Kickoff Meeting with Sponsor	Meeting held to obtain sponsor's approval	Directive approval
2	2.1	Develop Preliminary SharePoint Draft	Research materials, methodologies to make a graphic visualization of the SharePoint draft	Initial design draft
2	2.2	Incorporate Feedback	Making of necessary adjustments to the SharePoint draft	Final design draft

Level	WBS Code	Element Name	Description	Deliverable
2	2.3	Design Approval	Meeting held with sponsor to obtain the SharePoint design approval	Authorization to proceed
3	3.1	SharePoint Development	Process of making the SharePoint application	SharePoint site
3	3.2	Testing and Adjustments	Collaborative effort to test the SharePoint in order to find needed adjustments	
3	3.3	Testing Approval	Meeting held with sponsor to obtain the SharePoint development approval	Authorization to proceed
4	4.1	Create a Communication Plan	Process of preparing a communication plan	Communication plan
4	4.2	Implementation of Communication Plan	Process of applying the communication plan	Communication plan
4	4.3	Communication Completed	Closure of communication plan completed	Communication delivered
4	4.4	Develop CA Training Method	Creation of training material, delivery and methodology	Training material
4	4.5	Conduct Training	Procedure of conducting the training with the selected methodology and material	Training
4	4.6	Training Completed	Closure of training process	Training delivered
5	5.1	Create Software Maintenance Team	Entails selecting a group of people who will be in charge of making sure to update the information available on the platform.	Maintenance team
5	5.2	Implementing Survey	Making and executing a survey to measure outcome satisfaction and improvements for next update	Survey satisfaction

Level	WBS Code	Element Name	Description	Deliverable
5	5.3	Post Implementation Review and Documentation	Documenting project closure, preparing final reports to the sponsor and stakeholders	Require documentation
5	5.4	Post Implementation Completed	Closure of the post implementation documentation and final meeting with team, sponsor and stakeholders	Final report

4.2.9 Scope verification

As the project progresses, the Project Manager will verify project deliverables against the original scope as defined in the scope statement, WBS and WBS Dictionary. Following scope verification, when the sprint outcome is reviewed and accepted by stakeholders, the development team can then move on to complete other items from the backlog. Once the sprint is over the Project Manager and Sponsor will meet for formal acceptance of the deliverables. Project Sponsor will accept the deliverable by signing a project deliverable acceptance document. This will ensure that project work remains within the scope of the project on a consistent basis throughout the life of the project.

4.2.10 Scope control

The Project Manager and the project team will work together to control the scope of the project. The project team will leverage the WBS Dictionary by using it as a statement of work for each WBS element. The project team will ensure that they perform only the work described in the WBS Dictionary and generate the defined deliverables for each WBS element. The Project Manager will oversee the project

team and the progression of the project to ensure that the scope control process is followed.

If a change to the project scope is needed, the process for recommending changes to the scope of the project must be carried out. Any project team member or sponsor can request changes to the project scope. All change requests must be submitted to the Project Manager in the form of a project change order. The Project Manager will then review the suggested change to the scope of the project. The Project Manager will then either deny the change request, if it does not apply to the intent of the project, or hold a change control meeting between the project team and the Sponsor to review whether the change request receives approval by the Project Manager and Sponsor. The Project Manager will then formally submit the change request to the Project Sponsor who will then formally accept the change by signing the change order. Upon acceptance of the scope change by the Project Manager and Project Sponsor, the Project Manager will upgrade all project documents and communicate the scope directive to all project team members and stakeholders.

4.3 Schedule Management Plan

The project schedule is the guide for how the project will be completed and finished. The schedule is a critical part of this project because it provides the project team and sponsor with a visual picture of the project's standing at any given time.

4.3.1 Schedule Management Approach

In order to develop the initial schedule proposal, a meeting with the project team was held, it was noticed that the team was working on multiple projects with higher priority to the organization. It was discovered that they could dedicate a few hours a week to develop the Virtual Library, taking into consideration any emergency delays and extra meetings the other projects could encounter, it was decided to add a time multiplier to certain tasks to offset the overly optimistic time estimation. Once an initial schedule has been developed, the Project Manager and Assistant Project Manager will assess it cautiously to review assigned project tasks. The project team and resources must agree to the proposed work package assignments, durations, and schedule. Once this is achieved, the Project Sponsor will review and approve the schedule and it will then be baselined.

The following are designated as milestones for the Project Schedule:

1. Project Initiation

2. Design

3. Development

4. Training and Communication

5. Post-implementation

At the end of each milestone a sprint review will take place along with stakeholders, sponsor and project team where each stage will be presented in order to move forward with the next backlog.

Roles and responsibilities for schedule development are as followed:

The Project Manager will be responsible for facilitating the breakdown of work packages into activities that provide a basis for sequencing, and estimating

duration and resources with the project team. The Project Manager will also create the project schedule using MS Project and validate the schedule with the project team, and stakeholders. The Project Manager will obtain schedule approval from the Stakeholders and baseline the schedule.

The project team is responsible for participating in work, and duration. The project team will also review and validate the proposed schedule and perform assigned activities once the schedule is approved.

The Project Stakeholders will participate in reviews of the proposed schedule, assist in its validation and approve the final schedule before it is baselined.

4.3.2 Schedule Control

The Project Schedule will be reviewed and updated as necessary when new or old information is added or deleted. It will include the actual start, finish and percentages of completion.

The Project Manager is responsible for holding schedule updates or review meetings and determining any schedule modifications. Submitting schedule change requests and reporting schedule status in accordance with the project's communications plan will be left to the Project Manager.

The project team is responsible for participating in schedule updates or review meeting sessions. The team must communicate any changes of the actual start/finish dates to the Project Manager. Finally, the team will participate in schedule variances resolution activities as needed.

The Project Stakeholders will maintain awareness of the Project Schedule status and review/ approve any schedule change requests submitted by the Project Manager.

4.3.3 Schedule Changes and Thresholds

If any member of the project team determines that a modification to the schedule is essential, the Project Manager and team will meet to assess and evaluate the change. The Project Manager and Project Team must conclude which tasks will be impacted, any variance resulting from the potential change, and any alternatives or variance resolution activities they may employ to see how they would affect the scope, schedule and resources. If, after this evaluation is complete, the Project Manager determines that any change will surpass the established schedule constraints, then a schedule change request must be submitted.

Once the change request has been reviewed and approved the Project Manager is responsible for adjusting the schedule and communicating all changes and impacts to the project team and stakeholders. The Project Manager must also ensure that all change requests are stored for safety.

The Activity list was taken from the WBS Dictionary. The Schedule Management Plan, Activity list, Milestones list and Project Scope Statement found in the Scope Management Plan were used as inputs to this process. In addition, a few minutes were conducted with the Project Team and Stakeholders, to confirm the correct arrangement of each activity. The sequence activity is shown in Chart 9.

Chart 9 Sequence activity (Own elaboration, 2020)

Level	WBS Code	Element Name	Duration	Start	Finish
		Virtual Library	79 days	05/25/20	09/11/20
1	1	Initiation	9 days	05/25/20	06/05/20
1	1.1	Developing Project Charter	5 days	05/25/20	05/29/20
1	1.2	Project Kickoff Meeting with Sponsor	0 days	06/05/20	06/05/20
2	2	Design	20 days	06/08/20	07/03/20
2	2.1	Develop Preliminary SharePoint Draft	15 days	06/08/20	06/26/20
2	2.2	Incorporate Feedback	5 days	06/29/20	07/03/20
2	2.3	Design Approval	0 days	07/03/20	07/03/20
3	3	Development	20 days	07/06/20	07/31/20
3	3.1	SharePoint Development	15 days	07/06/20	07/24/20
3	3.2	Testing	5 days	07/27/20	07/31/20
3	3.3	Testing Approval	O days	07/31/20	07/31/20
4	4	Training and Communication	20 days	08/03/20	08/28/20
4	4.1	Create a Communication Plan	5 days	08/03/20	08/07/20
4	4.2	Implementation of Communication Plan	5 days	08/10/20	08/14/20
4	4.3	Communication Completed	0 days	08/14/20	08/14/20
4	4.4	Develop CA Training Method	5 days	08/17/20	08/21/10

Level	WBS Code	Element Name	Duration	Start	Finish
4	4.5	Conduct Training	5 days	08/24/20	08/28/20
4	4.6	Training Completed	0 days	08/28/20	08/28/20
5	5	Post-implementation	10 days	08/31/20	09/11/20
5	5.1	Create Software Maintenance Team	1 day	08/31/20	08/31/20
5	5.2	Implementing Survey	5 days	08/31/20	09/04/10
5	5.3	Post Implementation Review and Documentation	5 days	09/07/20	09/11/20
5	5.4	Post Implementation Completed	0 days	9/11/20	9/11/20

4.3.3.2 Milestones Gantt schedule

Figure 16 shows the MS Project milestones with duration time start and finish

point.

	ⓘ	Task Name	Resource Names	Duration	Start	Finish	Work	Predecessors	% Complete
2	▷	Initiation		9 days	Mon 5/25/20 8:00	Fri 6/5/20 8:00 AM	40 hrs		0%
5	◢	Design		20 days	Mon 6/8/20 8:00 A	Fri 7/3/20 5:00 PM	400 hrs		0%
6	▷	Development		20 days	Mon 6/22/20 8:00	Fri 7/17/20 5:00 P	400 hrs		0%
10	▷	Training and Communication		20 days	Mon 7/20/20 8:00 AM	Fri 8/14/20 5:00 P M	360 hrs		0%
17	▷	Post Implementation		20 days	Mon 8/17/20 8:00	Fri 9/11/20 5:00 P	96 hrs		0%

Figure 16 Milestone Gantt schedule (Own elaboration, 2020)

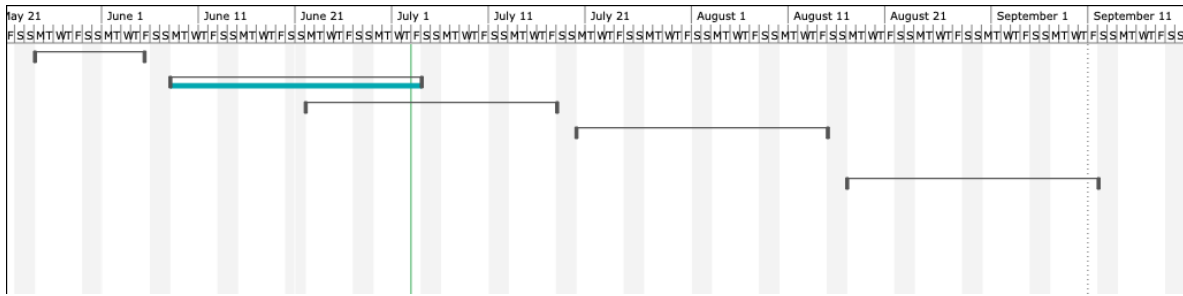Figure 17 shows the MS Project Gantt Chart for milestones.

Figure 17 Milestone Gantt schedule (Own elaboration, 2020)

4.3.3.3 Gantt Chart

Figure 18 Shows the MS Project with duration, start and finish of all the activities.

	ⓘ	Task Name	Resource Names	Duration	Start	Finish	Work	Predecessors	% Complete
2		▲ **Initiation**		**9 days**	**Mon 5/25/20 8:00**	**Fri 6/5/20 8:00 AM**	**40 hrs**		**0%**
3	▥	Developing Project Chart	Lorena Barboza	5 days	Mon 5/25/20 8:00 AM	Fri 5/29/20 5:00 PM	40 hrs		0%
4	▥	Project Kickoff Meeting	Esteban Arce,He cto	0 days	Fri 6/5/20 8:00 AM	Fri 6/5/20 8:00 AM	0 hrs	3	0%
		This task has a 'Start No Earlier Than' constraint on Mon 5/25/20 8:00 AM.							
5		▲ **Design**		**20 days**	**Mon 6/8/20 8:00 A**	**Fri 7/3/20 5:00 PM**	**720 hrs**		**0%**
6	▥	Develop Preliminary Sha repoint Draft	Lorena Barboza,I v	15 days	Mon 6/8/20 8:00 AM	Fri 6/26/20 5:00 PM	240 hrs	4	0%
7	▥	Incorporate Feedback	Lorena Barboza,I	5 days	Mon 6/29/20 8:00 AM	Fri 7/3/20 5:00 PM	80 hrs	6	0%
8	▥	Design Approval		0 days	Fri 7/3/20 5:00 PM	Fri 7/3/20 5:00 PM	0 hrs	7	0%
9		▲ **Development**		**20 days**	**Mon 7/6/20 8:00 A**	**Fri 7/31/20 5:00 P**	**400 hrs**		**0%**
10	▥	Sharepoint Developme	Lorena Barboza,I	15 days	Mon 7/6/20 8:00 AM	Fri 7/24/20 5:00 PM	240 hrs	8	0%
11	▥	Testing and Adjustme	Hector Castro,Est	5 days	Mon 7/27/20 8:00 AM	Fri 7/31/20 5:00 PM	160 hrs	10	0%
12	▥	Testing Approval	Julio Rios	0 days	Fri 7/31/20 5:00 PM	Fri 7/31/20 5:00 PM	0 hrs	11	0%
13		▲ **Training and Communic ation**		**20 days**	**Mon 8/3/20 8:00 A M**	**Fri 8/28/20 5:00 P M**	**360 hrs**		**0%**
14	▥	Create a Communication	Hector Castro,Lo	5 days	Mon 8/3/20 8:00 AM	Fri 8/7/20 5:00 PM	80 hrs	12	0%
15	▥	Implementation Commu nication Plan	Hector Castro,Lo re	5 days	Mon 8/10/20 8:00 AM	Fri 8/14/20 5:00 PM	80 hrs	14	0%
16	▥	Communication Complet		0 days	Fri 8/14/20 5:00 PM	Fri 8/14/20 5:00 PM	0 hrs	15	0%
17	▥	Develop CA Training, Ide ntify Training Method	Lorena Barboza,I e	5 days	Mon 8/17/20 8:00 AM	Fri 8/21/20 5:00 PM	120 hrs	15,16	0%
18	▥	Conduct Training CAs	Lorena Barboza,I	5 days	Mon 8/24/20 8:00 AM	Fri 8/28/20 5:00 PM	80 hrs	17	0%
19	▥	Training Completed		0 days	Fri 8/28/20 5:00 PM	Fri 8/28/20 5:00 PM	0 hrs	18,14	0%
20		▲ **Post Implementation**		**10 days**	**Mon 8/31/20 8:00**	**Fri 9/11/20 5:00 P**	**96 hrs**		**0%**
21	▥	Create Software Mainten ance Team	Ivan Sandi,Hect or C	1 day	Mon 8/31/20 8:00 AM	Mon 8/31/20 5:00 PM	16 hrs	19	0%
22		Implementing the Surve	Lorena Barboza	5 days	Mon 8/31/20 8:00 AM	Fri 9/4/20 5:00 PM	40 hrs	21	0%
23	▥	Post Implementation Rev iew and Documentation	Lorena Barboza	5 days	Mon 9/7/20 8:00 AM	Fri 9/11/20 5:00 PM	40 hrs	22	0%
24	▥	Post Implementation Co		0 days	Fri 9/11/20 5:00 PM	Fri 9/11/20 5:00 PM	0 hrs	23,21	0%

Figure 18 Gantt schedule (Own elaboration, 2020)

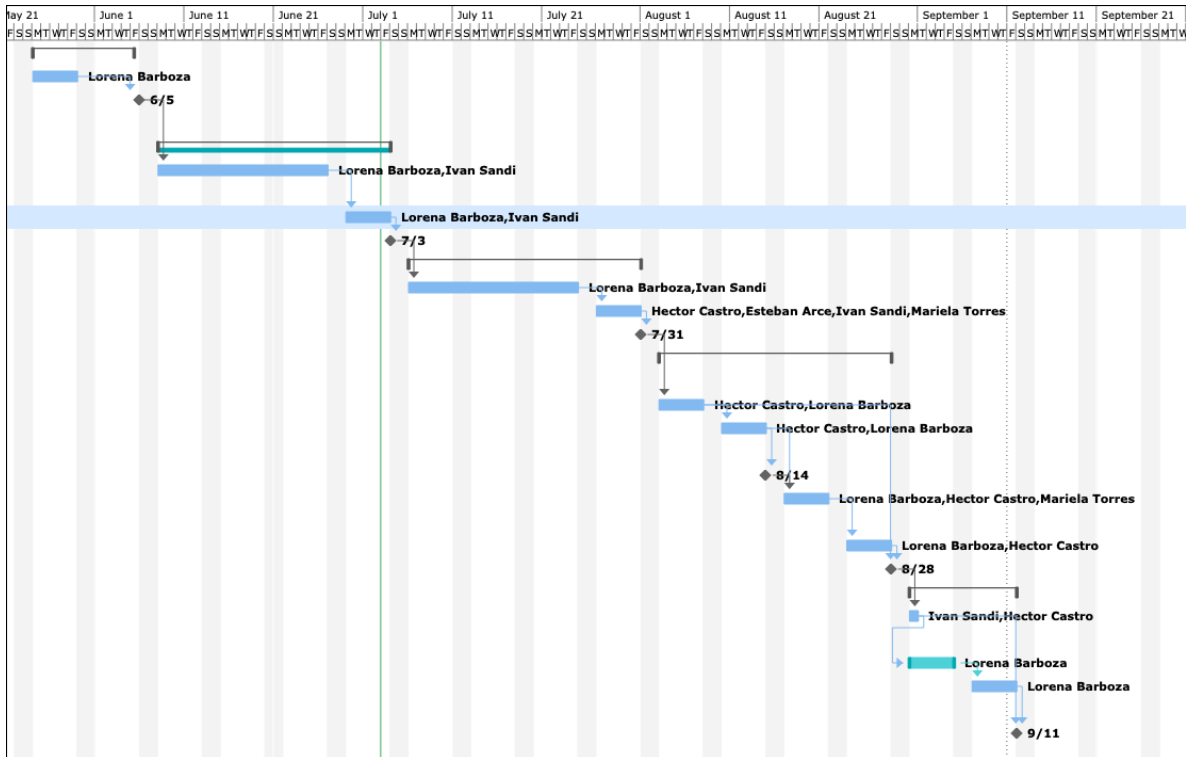Figure 19 shows the MS Project Gantt Chart for all activities in the project.

Figure 19 Gantt Chart (Own elaboration, 2020)

4.4. Cost Management Plan

4.4.1 Introduction

The Project Manager will be responsible for managing and reporting on the project's cost throughout the duration of the project. The Project Manager will send out a weekly financial report by e-mail to the project sponsor. During the monthly project progress meetings, the Project Manager and Assistant Project Manager will meet with Project Sponsors to present and review the cost performance of the project for the preceding month.

The Assistant Project Manager is responsible for preparing the Cost Management Plan and the Cost Baseline. The Project Manager is responsible for accounting for cost deviations and presenting the Project Sponsor with options for getting the

project back on budget. The Project Sponsor has the authority to make changes to the project to bring it back within budget. Project sponsor will approve or disapprove the charges.

4.4.2 Project budget

The costs for this project are sunk force costs since there is no need to hire or acquire any materials. Within the Invisalign Pro department there is an engineer who will develop the site.

The one cost is the purchase of the annual Orthodontic Journal that has an expense of $750

Chart 10 will explain the total cost for the project, including the sunk force cost, which is the salary of each team member.

Chart 10 Project budget chart (Own elaboration, 2020)

Item	Project Cost
PM salary (sunk cost)	$ 21,783.68
Assistant PM salary (sunk cost)	$20,103.04
Designer salary (sunk cost)	$ 6,717
Engineer salary (sunk cost)	$ 4.352
Orthodontist salary (sunk cost)	$ 4,104
Assistant orthodontist salary (sunk cost)	$ 3,171.6
Two-year Orthodontic Journal Fee	$ 750
Total Cost counting the sunk cost	$ 60,981.32

4.5. Quality Management Plan

4.5.1 Introduction

The Quality Management Plan for the creation of a Virtual Library project will establish the activities, processes and procedures for ensuring a quality product upon the conclusion of the project.

4.5.2 Quality Management Approach

The Quality Management approach for the creation of the Virtual Library will ensure quality is planned for both the product and process. In order to be successful, this project will meet its quality objectives by gathering and analyzing the client's requirements.

An agile method will be used to assure quality throughout the entire project process.   Quality improvement will be identified by any member of the project team. Each recommendation will be reviewed to determine how the improvement will influence the product process. If an improvement is implemented the Assistant Project Manager will update all project documentation to include the improvements.

4.5.3 Quality assurance

The quality assurance method will be an agile method, where a scrum board will be used. This will be done at the end of each milestone.

The Project team will be part of the quality assurance team. At the conclusion of each milestone, there will be a meeting, sprint review, where a demonstration of new functionality will take place. A checklist will be given at the beginning of each meeting; however; discussion won't be limited to the checklist.

After the sprint review meeting a sprint retrospective will take place, which is an examination of what went well, what went badly, and what could be improved. The

aim of the retrospective is to ensure that the next sprint is more efficient and effective than the last.

Chart 11 explains the scum board that will be used by all team members in order to have control of the tasks performed.

Chart 11 Scrum board (Own elaboration, 2020)

To do list	Build	Test	Done
Project initiation			
Design			
Development			
Training and Communication			
Post-implementation			

4.5.3.1 Project initiation

Initial meeting with Project Sponsor and Stakeholders to discuss the project process and to obtain approval.

4.5.3.2 Design

Meeting to discuss the design draft, with team members, Stakeholders and Sponsor. Where points of view will be taking in consideration in case a modification needs to take place. The design quality list used on the project by the team members is as shown in Chart 12.

Chart 12 Design list (Own elaboration, 2020)

Application Testing list			
Tested By	Tester	Date	
Application Name			

Procedure	Comments	Pass/Fail (P/F)	Actual Results/Comments
Design			
Meets the client's criteria			
Catches the user's attention			

4.5.3.3 Development

New features will be introduced; platform test will be performed where project

team, Sponsor and Stakeholders will be present.

For the development, a second group will be added to test the SharePoint Virtual

Library, an aleatory selection of 20 percent of the users will be testing the platform.

After they test the platform, a focus group will take place where we can interview

and hear their experience with the platform.

We are choosing 20 percent of the Clinical Advisors, since that is the number of

Clinical Advisors (CA) that can be out of work without affecting operations.

In order to perform a quality check to the development section a chart will be used

as shown in Chart 13.

Chart 13 Development list (Own elaboration, 2020)

Application Testing list			
Tested By	Tester	Date	
Application Name			
Procedure	Comments	Pass/Fail (P/F)	Actual Results/Comments
Basic Application Testing			
Links are opening			
Links are opening a new window			
Information is accurate according to selected option			
Handles copying functions correctly			
Handles pasting functions correctly			
Scrolls up, down, and sideways when use the wheel on the wheel mouse			
File System Testing			

Application Testing list			
Tested By	Tester	Date	
Application Name			
Procedure	Comments	Pass/Fail (P/F)	Actual Results/Comments
Opens and saves all document types supported by application			
Imports and exports files of all formats supported by the application (JPG, GIF, or BMP, for example)			

4.5.3.4 Training and communication

The team members in charge will create the training and communication method,

after that, they will present the training and communication to the project team,

Sponsor and Stakeholder in order for them to give their inputs.

All comments will be taken in consideration to improve the training and

communication method. Chart 14 will be used to perform a quality training and

communication assessment.

Chart 14 Training and communication list (Own elaboration, 2020)

Application Testing list			
Tested By	Tester	Date	
Application Name			

Procedure	Comments	Pass/Fail (P/F)	Actual Results/Comments
Training			
How effective was the training in helping you gain knowledge?			
Were you able to apply what you learned?			
What are some of the key takeaways?			
Communication			
Was the message clear?			
On a scale 1-10 being 10 the highest how would you grade the communication method used?			

4.5.3.6 Post-implementation

At the conclusion of the project, a Monkey Survey will be sent to all the users in order to obtain more information on how the problem was resolved; this will help improve the Virtual Library. An example of the survey that the Clinical Advisors will do is shown in Chart 15.

Chart 15 Post-implementation survey (Own elaboration, 2020)

	Strongly disagree	Disagree	Agree	Strongly agree	N/A
Was the problem solved?					
Does the solution meet the expectation?					
Is this a tool you will use on a daily basis?					
Will you promote the use of this tool?					
Was the communication effective and relevant?					
Was the training appropriate for the purpose and did it meet the business needs?					
Comments					

4.5.3.6.1 Tabulation

Once the survey monkey is tabulated according to the organization, it will be considered successful if 90% of the Clinical Advisors give the project no less than 85 points on the questionnaire.

N/A will add 0 points, strongly agree 2 points, agree 1.5 points, disagree 1 point and strongly disagree 0.5 points.

Those who give the project less than 85 points will be invited to a focus group to further understand more the reason why they are not satisfied with the project or training execution.

4.6. Project Resource Management

4.6.1 Introduction

Resources Management is an important part of the Creation of a Virtual Library. For this section, we will focus on the human resources management, since there is no need to acquire any resources to create the Virtual Library.

4.6.2 Roles and Responsibilities

The roles and responsibilities for the project team of the Virtual Library are essential to the project success. All team members must clearly understand their roles and responsibilities in order to perform their portion of the project successfully. For the Virtual Library the following project team roles and responsibilities have been established:

Engineer: responsible for producing the Virtual Library site, taking into account the customer's needs to an aesthetic and functional application. The Engineer is responsible for ensuring that the Virtual Library operates at an optimum and efficiently way.

Project Manager: responsible for the overall success of the Project. The Project Manager must authorize and approve all project expenditures. The Project Manager is also responsible for ensuring that work activities meet established acceptability criteria and fall within acceptable variances. The Project Manager will be responsible for reporting project status in accordance with the communications management plan. The Project Manager will evaluate the performance of all project team members. The Project Manager is also responsible for acquiring human resources for the project by skillset. The Project Manager must possess the following skills: leadership/management, budgeting, scheduling, and effective communication.

Assistant Project Manager: responsible for creating project-planning documents like a Project Management Plan, taking meeting minutes, reporting to the Project Manager on changes and updates made to the project for approval, and collecting daily reports from the site management team. The Assistant Project Manager is also responsible for broadcasting daily site reports to relevant stakeholders as directed by the Project Manager.

Designer: responsible for ensuring the design theme for the Virtual Library, catching the user's attention. The Designer is also responsible for the proper placement of all the tools and links needed. Responsible to work along with the Engineer to make sure the design meets the site requirements.

Orthodontist: responsible for gathering the information that will be shared and to work along with the Designer in order to help visualize the best way this information will be shared. He or she will also have the responsibility to guide the orthodontist assistant.

Orthodontist assistant: responsible for helping the orthodontist gather the required information, organizing the information according to dental malfunction, and according to the type of information, must also communicate this information to the engineer.

Figure 20 explains the organizational structure of the Invisalign Pro department.
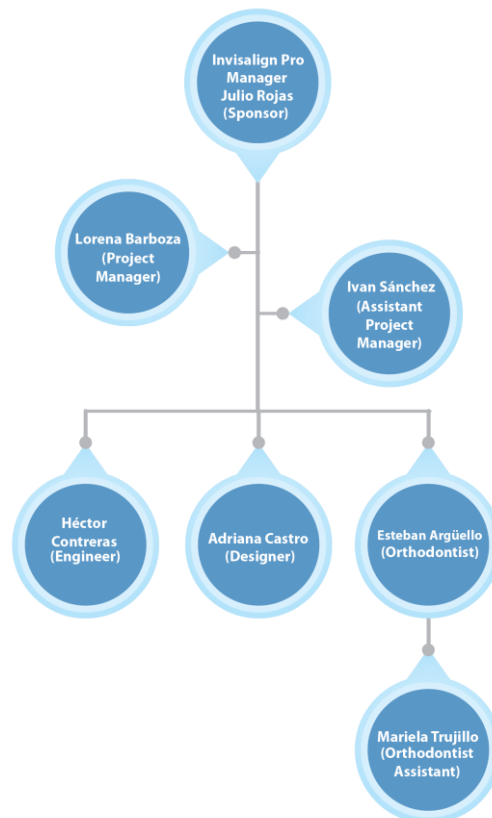

Figure 20 Invisalign Pro Organizational Structure (Own elaboration, 2020)

4.6.3 Staffing Management

4.6.3.1 Staff Acquisition

For the creation of the Virtual Library, the project staff will consist of all internal resources. There is no need to subcontract external resources.

4.6.3.2 Training Requirements

Since all workers are within the organization and most importantly within the

Invisalign Pro department there is no need to work on a training, since they all

comply with company polices, values and the Standard Operational Procedure.

In case a new hire joins the team, as an operational procedure every new hire

must go over a three month training, such training is delivered by the Learning and

Development department within Invisalign Pro department. They will be the ones in

charge of explaining all the procedures, values and expectations according to their

role. In addition, no matter what hired role will be, they all need to be trained to

fulfill any future roles.

4.6.3.3 Rewards and recognition

The project manager will review the overall performance of the project during the

project lifecycle. At the onset of the project, the Project Manager will communicate

with the Assistant Project Manager and Project Sponsor to inform them of all

expectations of the work to be performed. It is the Assistant Project Manager

responsibility to manage and evaluate team members' performance, and judge

how effectively they are completing their assigned work.

Workers who demonstrate a positive attitude towards the project will be identified

at monthly meetings. A record of the workers will be kept so at the end of the

project a monetary reward will be given to all of those who meet the expectations,

with a maximum of 20% bonus on their salary.
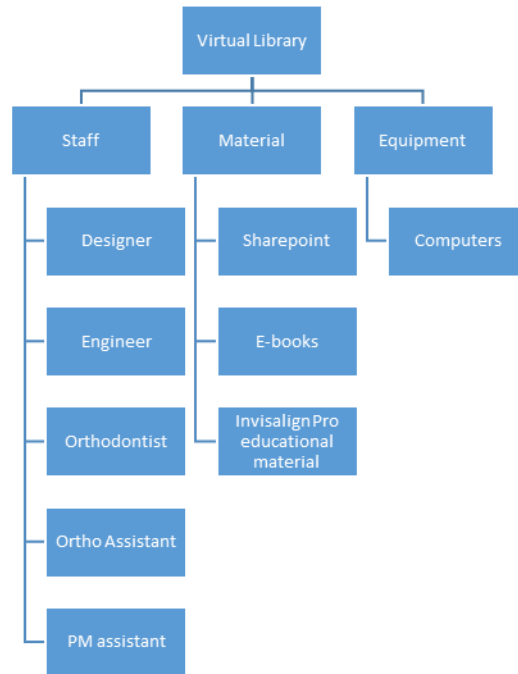
4.6.4 Resources breakdown structure

Figure 21 Resources breakdown structure (Own elaboration, 2020)

4.7 Communication Management Plan

4.7.1 Introduction

The Communications Plan will serve as a guide to assist in communication between the stakeholders of the Creation of the Virtual Library. The Project Manager and Assistant Project Manager will take the primary role in ensuring effective communications on this project. This plan documents the communications requirements, the information being communicated, and the audience for each communication, the frequency of communication, and the individual responsible for the communication or dissemination of the information to the appropriate audience.

4.7.1.1 Audiences

The major audiences for the projects are listed below.

- Project Sponsor

- Project Manager

- Assistant Project Manager

- Project team

4.7.2 Communication Management Plan

4.7.2.1 Communication Delivery Methods and Technologies

The primary communication vehicles are e-mail, virtual calls, virtual meetings,

reports, virtual presentations and announcements.

4.7.2.2 Communication Standards

There are currently no organizational communication standards. Chart 16 explains

the communication matrix for this project.

Chart 16 Communication matrix (Own elaboration, 2020)

Project Team Communication Matrix						
Communication type	**Deliverable**	**Description**	**Delivery Method**	**Frequency**	**Owner**	**Audience**
Personal Communication	Project updates	Regular communication	Video calls over Teams	Need basis	Project Manage / Assistance Project Manager	Sponsor
Reports	Project status report	Regular update on critical project issues	E-mail	Bi-monthly	Assistant Project Manager	Project Manager, Sponsor, Project team

Communication type	Deliverable	Description	Delivery Method	Frequency	Owner	Audience
	Quality report	Regular updates on project quality performance	E-mail	Bi-monthly	Assistant Project Manager	Project Manager, Sponsor, Project team
	Task report	Regular updates on critical project issues	E-mail	Weekly Every Monday morning after team meeting	Assistant Project Manager	Project Manager, Project Team
Presentations	Project review	Project status updates	Video call meeting	Monthly	Project Manager	Project Manager, Sponsor, Project Team
Project Announcements	Task reminder	Task owner schedule reminders	E-mail	Daily	Assistant Project Manager	Project Manager, Project Team
	Change request order	Request to add or remove scope from the project	Standard Form sent over e-mail	Needs basis	Project Manager	Project Manager, Project team, Sponsor
	Project updates	Project updates for project team	Standard form sent over e-mail	Needs basis	Project Manager	Project team

Communication type	Deliverable	Description	Delivery Method	Frequency	Owner	Audience
Review and Meetings	Team meeting	Meeting to review project status	Video call planning meeting	Weekly Monday morning	Assistant Project Manager	Project Manager, Assistant Project Manager, Assistant Project Manager
	Project status meeting	Regular updates on critical project issues	Video call progress meeting	Monthly	Project Manager	Project Manager, Sponsor, Project team
	Planning	Regular updates and project planning	Video call planning meeting	Weekly	Project Manager	Assistant Project Manager

4.8 Project Risk Management

4.8.1 Introduction

Initially, risks will be identified while developing the project charter. However,

during creation of the subsidiary plans, the team members will compile a

comprehensive risk register. Finally, during risk identification, the risk register will

be reviewed to include or remove any risks that may or may no longer be

applicable to the project. The Assistant Project Manager will create and maintain a risk register, under the responsibility of the Project Manager.

4.8.2 Risk analysis

The impact and probability of risks will be evaluated using a probability impact matrix during qualitative risk analysis. There will be a response plan developed for all risks identified as having any impact on the project, positive or negative.

4.8.3 Risk response

The project management team will identify and assist with planning risk responses. However, the Project Manager will be in charge of planning risk responses with the Assistant Project Manager managing data collection and storage.

4.8.4 Risk monitoring and controlling

The Assistant Project Manager will monitor the status of risks by comparing the data collected during project execution with the risk register and risk analysis summary. The risk register will be updated weekly and communicated to the Sponsors and project management team during project status meetings. The Project Manager is responsible for deciding when to execute a risk response. Ideally, the project team will perform the risk identification during a meeting; however, for the purpose of this project, the Project Manager will develop a preliminary risk matrix. The risk register below is the output from this process. The risk register was compiled as shown in Chart 17.

Chart 17 Risk register (Own elaboration, 2020)

Risk ID	Risk description	Category	Status	Risk owner	Probability	Prevention strategy	Impact	Risk response
1	No control over staff priorities	Schedule People	Open	PM	M	Schedule contingency	L	Keep project sponsor under the loop
2	Unplanned work that needs to be added to the project	Planning	Open	PM, assistant PM	H	Schedule contingency	M	Keep project sponsor under the loop
3	Lack of communicatio n due to COVID-19	Planning	Open	Project team	L	Frequent communicatio n	L	Correct misunderstanding s immediately
4	Inadequate training	Planning	Open	Assistan t PM	L	Identify a virtual training	L	Send infographics after training

As far as the Invisalign Pro department goes, these are the risk tools used for it is a new department that is starting to develop their own project procedures.

In addition to detailing a list of identified risks and risk responses, the risk matrix will be used to capture information regarding how each risk is prioritized by combing its probability of occurrence and impact. As shown in Charts 18, 19, 20 and 21.

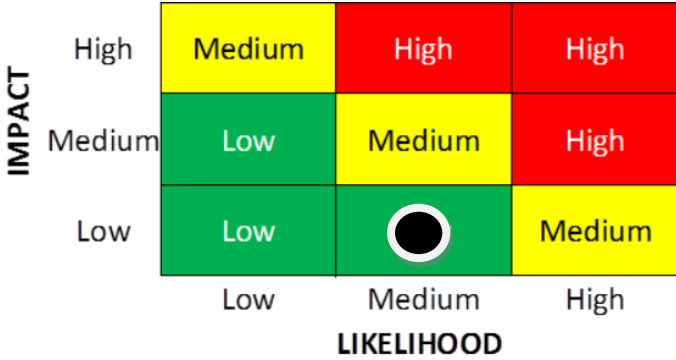**Chart 18 Risk matrix ID 1 (Own elaboration, 2020)**

ID #1 No control over staff priorities	
Description of Risk Event	Prevention strategies
Team members are on several projects at the same time with higher priority than the Virtual Library	Scheduling has a contingency time in case they have emergencies on the other projects
Probable causes	Contingency plans
Delay on project	Keep project sponsor under the loop, in case a schedule change is necessary
Risk matrix	

Chart 19 Risk matrix ID 2 (Own elaboration, 2020)

ID #2 Unplanned work that needs to be added to the project	
Description of Risk Event	Prevention strategies
New addition to the Virtual Library can be added according to the business needs	Scheduling contingency can be used in case new requirements are added
Probable causes	Contingency plans
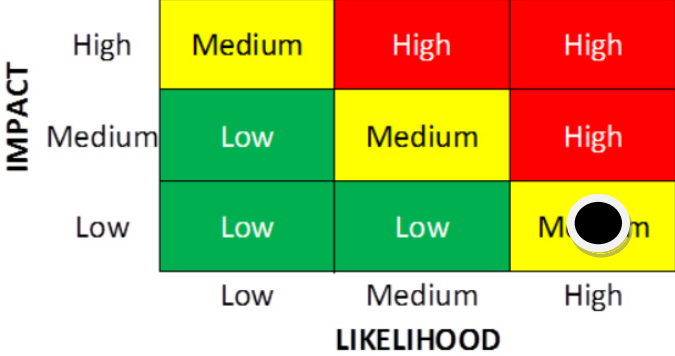
During round tables or meetings new additions can be requested by the Clinical Advisors	Keep project sponsor under the loop, in case a new requirement is needed it can be added once the Virtual Library goes live
Risk matrix	

Chart 20 Risk matrix ID 3 (Own elaboration, 2020)

ID #3 Lack of communication due to COVID-19	
Description of Risk Event	Prevention strategies
Lack of communication causing confusion	Write a communication plan that includes frequency, goal, and audience of each communication. Identify stakeholders early and make sure they are taken into account in the communication plan. Use the most appropriate channel of communication for the audience
Probable causes	Contingency plans
Due to COVID-19 team meetings and communication will be performed over virtual calls, for the entire department is working from home	Correct misunderstandings immediately. Clarify areas that are not clear swiftly using assistance from the Project Sponsor if needed.
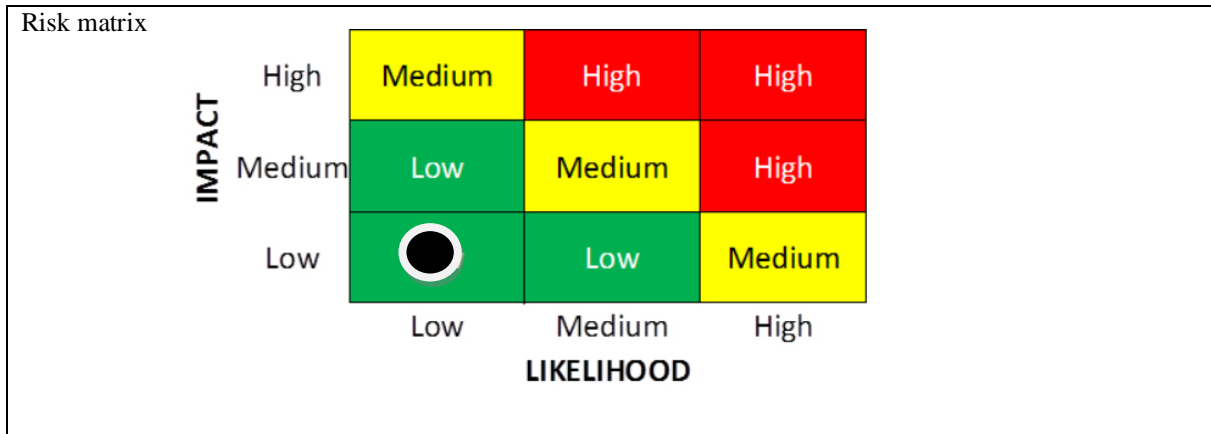
Risk matrix

Chart 21 Risk matrix ID 4 (Own elaboration, 2020)

ID #4 Inadequate training	
Description of Risk Event	Prevention strategies
Since the COVID-19 outbreak there is a need to create a virtual training for the entire department	Create a virtual training material plan, identify the best way to create an impact on the Clinical Advisors
Probable causes	Contingency plans
Lack of interest since the training is online, Clinical Advisors might not pay close attention to the training	Send infographics after training for them to review the material in case is needed
Risk matrix	

4.9 Project Stakeholder Management

4.9.1 Stakeholder identification

Stakeholders will be identified by performing a stakeholder analysis in which

potential stakeholders and relevant information will be included on the stakeholder

analysis risk. To assist with stakeholder identification and analysis, the team has

created a Stakeholder Analysis Register as shown in Chart 22.

Chart 22 Stakeholder analysis register (Own elaboration, 2020)

Title	Role	Power (H/L)	Interest (H/L)	Needs & Wants	Concerns
Sponsor	Technical expertise	H	H	Project completed by September 2020	
Clinical Advisor	Users	L	H	Ability to find all the information on one platform	Platform complexity
Engineer	Developer	L	H	Clear requirements and timely documentation	Number of modifications
Senior Clinical Advisor	Key decision maker	H	H	Updated information to be shared on the Virtual Library	Information management

Title	Role	Power (H/L)	Interest (H/L)	Needs & Wants	Concerns
Project Team	Technical expertise	H	H	Product to be delivered on time within budget	All members of the team are on several projects at the same time

4.9.2 Power/interest classification

The Power/Interest analyses stakeholder groups in a visual manner to further establish stakeholders' level of interest or concern and their ability to influence the project outcomes. Provided below is the Figure 20 Power/Interest Grid.
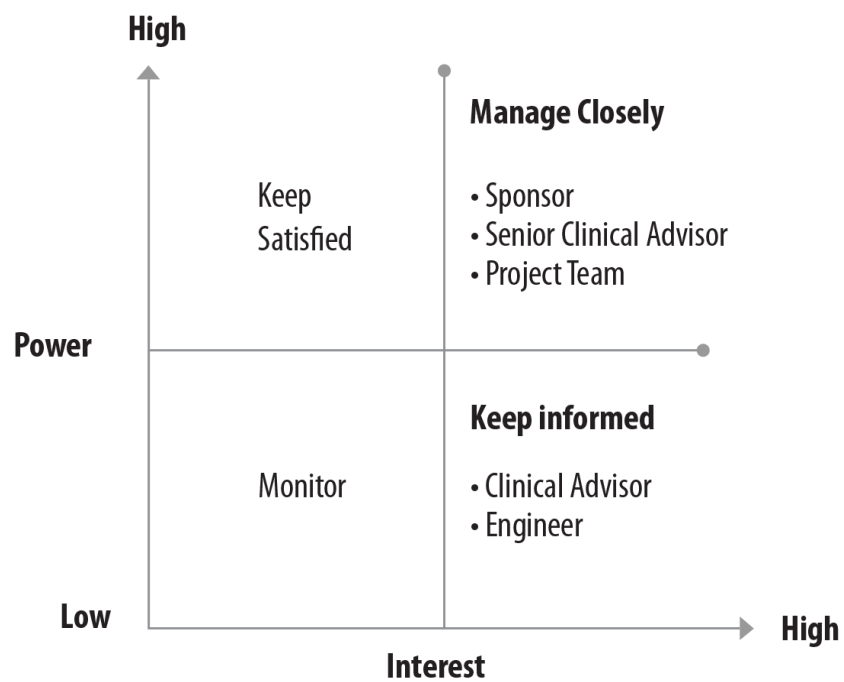
Figure 22 Stakeholder Power/Interest (Own elaboration, 2020)

4.9.3 Stakeholder engagement

To ensure the correct level of engagement is being achieved by each stakeholder,

the Project Manager will analyze the current levels of engagement by using the

Engagement Assessment Matrix, Chart 23 and engagement strategy on Chart 24.

Chart 23 Stakeholder engagement assessment matrix (Own elaboration, 2020)

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
Sponsor			C	D	
Clinical Advisor	C			D	
Engineer					
Senior Clinical Advisor				C	D
Project Team					CD

Chart 24 Stakeholder engagement strategy (Own elaboration, 2020)

ID No	Stakeholders	Role and responsibility	Category	Influence	Impact	Main expectations	Major requirements	Communication	Power	Interest	Engagement strategy
1	Sponsor	Project sponsor	Internal	H	H	Project will meet the expectations and will be successful	Status report	Video call Email Conference meeting	H	H	Invite to project staff meetings Having video call 1-1 meeting

ID No	Stakeholders	Role and responsibility	Category	Influence	Impact	Main expectations	Major requirements	Communication	Power	Interest	Engagement strategy
2	Project manager	Project planning and execution	Internal	H	H	Project will be delivered in time	Communication with the project team, stakeholder and sponsor. Provide resources for project completion	Video call Email Conference meeting	H	H	Making team project update meetings Having monthly meetings with the entire department in order to give project updates
3	Clinical Advisors		Internal	M	H	Project will reduce the search time	Training activity	Video call Email Conference meeting	L	H	Invite to monthly meetings with the entire department in order to give project status
4	Engineer	Project execution	Internal	M	M	Project will be delivered in time meeting the project objectives	Project updates and status report	Video call Email Conference meeting	L	H	Invite to monthly meetings with the entire department in order to give project status Invite to project staff meetings
5	Senior Clinical Advisor	Project execution	Internal	M	M	Project will be deliver in time meeting the project objectives	Project updates and status report	Video call Email Conference meeting	H	H	Invite to monthly meetings with the entire department in order to give project status Invite to project staff meetings

ID No	Stakeholders	Role and responsibility	Category	Influence	Impact	Main expectations	Major requirements	Communication	Power	Interest	Engagement strategy
6	Project team	Project execution	Internal	M	M	Project will be delivered in time meeting the project objectives	Project updates and status report	Video call Email Conference meeting	H	H	Invite to monthly meetings with the entire department in order to give project status Invite to project staff meetings Having 1-1 meetings

5. CONCLUSIONS

1. The Project Charter was the first subsidiary element of the Project Management Plan, created as the deliverable. Using a template as a guide, to capture and organize the business needs and objectives, project description, preliminary scope statement, initial project risks, project deliverables, summary milestones, and project budget, the Project Charter also included identification of the project manager and the sponsor's authorization for the project to commence.

2. The Scope Management Plan was developed, the scope statement was defined, the scope management approach was explained, the WBS and WBS dictionary were justified and the roles and responsibilities were established.

3. The Schedule Management Plan was created along with the Activity List and Schedule Gantt chart in order to adequately identify and orchestrate each project activity to ensure the project's completion within the time constraints.

4. The Cost Management Plan, was delivered just for the purpose of the FGP. For the actual project, this was not necessary, since the cost of the project is sunk cost.

5. The Quality Management Plan template was used to identify the project's quality management approach, quality requirements/standards, quality assurance, quality control, and the quality control measures that will be used throughout the project, in order to ensure that quality was built into the project's processes and product. After thoughtful consideration, it was

decided to create an agile quality method. A scrum board was designed for each milestone. Charts were established to help the quality team check on each delivery. A post implementation survey was delivered.

6. The Resource Management Plan, for the purpose of the FGP, the resources plan revolves around a human resources plan. Roles and responsibilities were established. In addition, the project organization chart, the staffing management approach, and details identifying how the human resources will be managed throughout the project are detailed in the plan.

7. The Project Communications Plan, a template was used along with a list of all stakeholders and their roles and responsibilities.

8. The Risk Management plan, not all the outputs on the risk management plan were delivered since it was decided within the team members and sponsor that it was not necessary at this point.

9. The Stakeholder Management Plan, was developed using a template, the Stakeholder Register, the Stakeholder Analysis and Level of Engagement were also developed to provide more information for effective stakeholder engagement.

6. RECOMMENDATIONS

1. The Invisalign Pro department should adopt formal Project Management methods, to increase the success of its projects and to simplify the path for the team project. Especially now that the department is starting to create more projects even more complex than this one.

2. The Invisalign Pro department should develop a standard project management initiation and planning documents prior to the execution of future projects.

3. The Invisalign Pro department should invest in the tools required to complete quantitative risk analyses for all projects.

4. The Invisalign Pro department should implement a specific number of changes that can take place in all projects; this will help avoiding excessive changes after project approval.

5. The Invisalign Pro department should create their own templates for each area of expertise and have a trained project management team.

6. The Invisalign Pro department should invest more on the project team members, all members of the team are dentist and are not familiar with the PMI processes. There is only one civil engineer and the PM right now training the rest of the team on project process and continual improvement processes.

7. Highly recommended to create a PMO on its organizational structure to optimize the results of its future projects.

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8. APPENDICES

Appendix 1: FGP Charter

PROJECT CHARTER	
(Formalizes the project start and confers the project manager with the authority to assign company resources to the project activities. Benefits: it provides a clear start and well defined project boundaries)	
Date:	**Project Name:**
Monday Febuary 24th, 2020	Project Management Plan to Create a Virtual Library for the Invisalign Pro Clinical Advisors
Knowledge Areas / PM Processes:	**Application Area (Sector / Activity):**
Knowledge Areas: Porject Integration Management, Project Scope Magement, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resources Management, Project Risk Management, Project Procurement Management, Project Communication Management, Project Stakeholder Management. PM Processes: Iniciate, plan, monitor and control	Education
Project Start Date:	**Project Finish date:**
Monday Febuary 24th, 2020	Monday April 27th, 2020

Project Objectives (General and Specific):

General Objective:
To develop a Project Management Plan to Create a Virtual Library for the Invisalign Pro Clinical Advisor
Specific Objectives:
1. To create a project charter to formally authorize the project, providing the Project Manager with the authorization to produce the project management plan.
2. To create a scope management plan to ensure that it includes all the work required to successfully complete the project.
3. To create a time management to support the development and management of a project schedule to ensure the project is completed within the time constraints.
4. To create a cost management plan to define the processes for developing and managing the project budget to ensure the project is completed within the budget constraints.
5. To develop a quality management plan to identify the quality quality requirements for the project in order to ensure results meet expectations for approval within the time, cost and scope constraints.
6. To create a human resource management plan to ensure that all human resources are identify and managed effectively to complete the project within time, cost and scope constraints.
7. To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.
8. To create a risk management plan to identify and examine risks to the successful completion of the project and develop plans to minimize the likelihood of the risks.
9. To develop a procurement management plan to be used to obtain products, services or results required by the project.
10. To develop a stakeholder management plan to identify and support all the project stakeholders to ensure effective stakeholder engagement.

Project purpose or justification (merit and expected results):
The purpose is to develop a path for the Project Management and its team, by effectively create the documents that will be used during the execution, monitoring and closing process.

Description of Product or Service to be generated by the Project – Project final deliverables:
Project Management Plan for the Creation of a Virtual Library. The plan will consist of all the subsidiary documents of a Project Management Plan.

Assumptions:
It is assumed that the student is familiar with the FGP requirements.
It is assumed that the student will have an assigned tutor for the FGP.
It is assumed that all requirements should be fulfill in order to graduate.
It is assumend that feedback will be given in time.

Constraints:
Time, balancing work with the project milestones

Preliminary Risks:
Insuficient time to gather all information required, which could affect the grading.
If the support from the tutor is not giving in time it will affect the delivery due date.
Inadequate support from the University online platform.

Budget:
The project has 0 cost

Milestones and dates:

Milestone	Start date	End date
1. Final Graduation Project	Febuary 24th, 2020	Febuary 24th, 2020
1.1 FGP Deliverables	Febuary 24th, 2020	March 8th, 2020
1.1.1 Charter	Febuary 24th, 2020	March 1st, 2020
1.1.2 WBS	Febuary 24th, 2020	March 1st, 2020
1.1.3 Chapter I - Introduction	March 9th, 2020	March 15th, 2020
1.1.4 Chapter II - Theoretial Framework	March 16th, 2020	March 22nd, 2020
1.1.5 Chapter III - Methodological Framework	March 23rd, 2020	March 29th, 2020
1.1.6 Annexes	Febuary 24th, 2020	March 29th, 2020
1.1.6.1 Bibliography	Febuary 24th, 2020	March 29th, 2020

Relevant historical information:
Our organization is commitedd to deliver the best training and knowledge to our peers. That's why the are commited to create a Virtual Library, where every Clinical Advisor can have access to it.

Stakeholders:
Direct stakeholders:
Course facilitador
Academic assistant
Project review board
Indirect stakeholders:
Classmates

Approval:		
Project Manager: Lorena Barboza	Signature:	
Authorized by:	Signature:	

Figure 22 FGP Charter (Own elaboration, 2020)

Appendix 2: FGP WBS

Figure 23 FGP WBS (Own elaboration, 2020)

Appendix 3: FGP Schedule

		Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1			**Final Graduation Project**	**70 days**	**Mon 2/24/20**	**Mon 7/27/20**		
2			FGP Start	1 day	Mon 2/24/20	Mon 2/24/20		
3			**1,Graduation Seminar**	**25 days**	**Mon 2/24/20**	**Fri 3/27/20**	**2**	
4			**1.1,FGP Deliverables**	**20 days**	**Mon 2/24/20**	**Fri 3/27/20**		
5			1.1.1,Charter	5 days	Mon 2/24/20	Fri 2/28/20 5:00		
6			1.1.2,WBS	5 days	Mon 2/24/20	Fri 2/28/20 5:00		
7			1.1.3,Chapter I. Introduction	5 days	Mon 3/2/20	Fri 3/6/20 5:00	5,6	
8			1.1.4,Chapter II. Theoretical	5 days	Mon 3/9/20	Fri 3/13/20 5:00	7,13	
9			1.1.5,Chapter III. Methodological	5 days	Mon 3/23/20	Fri 3/27/20 5:00	8	
10			**1.1.6,Annexes**	**15 days**	**Mon 3/2/20**	**Fri 3/27/20**		
11			1.1.6.1,Bibliography	15 days	Mon 3/9/20	Fri 3/27/20 5:00		
12			1.2,Graduation Seminar approval,	0 days	Fri 3/27/20 5:00	Fri 3/27/20 5:00	9,11,13	
13			1.1.6.2,Schedule	5 days	Mon 3/2/20	Fri 3/6/20 5:00	6,5	
14			**2,Tutoring process**	**65 days**	**Mon 5/4/20**	**Mon 6/1/20**	**12,13**	
15			**2.1,Tutor**	**3 days**	**Mon 5/4/20**	**Mon 5/4/20**		
16			2.1.1,Tutor assigment	1 day	Mon 5/4/20	Mon 5/4/20	12	
17			2.1.2,Communication	0 days	Mon 5/4/20	Mon 5/4/20	16	
18			2.2,Adjustments of previous chapters (If	4 days	Tue 5/5/20 8:00	Fri 5/8/20 5:00	16,17	
19			2.3,Charter IV. Development (Results)	5 days	Mon 5/11/20	Fri 5/15/20 5:00		
20			2.4,Chapter V. Conclusions	5 days	Mon 5/18/20	Fri 5/22/20 5:00	19	
21			2.5,Chapter VI. Recommendations	5 days	Mon 5/25/20	Fri 5/29/20 5:00	20	
22			Tutor approval	1 day	Mon 6/1/20	Mon 6/1/20	21	
23			**3,Reading by reviewers**	**15 days**	**Tue 6/2/20**	**Mon 6/22/20**		
24			**3.1,Reviewers assigment request**	**5 days**	**Tue 6/2/20**	**Mon 6/8/20**		
25			3.1.1,Assigment of two reviewers	2 days	Tue 6/2/20 8:00	Wed 6/3/20	22	
26			3.1.2,Communication	2 days	Thu 6/4/20 8:00	Fri 6/5/20 5:00	25	
27			3.1.3,FGP submission to reviewers	1 day	Mon 6/8/20	Mon 6/8/20	26	
28			**3.2,Reviewers work**	**10 days**	**Tue 6/9/20**	**Mon 6/22/20**		
29			**3.2.1,Reviewer**	**10 days**	**Tue 6/9/20**	**Mon 6/22/20**		
30			3.2.1.1,FGP reading	9 days	Tue 6/9/20 8:00	Fri 6/19/20 5:00	27	
31			3.2.1.2,Reader 1 report	1 day	Mon 6/22/20	Mon 6/22/20	30	
32			**3.2.2,Reviewer**	**10 days**	**Tue 6/9/20**	**Mon 6/22/20**		
33			3.2.2.1,FGP reading	9 days	Tue 6/9/20 8:00	Fri 6/19/20 5:00	27	
34			3.2.2.2,Reader 2 report	1 day	Mon 6/22/20	Mon 6/22/20	33	
35			**4,Adjustments**	**20 days**	**Tue 6/23/20**	**Mon 7/20/20**		
36			4.1,Report for reviewers	9 days	Tue 6/23/20	Fri 7/3/20 5:00	34	
37			4.2,FGP update	1 day	Mon 7/6/20	Mon 7/6/20	36	
38			4.3,Second review by reviewers	10 days	Tue 7/7/20 8:00	Mon 7/20/20	36,37	
39			**5,Presentation to Board of Examiners**	**5 days**	**Tue 7/21/20**	**Mon 7/27/20**		
40			5.1,Final review by board	2 days	Tue 7/21/20	Wed 7/22/20	38	
41			5.2,FGP grade report	3 days	Thu 7/23/20	Mon 7/27/20	40	
42			FGP End	45 days	Tue 5/26/20	Mon 7/27/20		

Figure 24 FGP Schedule (Own elaboration, 2020)

Appendix 4: Philologist review letter

San José, Costa Rica, August 3, 2020

University For International Cooperation (UCI)
Project Management Faculty

Dear Members of the Faculty,

I would like to inform you that I have received from the student Lorena Barboza Retana, ID number: 11241 0009, the document that bears the name: Project Management Plan to Create a Virtual Library for the Invisalign Pro Clinical Advisors, for its respective philological revision.

I add that I have proceeded to review the aspects of form, writing, style and other vices of language found in the text.

Therefore, once the corrections recommended to the interested party had been incorporated, I issued this letter of philological approval for the document meets the requirements established by the University.

Sincerely yours,

Foreign Language (English) Linguist
M.Ed. Andrea Barboza
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