UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE DEVELOPMENT OF A LINE OF HANDCRAFTED NATURAL BODY SOAPS FOR SUGAR PLUM BOTANICALS

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DEDICATION

I dedicate this final project to my daughter, Amanda Lori Smith.

Some nights I heard the sound of her little feet shuffling to the dining room, which was my study area, where she brought her pillows and joined me as I worked assiduously, typing assignment after assignment. She often insisted on snoozing in my lap during webinars rather than in the comfort of her bed. In this way, she lent me her support and encouraged me to continue to offer my best self and my best effort to the course and to this final project.

Our collective sacrifice will be worth it. We will bend, but we must never break.

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Firstly, Praise God from Whom all blessings flow.

“Mil gracias” to my family members who offered their all to support me in the completion of this 20-month program. They encouraged me when I felt overwhelmed. They inquired often about my well-being and the status of my assignments and examination grades. I am especially grateful to my mother, Glendene Greaves, and my father, Charles Brome, for their unconditional love and unwavering support throughout this process.

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ABBREVIATIONS AND ACRONYMS

BBD	Barbados Dollars
BNSI	Barbados National Standards Institution
BRA	Barbados Revenue Authority
COO	Chief Operations Officer
CPI	Cost Performance Index
CV	Cost Variance
FGP	Final Graduation Project
IT	Information Technology
ISO	International Organization for Standardization
MPM	Masters in Project Management
P&I or PxI	Probability and Impact or Probability by Impact
PM	Project Manager
PMBOK	Project Management Body Of Knowledge
PMI	Project Management Institute
PRINCE2	PRojects IN Controlled Environments
RACI	Responsible, Accountable, Consult, Inform
RBS	Risk Breakdown Structure
SME	Small & Micro Enterprise
SPI	Schedule Performance Index
SV	Schedule Variance
UCI	Universidad para la Cooperación Internacional
UK	United Kingdom
USD	United States Dollars
WBS	Work Breakdown Structure

EXECUTIVE SUMMARY (ABSTRACT)

Niche markets have continued to play an important role in the development of the Barbadian economy. This involves the provision of a product or service that focuses on a particular group's needs, which cannot be, or are not, satisfied by mainstream providers. Homemade and natural products, especially those that are 100% Barbadian-made, have made a resurgence and continue to gain popularity. Soap making is a highly technical process, which requires precision in measurements, and health and safety precautions when handling some of the elements of the saponification process.

As a new company in this niche area, there were several areas for opportunity and development for Sugar Plum Botanicals. The use of healthful local plants and herbs presented a form of the company's differentiation in the market, along with affordability and appealing visual packaging. The demand for the first batch of body soaps produced has increased beyond expectations and it became essential to formalize the business operations, in communication, procurement, cost management, quality and risk management processes.

Strong support for nationalism and the support of domestically-produced items have been commonplace recently due to the high number of imports annually and the high debt to GDP ratio in Barbados. In response to these "buy local" campaigns, Sugar Plum Botanicals has placed a strong focus on promoting local inputs and their health benefits, thereby producing a new product which reflects the once-known and often overlooked remedies of "old Barbados". Market demand was the key driver behind the creation of this project. The main aim of the project management plan was to assist in satisfying customer requests with a view of maximizing the conversion of current demand to actual sales and to provide a base for potential further expansion of the product line.

The general objective for the Final Graduation Project general was to develop a project management plan for the creation of a new line of handcrafted natural body soap by December 2018. The ten specific objectives were to produce a project charter which officially authorizes resources assignment to produce a project plan; to create a scope management plan to ensure that all required work in included to successfully complete the project; to create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed; to create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints; to develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints; to create a risk management plan to minimize overall risk in the development of the product line; to create a human resources management plan to outline the resources required to support the planning of the project; to create a communication plan to ensure time and effective communication with all stakeholders; to develop a procurement plan to acquire

products and services required by the project; and to develop a stakeholder management plan to effectively engage all project stakeholders.

The research methodologies utilized for the project were qualitative and quantitative. This combination of approaches afforded a practical review of company records including those for sales and production and other secondary sources, which assisted in decision-making. Also, interviews and observation of operations processes provided qualitative insight while quantitative data was generated from surveys and seeking customer feedback and information on competitor product quality and range. The total project budget is $3,783 inclusive of a 5% contingency reserve and a 3% management reserve.

In conclusion, it should be noted that this new company is functional and does not operate within a projectized environment. With the introduction of the input plans and the overall project management plan, the identification of work packages and work activities assisted in the effective assignment of resources and ensured that costs were known and monitored. Clear and consistent messages among team members and the use of free online social tools enhanced internal and external communication.

It is recommended that the weekly meetings with the PM are held as scheduled, and used as a forum to discuss challenges, provide updates, and update documentation accordingly. As a new SME in this niche market, a strong focus must be placed on the team members to promote positive morale and encourage them with the inclusion of various forms of budgeted rewards and recognition.

1 INTRODUCTION

1.1. Background

Sugar Plum Botanicals is a relatively new microbusiness established in the northern and rural parish of St. Lucy in Barbados after the completion of a 12-week soap-making course in a neighboring parish. From among the fifteen other course participants, the main producer at Sugar Plum Botanicals, opted to focus on the production of unique essential oils from everyday items such as orange and grapefruit rinds. Essential oils are one of the main inputs and the cost of these fragrances at retail stores is normally comparably expensive. By producing these process inputs in-house, the final selling price has been competitive, and allowed for maximization of sales based on volume. Because of affordable pricing and the unique fragrances offered, demand has surpassed current supply, and the formal aspects of business name registration, establishment of a standard line of body soaps and communication plan for customers are required. Over the past ten years or so in Barbados, there has been a large emphasis on “going natural” and the island has seen the development of natural hair care lines and other beauty care products. Coupled with this “natural revolution”, economic recession and loss of jobs have led to the expansion of the micro- and small business across various sectors.

1.2. Statement of the problem

Barbados is a small open economy, which relies heavily on tourism and services to earn foreign exchange. With a contracting economy since the worldwide economic recession in 2008, the ability of the island to cover the costs of imports has become increasingly difficult. National calls to produce and support “100% Bajan” products and services that is, those made and developed here in Barbados, and other “buy local” campaigns abound. The year 2017 witnessed a total of USD$45 million in imports of two categories to Barbados, including toiletries, soaps and cosmetics (Trading Economics, 2018). Therefore, at Sugar Plum Botanicals, strong focus is placed on producing items using local natural plants and herbs, with known health

benefits for the skin. The demand for the first products of the body soap line developed has increased beyond initial expectation. The first batch produced comprised 60 bars of soap – six varieties of 10 bars each – and was sold out in two days, exceeding projected demand by 500% (the initial projected sales rate was 30 bars over a 5-day period). It therefore became essential to formalize the business operations to avoid other unauthorized use of the chosen business name. The company is junior in its operations and requires guidance in formalizing its communication, procurement, cost management, quality and risk management processes. This will assist in ensuring that the business does not fail in spite of its popular and sought-after products. The project management plan will solidify the company's approach to product development. Soap-making is not a popular skillset in Barbados and many current producers operate from within their homes. Therefore, statistics relating to this niche market and the major players are not formalized or readily available. It is worthy to note, however, that Sugar Plum Botanicals will aim to secure a minimum of 20% of the demand for natural soaps in St. Lucy, as well as to be featured on the shelves of a local retailer within 18 months. A Selective Inventory Control analysis shows that 53% of the input materials, representing 41% of the total cost of each loaf of soap produced, must be procured at fortnightly intervals. Therefore, careful management of inventory and input materials will be required for this microbusiness. In summary, the company's operations and sector are informal, and will therefore benefit from the the development of a project management plan.

1.3. Purpose

Based on specific factors which lead to the creation of a project in the PMBOK 6th edition (p. 9), the specific factor that led to the creation of this project was market demand. The project management plan will assist this small-scale manufacturing company in satisfying stakeholder requests and creating a popular product line by formalizing processes to assess costs, competitors, suppliers for input products and in maximizing on the conversion of current demand to actual sales. It is expected that the project management plan will ensure that:

- Suppliers are secured and contracted officially, as necessary.
- Costs are assessed holistically to avoid losses in production.
- Competitors are reviewed to ensure Sugar Plum Botanicals consistently offers unique options for customers.
- Communication is consistent and meets the needs of current and potential customers.
- A base is confirmed for the further expansion of the product line to potentially supply corporate clients.
- A projectized approach is utilized for the official launch of the microbusiness.

According to Lashley and Moore (2016) in the National Survey of the Small Business Sector (Barbados), 45.3% of enterprises in Barbados were microbusinesses, with less than 5 employees and there were an estimated 934 microbusinesses with a median of 1 employee. If successfully launched, this company has the capacity to join the other micro- and small businesses on the island which contribute 5% of value-added in industry, using the production/output approach (Lashley & Moore, 2016).

1.4. General objective

To develop a project management plan for the creation of a new line of handcrafted natural body soaps by December 2018.

1.5. Specific objectives

To produce a project charter which officially authorizes resources assignment to produce a project plan.

To create a scope management plan to ensure that all required work in included to successfully complete the project.

To create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed.

To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.

To develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints.

To create a risk management plan to minimize overall risk in the development of the product line.

To create a human resources management plan to outline the resources required to support the planning of the project.

To create a communication plan to ensure time and effective communication with all stakeholders.

To develop a procurement plan to acquire products and services required by the project.

To develop a stakeholder management plan to effectively engage all project stakeholders.

2 THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

Soapmaking is a skill that requires patience, extreme accuracy in measurement and close adherence to health and safety standards. What began as a hobby has quickly converted to a demand which currently exceeds supply for handcrafted body soaps using natural ingredients with several specific health benefits. Sugar Plum Botanicals was registered as a company to operate in Barbados from April 8, 2018 under the Registration of Business Names Act Cap 317. The research will be completed at the company's operations base in Checker Hall, St. Lucy, which is the most northern parish in Barbados. The main soap producer was a recent graduate of a course in a neighboring parish, the aim of which was to enhance the skillset of residents in communities of rural parishes, with the view of developing more opportunities for increased economic activity and personal finance.

2.1.2 Mission and vision statements

Through research and the formulation of a project management plan in all knowledge areas, this FGP will assist in the development of a new body soap product line at Sugar Plum Botanicals by December 2018.

2.1.2.1 Mission

To provide high-quality affordable personal care products to customers utilizing natural Barbadian herbs and plants.

2.1.2.2 Vision

To be the premier choice of handcrafted natural personal care products in Barbados.

2.1.3 Organizational structure

Like most microbusinesses in Barbados, Sugar Plum Botanicals is led by the founder and main soap producer, and is assisted by several auxiliary functions in maintenance and equipment, packaging and communications. Given its small size, a decision was taken by the functional organization to contract the services of a Project Manager to assist with the temporary endeavor. A visual breakdown of the Sugar Plum team may be viewed in Figure 1 below.

Figure 1 Sugar Plum Botanicals Organizational Structure

(Source: Author, 2018)

2.1.4 Products offered

Currently, the company's product line is limited to handcrafted body soaps. The current selection includes soaps made of charcoal, neem, moringa, bay leaf, noni and coconut milk. The scope of the product line is based on customer request and availability of supplies and is yet to be finalized. It is envisioned that with the growth of product sales, other product lines such as liquid hand soaps, shampoos and conditioners will be developed and introduced to the market.

2.2 Project Management concepts

2.2.1 Project

A project is defined as a temporary endeavor, with a beginning and an end, and is used to create a unique product, service or result, and it may be progressively elaborated. PRINCE2 (an acronym for PRojects IN Controlled Environments) is a process-based method for effective project management and is used extensively by the UK public and private sectors as well as internationally. In this method, a project is defined as "a temporary organization that is created for the purpose of delivering one or more business products according to an agreed business case." Projects can be distinguished from the everyday business as usual activities in five main ways (Buehring, 2011).

- Projects are the means by which changes are introduced into the business.
- A project is a temporary organization with a defined start and end date.
- Because projects often bring together people with different skills from different departments and even different organizations, the project environment is often cross-functional in nature.
- Every project is unique in what it delivers. In other words, no two projects, even IT projects are the same.
- Projects have a greater level of uncertainty than business as usual activities.

Examples of projects include the building of an electrical substation, the launch of an e-learning platform, software development and the development of a personal

care line of products, all of which are present finite processes that produce unique results, services or products.

2.2.2 Project management

According to the PMBOK 6th edition, project management is the application of knowledge, skills, tools and techniques to project activities to meet project requirements. It is accomplished through the appropriate application and integration of the project management processes identified for the project. Project management enables organizations to execute projects effectively and efficiently. Particularly for small and micro businesses such as Sugar Plum Botanicals, best practices may be benchmarked and applied in order to satisfy stakeholder expectations, manage constraints, and optimize the use of organizational resources. One technical writer outlines project management as a set of activities which includes initiating, planning, executing, controlling and closing projects. It's a discipline that gives you principles, techniques, and tools to help you finish things on time and within budget (Mrsic, 2018).

Although these processes were informally practiced by many, project management "began to emerge as a distinct profession in the mid-20th century" (Project Management Institute, 2018). According to Leonard (2018), one of the major benefits of effective project management is that it gives businesses a competitive advantage since business owners who constantly try to stay competitive may find themselves in areas they are unfamiliar with during projects. Project management helps the business owner by using the experts in the areas needed while allowing the business owner to serve as an advisor to the project. Leonard further posits that smaller sections and provide timetables and metrics regarding success provided by the Project Manager help the business owner define the true viability of the project.

2.2.3 Project life cycle

According to the PMBOK 6th edition, a project life cycle is the series of phases a project passes through from its start to completion. It provides the basic framework

for managing the project. Project life cycles will vary across sectors and organizations may develop their individual project life cycles based on project size, diversity and complexity. Despite the variances, all projects follow the simple structure provided in Figure 2.

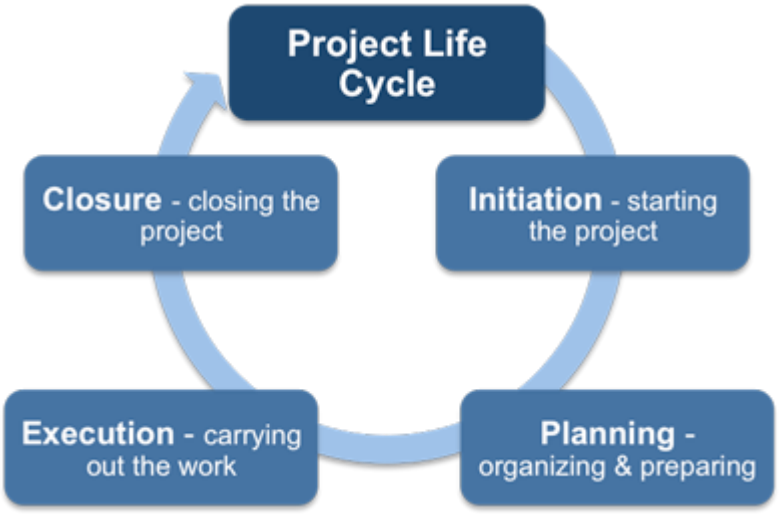


Figure 2 Project Life Cycle

(Source: Free Management eBooks, Project Life Cycle Definition)

2.2.3.1 Initiation

This phase focuses on clarifying the project objectives and the requirements in order to achieve them, and starting the actual work.

2.2.3.2 Planning

The areas centered on during this phase is the planning of time, cost, and resources adequately in order to estimate the work required and the effective management of risk.

2.2.3.3 Execution

This consists of the processes adopted to complete the work outlined in the project plan by coordinating resources and performing the work activities of the project.

2.2.3.4 Closure

In this phase, the project manager will review all previous information from the earlier phase closures in order to ensure that all the work is complete and that the objectives have been met.

Because life cycles can be predictive, iterative, incremental or adaptive, or a hybrid model of any of the foregoing, life cycles must be identified for each project. In order to highlight the subjectivity of project life cycles, it is worthy to note that Noordzy & Whitfield (2015) advanced an expansion of the traditional view of a new hotel life cycle. Traditionally, one would view the project life cycle for opening a new hotel as commencing with approval to acquire the land and build the facility, and finishing when the hotel opens for paying guests. Noordzy & Whitfield propose that the entire asset life cycle for a hotel actually begins with the preparation of the business case for development, and ends with the final disposal of the hotel asset at the end of its economic life. Project life cycles vary from process groups and as outlined in Figure 3, the relationship among life cycles, process groups and knowledge areas are clarified by the PMBOK 6th edition. There are no defined project life cycles conceptualized, or in use, at the company.

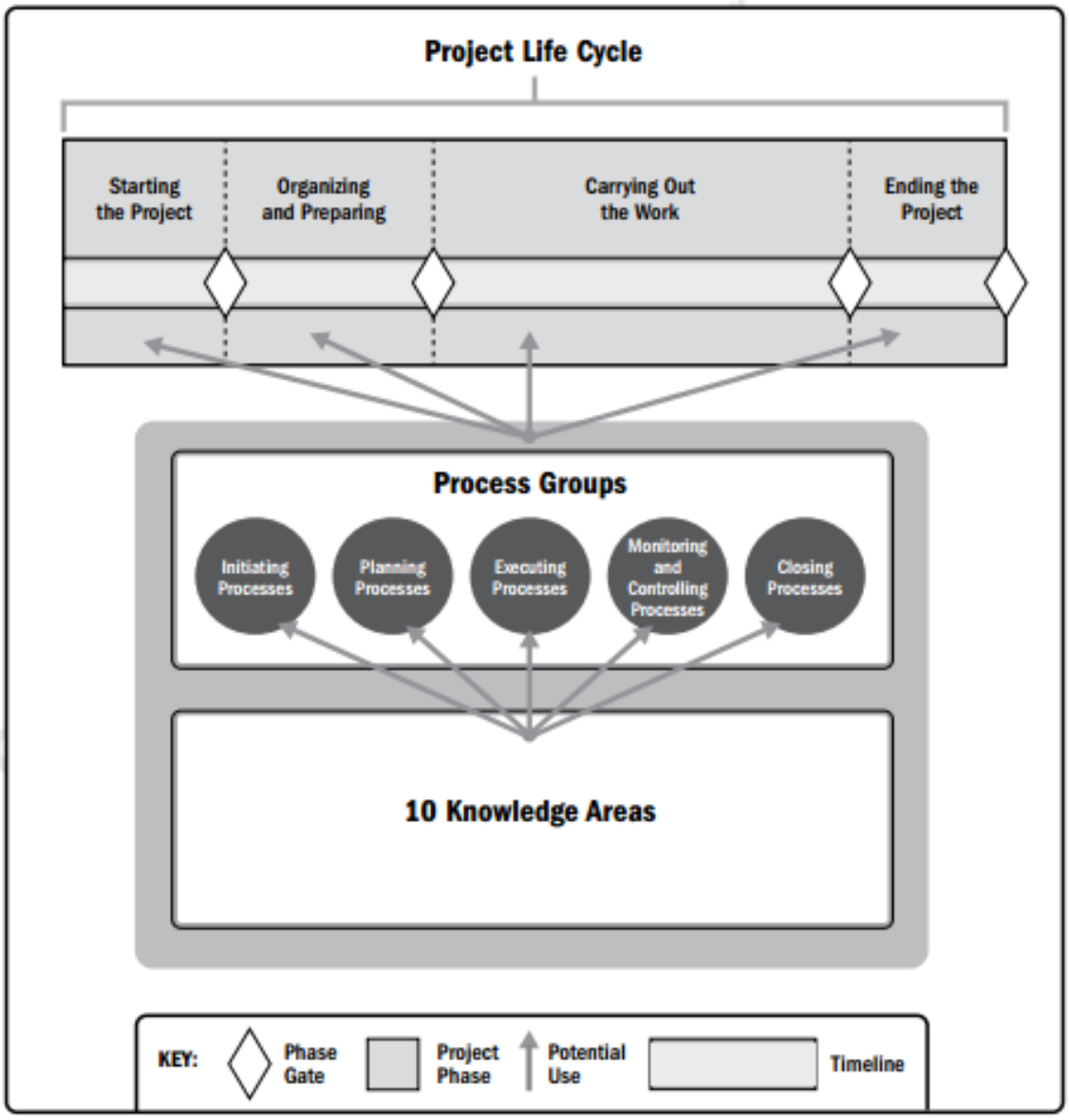


Figure 3 Interrelationship of PMBOK Guide to Key Components in Projects

(Source: A Guide to Project Management Body of Knowledge 6th edition, copyright by Project Management Institute 2017, p.18)

2.2.4 Project management processes

Project management processes are a series of project management activities that are executed as part of the project life cycle. Each project management process one or more outputs by using appropriate project management tools and techniques. These processes are grouped logically to achieve specific project objectives (Project Management Institute, 2017, p. 22). Figures 3 and 4 outline

these five process groups. According to the PMI, and noted by Project Management Academy, the following are the five project management process groups.

Figure 4 Project Management Process Groups

(Source: Project Management Yaro [Blog post] 2013, January 21)

2.2.4.1 Initiating

According to the PMI, the process of Initiating helps to set the vision of what is to be accomplished. This is where the project is formally authorized by the sponsor, initial scope defined, and stakeholders identified. This process group is performed so that projects and programs are not only sanctioned by a sponsoring entity, but also so that projects are aligned with the strategic objectives of the organization. Therefore, without formalizing the project, there is no project.

2.2.4.2 Planning

A crucial element of planning is establishing the total scope of the project, producing an iterative and more detailed planning process, called progressive elaboration. During this process group, project documents are developed at a much more detailed level.

2.2.4.3 Executing

The next thing to do after Planning is to execute, to do the work and it is important to have a project management plan to execute. It helps keep the project on track. Deliverables are created and the Project Manager coordinates the resources.

2.2.4.4 Monitoring and Controlling

While the other process groups occur sequentially, Monitoring and Controlling happen throughout the project and are not linear. These are the processes required to track, review and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes. Monitoring and Controlling is used to get back on track, to compare the plan to the actual, measure variance and take corrective action.

2.2.4.5 Closing

best practice dictates that the Project Manager should formally close the project by centrally archiving records, holding a lessons learned session, and celebrating and releasing the team.

2.2.5 Project management knowledge areas

Another categorization of processes is by knowledge areas. According to the PMBOK 6th edition, a knowledge area is an identified area of project management defined by its knowledge requirements and described in terms of its component processes, inputs, outputs, tools and techniques. Figure 5 presents the ten knowledge areas advanced by the Project Management Institute and a brief overview of each knowledge area also follows (Visual Paradigm, n.d.). Sourced from the PMBOK 6th edition, Figure 6 on page 15 highlights the relationship between the knowledge areas vis-à-vis the process groups.

Figure 5 Project Management Knowledge Areas

(Source: PM Wares Project Management Knowledge Areas [Blog post] 2017, May 16)

- **Integration Management** is the processes required to ensure that the various elements of the project are properly coordinated.
- **Scope Management** - the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.
- **Time Management** - the processes required to ensure the timely completion of the project.
- **Cost Management** - the processes required to ensure the project is completed within the approved budget.
- **Quality Management** - the processes required to ensure the project will satisfy the needs for which it was undertaken.
- **Resource Management** - the processes required to maximize the effective use of people and other resources involved with the project.
- **Communications Management** - the processes required to ensure the timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project knowledge.

- **Risk Management** - the processes concerned with identifying, analyzing, and responding to project risk.
- **Procurement Management** - the processes required to acquire the goods and services from outside the performing organization.
- **Stakeholder Management** - the processes that identifies and develops relationships with those people and organizations which are impacted by the project and which influence or determine how the team works.

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Figure 6 Project Management Process Group and Knowledge Area Mapping

(Source: A Guide to Project Management Body of Knowledge 6th edition, copyright by Project Management Institute 2017, p.25)

2.3 Other theory/concepts related to the project topic and context

Best practice must always be sought-after. However, small and micro businesses, require agile project management that helps them attain better product quality, enhanced team collaboration, and higher customer satisfaction (Boyer, 2015). Boyer outlines that "small businesses face a dynamic and complex business climate and requirements often change midway and demands increase abruptly. Unfortunately, small businesses are usually armed with nothing but fewer resources and tight budgets. They therefore need a solution that allows them to optimize every aspect of business and agile project management helps the do so. It facilitates a more adaptive and more fluid environment. Besides, this highly iterative process allows better and constant communication between team members, stakeholders and customers. The advantages include quick delivery and better quality control". Figure 7 highlights the benefits to be gained from an agile development process.

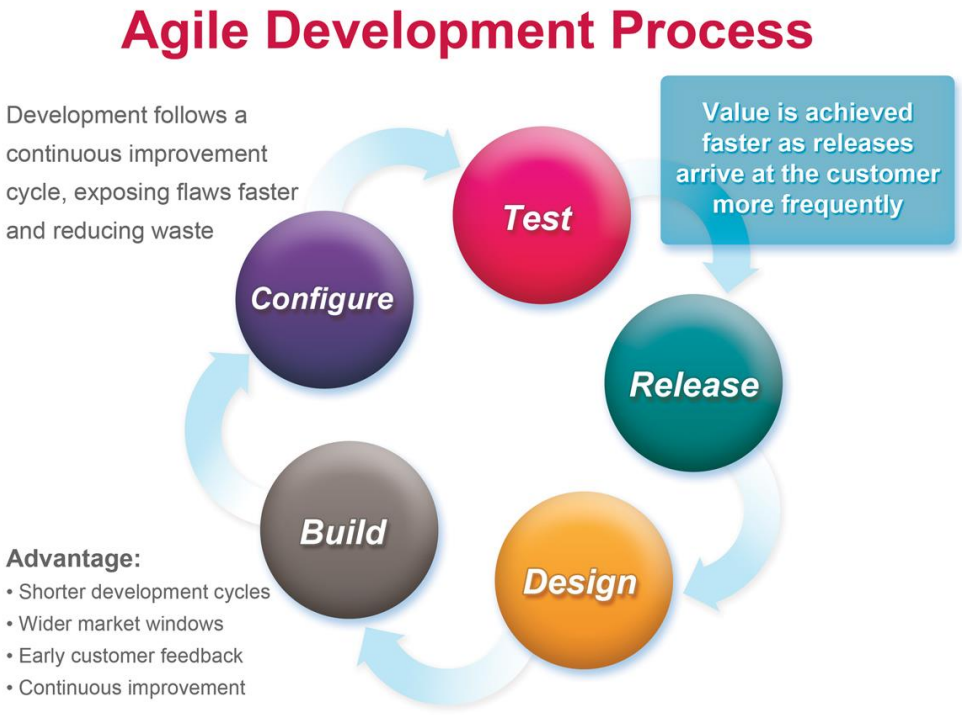


Figure 7 Agile Development Process

(Source: Agile Strategy [Pinterest post] 2014, April 27)

3 METHODOLOGICAL FRAMEWORK

3.1 Information sources

As prescribed by the McQuade Library LibGuide (2018), there are three types of resources or sources of information: primary, secondary, and tertiary. It is worthy to note here that tertiary sources are those used to organize and locate secondary and primary sources. Indexes – provide citations that fully identify a work with information such as author, titles of a book, article, and/or journal, publisher and publication date, volume and issue number and page numbers. Abstracts – summarize the primary or secondary sources, Databases – are online indexes that usually include abstracts for each primary or secondary resource, and may include a digital copy of the resource.

3.1.1 Primary sources

Primary sources are original materials on which other research is based, including original written works (McQuade Library LibGuide, 2018). Oxford Living Dictionary (2018) defines the primary sources as follows:

- Poems – these are pieces of writing in which the expression of feelings and ideas is given intensity by particular attention to diction (sometimes involving rhyme), rhythm, and imagery.
- Diaries – book in which one keeps a daily record of events and experiences.
- Court records – official reports of the proceedings and judgment in a court.
- Interviews – face to face meetings with people, especially for consultation.
- Surveys – general views, examinations, or descriptions of someone or something.
- Original research/fieldwork – practical work conducted by a researcher in the natural environment, rather than in a laboratory or office.

- Research – the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions. These may be published in scholarly or academic journals.

Another Library Guide (n.d.), from the University of California, purports that "primary sources are documents, images or artifacts that provide firsthand testimony or direct evidence concerning an historical topic under research investigation. Primary sources are original documents created or experienced contemporaneously with the event being researched. Primary sources enable researchers to get as close as possible to what actually happened during an historical event or time period". Primary sources used in the project include interviews with stakeholders e.g. company representatives and suppliers, observation of manufacturing processes, sales information and production logs.

3.1.2 Secondary sources

Secondary sources are those that describe or analyze primary sources, including reference materials (McQuade Library LibGuide, 2018). Oxford Living Dictionary (2018) defines the secondary sources as follows:

- Dictionaries – books or electronic resources that list the words of a language (typically in alphabetical order) and gives their meaning, or gives the equivalent words in a different language, often also providing information about pronunciation, origin, and usage.
- Encyclopedias – a set of books giving information on many subjects or on many aspects of one subject and typically arranged alphabetically.
- Textbooks and articles – standard work for the study of a particular subject and pieces of writing included with others on websites, in newspapers, magazines, or other publications, which interpret, review, or synthesize original research/fieldwork. Secondary sources utilized in the project include textbooks, online journals, blogs and articles, and newspapers.

Chart 1 Information sources (Source: The Author, 2018)

Objectives	Information Sources	
	Primary	**Secondary**
To produce a project charter which officially authorizes resources assignment to produce a project plan.	Project Manager knowledge	PMBOK Guide 6th edition and UCI course presentations
To create a scope management plan to ensure that all required work in included to successfully complete the project.	Customer feedback and production logs	Free E-Management Books.com and online research
To create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed.	Company Production logs	PMBOK Guide 6th edition
To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.	Sales records and procurement records	Online research
To develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints.	Observation of manufacturing processes	Online articles and research
To create a risk management plan to minimize overall risk in the development of the product line.	Observation of manufacturing processes	Completed UCI assignments, journals and online research
To create a human resources management plan to outline the resources required to support the planning of the project.	Organizational structure	Online research

To create a communication plan to ensure time and effective communication with all stakeholders.	Organizational structure and communication methods	Completed UCI assignments and online research
To develop a procurement plan to acquire products and services required by the project.	Procurement records and contracts	PMBOK Guide 6th edition and online research
To develop a stakeholder management plan to effectively engage all project stakeholders.	Customer feedback and interviews with company representatives and suppliers	Textbooks, completed UCI assignments, journals and online research

3.2 Research methods

A research method is a systematic plan for conducting research (Moffitt, n.d.). By following specific guidelines, a study or investigation is completed "in order to establish facts and reach new conclusions" (Oxford Living Dictionary, English, n.d.).

3.2.1 Qualitative method

Qualitative research involves disciplined inquiry that examines people's lives, experiences and behaviors, and the stories and meanings individuals ascribe to them. It can also investigate organizational functioning, relationships between individuals and groups, and social environments (Australia Government National Statement on Ethical Conduct in Human Research, 2007). For this specific project, observation of the production processes of Sugar Plum Botanicals will be used in order to amass information on the organization's functioning and requirements.

3.2.2 Quantitative method

Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon (Babbie, 2010). The quantitative approach will be used for scope management through focus groups and surveys of various stakeholders.

Chart 2 Research Methods (Source: The Author, 2018)

Objectives	**Research Methods**	
	Qualitative Method	**Quantitative Method**
To produce a project charter which officially authorizes the resources assignment to produce a project plan.	Internet research	
To create a scope management plan to ensure that all required work in included to successfully complete the project.	Interviews with main soap producer and observation of soap manufacturing process	Customer feedback surveys
To create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed.	Observation of soap manufacturing process	
To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.	Observation of soap manufacturing process	Budget analysis
To develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints.	Observation of soap manufacturing process and internet research	

To create a risk management plan to minimize overall risk in the development of the product line.	Brainstorming session with COO and qualitative risk analysis	
To create a human resources management plan to outline the resources required to support the planning of the project.	Observation of soap manufacturing process and internet research	Survey of competitors
To create a communication plan to ensure time and effective communication with all stakeholders.	Internet research	Survey of competitors and customer feedback
To develop a procurement plan to acquire products and services required by the project.	Observation of soap manufacturing process	Data analysis
To develop a stakeholder management plan to effectively engage all project stakeholders.	Recorded interviews with suppliers and company representatives and brainstorming	Customer feedback

3.3 Tools

According to the PMBOK Guide 6th edition (p. 725), a tool is something tangible, such as a template or software program, used in performing an activity to produce a product or result. The use of tools will ensure that the project is completed using best practice prescribed by the Project Management Institute and will ensure efficiency of the activities completed. The tools used in the Final Graduation Project are outlined below in Chart 3.

Chart 3 FGP Tools (Source: The Author, 2018)

Tool	Use
Check sheets	These are utilized to compile and collect data on production quality.
Communications Management plan template	Assists in the creation of a communications management plan
Cost Management Plan template	Assists in the development of the Cost Management Plan
Microsoft Excel 2013	Used to create various grids and matrices
Microsoft Project Professional 2016	Used to develop the activity list and scheduling of activities
Microsoft Word SmartArt	Required for the visual design of the WBS, RBS, flowcharts and organizational structures
Procurement Management Plan template	Guides the development of the procurement management plan
Project Charter template	Used for the development of the project charter
Project Management Plan template	Assists in the creation and collation of the project management plan and component plans.
Quality Management Plan	Guides the development of the Quality

template	Management Plan
Requirements Traceability Matrix	Ensures that the project requirements are known and necessary
Risk Management Plan template	Assists in the creation of the risk management plan
Responsibility Assignment matrix	Assigns human resources to activities
Risk Register template	Itemizes all perceived risks, major and minor
Schedule Management template	Assists in the creation of the scope management plan
Scope Management template	Assists in the creation of the scope management plan
Stakeholder Analysis matrix	Assists in identifying the main roles and expectations of stakeholders
Stakeholder Engagement Assessment matrix	Measures the current engagement levels and project the desired engagement levels of all stakeholders
Stakeholder Engagement Plan template	Assists in the creation of the stakeholder management plan
Stakeholder Register	Highlights all stakeholders of the project

According to Richards (2017) in an article entitled “The Importance of Project Management Tools”, the primary purpose of project management tools is to help managers plan, execute and control all aspects of the project management process. Companies rely on key tools for managing a project to ensure that each task is completed on time and to balance staff workload for optimal time management. Because project management tools enhance resource efficiency and ensure project scope, such tools are especially important for project managers involved with large, complex projects. The summary of these tools in relation to the Final Graduation Project objectives is provided in Chart 4.

Chart 4 Tools (Source: The Author, 2018)

Objectives	Tools	Phase(s) for Application
1. To produce a project charter which officially authorizes resources assignment to produce a project plan.	Project Charter template and Project Management Plan template.	Initiation
2. To create a scope management plan to ensure that all required work in included to successfully complete the project.	Stakeholder Register, Stakeholder Analysis Matrix, Microsoft Word 2013 SmartArt, and Scope Management Plan template.	Planning
3. To create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed.	Microsoft Project Professional 2016, Microsoft Excel 2013 and Schedule Management Plan template.	Planning
4. To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.	Microsoft Project Professional 2016, Microsoft Excel 2013 and Cost Management Plan template.	Planning
5. To develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints.	Quality management plan template and check sheets.	Planning and Execution

6. To create a risk management plan to minimize overall risk in the development of the product line.	Risk management plan template and Risk Register template.	Planning and Execution
7. To create a human resources management plan to outline the resources required to support the planning of the project.	Responsibility Assignment matrix, Microsoft Project Professional 2016 and Microsoft Word 2013 SmartArt.	Planning
8. To create a communication plan to ensure time and effective communication with all stakeholders.	Communications Management plan template, Microsoft Excel 2013 and Stakeholder Engagement Assessment matrix.	Planning and Execution
9. To develop a procurement plan to acquire products and services required by the project.	Procurement Management Plan template.	Planning
10. To develop a stakeholder management plan to effectively engage all project stakeholders.	Stakeholder Engagement Plan template, Stakeholder Power-Interest Grid, Microsoft Excel 2013 and Stakeholder Engagement Assessment matrix.	Planning

3.4 Assumptions and constraints

The PMBOK Guide 6th edition defines an assumption as “a factor in the planning process that is considered to be true, real or certain, without proof or demonstration” (p. 699) while a constraint is defined as a “limiting factor that affects the execution of a project, program, portfolio or process” (p. 701). Usmani (n.d.) further explains that “assumptions and constraints can be anything; they might be related to human resources, budget, time or any kind of functionally” and because of this, it is very important for assumptions to be analyzed and constraints identified. A summary of these assumptions and constraints are highlighted in Chart 5. Generally, the assumptions relate to the availability of time, finances and information while the constraints relate to limitations of accuracy, seasonality and timing.

Chart 5 Assumptions and Constraints (Source: The Author, 2018)

Objectives	Assumptions	Constraints
To produce a project charter which officially authorizes resources assignment to produce a project plan.	Project information will be readily available for analysis and the charter will be created first, before all other subsidiary documents.	Updates not taking place as required due to small size of project team.
To create a scope management plan to ensure that all required work in included to successfully complete the project.	Full information will be shared by the COO required to develop the scope. The scope management plan will identify all the work to be completed.	Bounded rationality because of the newness of the business and its niche market.
To create a schedule management	The time assigned to the development of the	Possible unforeseen production interruptions

plan to support the development of a project schedule to ensure that time constraints are observed.	project management plan is sufficient. Timely feedback is provided by Tutor and reviewers.	or delays.
To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.	The budget developed during planning will accurately represent the financial resources required to complete the project.	Financing is not assured with this new company.
To develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints.	The quality plan will identify all technical quality requirements of the project.	Prescribed curing times vary based on the method of soap production.
To create a risk management plan to minimize overall risk in the development of the product line.	Full information is shared to identify the maximum number of risks.	Risks must be identified very early in the planning process.
To create a human resources management plan to outline the resources required to	The company has full access to the resources required.	Small size of functional organization

support the planning of the project.		
To create a communication plan to ensure time and effective communication with all stakeholders.	The company has access to the necessary technology to interface with all stakeholders.	Response times to queries must be as close to instant as possible.
To develop a procurement plan to acquire products and services required by the project.	Suppliers are known and identified.	Seasonality of local herbs and plants.
To develop a stakeholder management plan to effectively engage all project stakeholders.	This plan will include a full list of stakeholders and the effective management of each.	Accuracy of information related to stakeholders.

3.5 Deliverables

A deliverable is “any unique, verifiable product, result or capability to perform a service that is required to be produced to complete a process, phase or project” (Project Management Institute, 2017, p. 704). Scheid (2013) underscores the importance of the linkage between deliverables and stakeholder needs and project obejectives. Scheid further purports that “deliverables should also be prioritized based on project elements and include realistic timelines based on definition and importance. Skipping the process of defining goals to discover your project management deliverables can result in project chaos or failure”. The development of the project management plan and all subsidiary plans are the key deliverables of this project. The summary of deliverables is presented in Chart 6.

Chart 6 Deliverables (Sources: The Author, 2018 and PMBOK Guide 6th edition, 2017 pp. 701-723)

Objectives	Deliverables
1. To produce a project charter which officially authorizes resources assignment to produce a project plan.	• Project Charter This is the basis for the formulation of the project management plan and it is continually updated as the project progresses.
2. To create a scope management plan to ensure that all required work in included to successfully complete the project.	• Requirements Documentation • Scope Management Plan These ensure that the requirements are known and that the scope is defined, developed, monitored, controlled and validated.
3. To create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed.	• Network Diagram • Gantt Chart • Schedule Management Plan. These afford the visual representation of activities and assigned start and end dates. The Plan confirms the criteria and activities relating to the schedule.
4. To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.	• Cost Management Plan This presents how costs will be planned, structured and controlled.
5. To develop a quality management plan to highlight the quality requirements to	• Quality management plan This outlines the policies and procedures required to meet quality objectives.

ensure results meet expectations for approval within time, cost and scope constraints.	
6. To create a risk management plan to minimize overall risk in the development of the product line.	• Risk management plan • Risk Register These highlight the risks present and outlines how risk management activities will be structured and executed.
7. To create a human resources management plan to outline the resources required to support the planning of the project.	• Resources Management plan This outlines how project resources are acquired, allocated, monitored and controlled.
8. To create a communication plan to ensure time and effective communication with all stakeholders.	• Communications Management plan This plan determines how, when and by whom information about the project is disseminated.
9. To develop a procurement plan to acquire products and services required by the project.	• Procurement Management Plan It outlines how goods will be acquired by the project team from outside the company.
10. To develop a stakeholder management plan to effectively engage all project stakeholders.	• Stakeholder Management Plan • Stakeholder Register These not only identify and assess project stakeholders, but also provide strategies to promote the productive involvement of stakeholders during decision-making and execution.

4 RESULTS

Based on the preceding listed objectives, assumptions and constraints, tools, and deliverables outlined, the development of all related input plans will be highlighted in the sections that follow.

4.1 Project Charter

The charter was updated after each iteration of the project proposal for review was confirmed by the assigned Tutor. Dates within the scheduling and milestones were refined and adjustments were completed as guided. Chart 7 presents the most current charter for the project.

Chart 7 Project Charter (Sources: The Author, 2018 and UCI FGP Course, 2018)

PROJECT CHARTER	
Date	**Project Name:**
May 14, 2018	To create a project management plan for the development of a new line of handcrafted natural body soap by December 2018.
Knowledge Areas / Processes	**Application Area (Sector / Activity)**
Knowledge Areas: Project Integration Management, Scope Management, Time Management, Cost Management, Quality Management, Human Resource Management, Communication Management, Risk Management, Procurement Management & Stakeholder Management **Process groups:** Planning	Microbusiness: Health & Beauty
Start date	**Finish date**
May 14, 2018	November 16, 2018
Project Objectives (general and specific)	

General objective:
To develop a project management plan for the creation of a new line of handcrafted natural body soap by December 2018.

Specific objectives:

1. To produce a project charter which officially authorizes resources assignment to produce a project plan.
2. To create a scope management plan to ensure that all required work in included to successfully complete the project.
3. To create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed.
4. To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.
5. To develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints.
6. To create a risk management plan to minimize overall risk in the development of the product line.
7. To create a communication plan to ensure time and effective communication with all stakeholders.
8. To develop a procurement plan to acquire products and services required by the project.
9. To create a human resources management planto outline the resources required to support the planning of the project.
10. To develop a stakeholder management plan to effectively engage all project stakeholders.

Project purpose or justification (merit and expected results)

Soapmaking is a skill that requires patience, extreme accuracy in measurement and close adherence to health and safety standards. What began as a hobby has quickly converted to a demand which currently exceeds supply for handcrafted body soaps using natural ingredients with several specific health benefits. This microbusiness is in need of formalize processes to assess costs, competitors, suppliers for input products and maximize on the conversion of current demand to actual sales.

Description of Product or Service to be generated by the Project – Project final deliverables

The Project Management Plan for the creation of a new line of handcrafted body soaps under the brand Sugar Plum Botanicals. This document will assist in future expansion of the product line to include facial soap, liquid handsoaps and lotions. This document can also be adapted and updated to assist other similar microbusinesses in the health & beauty sector.

Assumptions

Project will be developed using data and information made available by Sugar Plum Botanicals.
Project information will be readily available and accurate for analysis
There will be a complete and early review of all individual- and overall project risks.
Tutors and reviewers will be responsive to queries and requests for clarification.

Constraints

1. 5-week break in the assessment and assistance for the Final Graduation Project (FGP) provided by the Tutor during the completion of Course 11, which is scheduled to begin on June 18, 2018.
2. 6 months to development the plan may hinder the successful development of this niche area and new market entry.
3. Both the functional organization and project teams are small in size and overlapping of tasks is expected.
4. Financial resources are not assured with microbusinesses.
5. The composition of the project team is unknown.

Preliminary risks

Poor record-keeping by the microbusiness may lead to inaccurate findings/costs and negatively impact the quality of the resulting plan.

Budget

While online modaility of the programme normally requires electronic submission, the cost of printing and postage of the final project may form part of the budget.

Milestones and dates

Milestone	Start date	End date
Project Charter	May 14, 2018	May 18, 2018
Project WBS	May 14, 2018	May 18, 2018
Introduction Chapter	May 21, 2018	May 25, 2018
FGP Schedule	May 21, 2018	May 25, 2018
Theoretical Framework	May 28, 2018	June 1, 2018
Methodological Framework	June 4, 2018	June 8, 2018
Executive Summary	June 11, 2018	June 15, 2018
Bibliography & Indices	June 11, 2018	June 15, 2018
Acquisition of Signed Charter	June 11, 2018	June 15, 2018
Graduation Seminar Approval	June 18, 2018	June 22, 2018
Tutoring Process	July 30, 2018	October 21, 2018
Review of Previous Submissions	August 6, 2018	August 10, 2018
Development (Results)	August 13, 2018	September 14, 2018
Conclusions	September 17, 2018	September 21, 2018
Recommendations	September 24, 2018	September 28, 2018
Bibliography & Appendices	October 1, 2018	October 5, 2018
Assignment of Reviewers	October 8, 2018	October 12, 2018
Submission of FGP for Review	October 12, 2018	October 12, 2018
Reading by Reviewers	October 15, 2018	October 26, 2018
Adjustments & Modifications	October 29, 2018	November 9, 2018
Presentation to Board of Examiners	November 12, 2018	November 16, 2018

Relevant historical information

Training in soapmaking was completed for a 12-week period from January 2018 by the main soap producer. Production of body soaps continued as a hobby with sampling done by friends and relatives. With plans in place for the official registration of the company business name and acquisition of packaging equipment, Sugar Plum Botanicals stands ready to launch its soaps with unique blends of Barbadian natural herbs and spices. Given the anticipated launch of the brand into the market, no similar efforts have been executed previously for this company.

Stakeholders

Direct stakeholders: Project Manager Company Chief Operating Officer Company Chief Executive Officer FGP Professor Academic Assistant Tutor Reviewers	Indirect stakeholders: Customers Competitors Suppliers Packaging Team Equipment Team Health & Wellness Stores Retail Gift Shops
Project Manager: Alison Xiomara Brome	**Signature:** 
Authorized by:	**Signature:**

4.2 Scope Management Plan

The main deliverable is the development of a Project Management Plan (by development of associated input plans) for the creation of a new line of handcrafted body soaps under the brand Sugar Plum Botanicals. The Project Manager, in conjunction with representatives of the small business, will execute and evaluate plan activities. Acceptance forms will be signed to confirm that criteria have been met. Should there be a change due to customer request or adjustment relating to content requirements, documentation of change requests will be used to track changes and the approval thereof.

4.2.1 Scope Management Approach

The scope will be defined, communicated and agreed with the COO and the production team. The scope statement, when produced, will guide the extent of the project and note any exclusions to the project. The Work Breakdown Structure will present the main deliverables to be produced. The Project Manager will have the authority to monitor production and development of the soap line. Once the samples are completed and feedback from customer trials is received and documented, this will assist in establishing the final inclusions in the product line. It is acknowledged that individual customer requests for a specific blend will continue, but these will be balanced with availability of input contents and time available. Scope creep will be avoided by closely following the production schedule and monitoring change requests.

4.2.2 Scope Definition

The project's focus is the development of a project management plan for the creation of a new line of handcrafted natural body soap. This will be completed by integrating a project charter that officially authorizes resources assignment to produce a project plan, along with input plans guiding scope, scheduling, cost, quality, risk, communication, procurement, resources and stakeholder management. With a view of completing a specified number of soap blends, any special requests beyond those developed can be accommodated and priced

accordingly. The Requirements Traceability Matrix is presented in Chart 8 from page 39.

4.2.3 Tools & Techniques

Expert judgment provided by the main soap producer and COO as well as requirements analysis using the WBS deliverables were used to define the scope.

4.2.4 Scope Statement

The creation of the soap line will focus on handcrafted body soaps, of varying blends. While various sample blends will be initially produced, it is envisioned that approximately 7 – 10 blends, with the highest customer satisfaction ratings, will be produced and kept in stock for purchase by customers. In relation to acceptance criteria, blends with a customer satisfaction rating of 80% or higher will be considered for inclusion in the line. The project will not include the production of liquid soaps or customized customer requests. The time required for curing to be completed (to ensure that saponification is complete and no lye remains in the product) will need to be effectively managed to ensure availability of inventory. In addition, customer demand may vary and inventory must be well managed. It is assumed that herbs and natural ingredients will be readily dried and available to complement soap production. It is also assumed that production will continue as scheduled.

4.2.5 Work Breakdown Structure

The WBS presented the main deliverables listed at two levels in Figure 8 on page 38. It shows the breakdown of work packages into manageable sections, which will be completed the project team. The WBS is accompanied by the Requirements Traceability Matrix (Chart 8) that outlines the requirements for each deliverable. The related WBS dictionary (Chart 9) assists with identifying costs and resources required. From these levels identified, work activities or tasks are generated, scheduled within the schedule management plan and later assigned to available human resources.

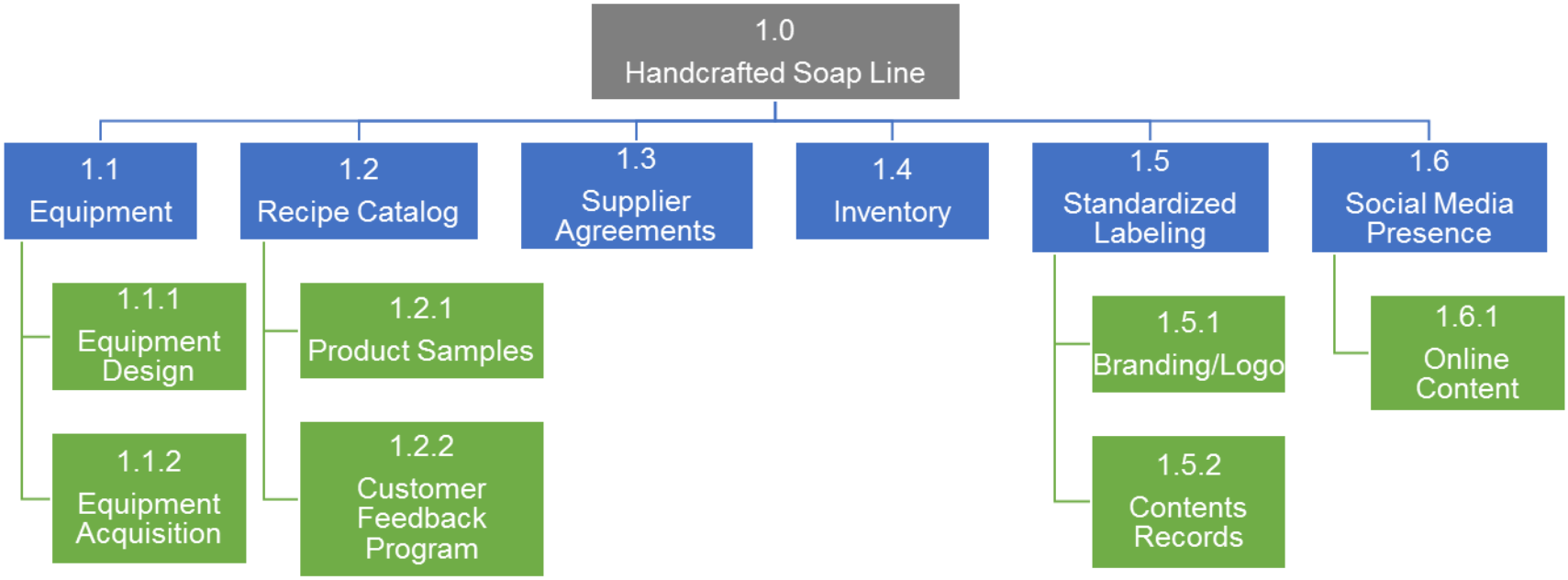


Figure 8 Work Breakdown Structure

(Source: The Author, 2018)

Chart 8 Requirements Traceability Matrix (Sources: The Author, 2018 and MyPMLLC.com)

Project Name	Development of Line of Handcrafted Soaps	**Date**	September 9, 2018
Project Manager	Alison Brome	**Project Owner/Client**	Sugar Plum Botanicals

ID No.	**Source**	**Requirement Name and Description**	**WBS Deliverable**	**Assigned To**	**Acceptance Criteria**	**Tested By and Date**	**Accepted By and Date**
PR1	Production Team	Maintenance Check Schedule to ensure shape and easy removal from mold	Equipment (Mold and Cutter)	COO	Review to be completed via form at the end of each quarter	COO Jun 8, 2018	PM Jun 9, 2018
PR2	YouTube	Prototype Photo	Equipment Design	COO	Required functionality for mold – expansion by ¼" width when removing the finished soaps	COO May 8, 2018	COO May 10, 2018

PR3	Production Team	Production Logs to capture all contents used in each bar.	Recipe Catalog	COO	Temporary labeling of finished soap to avoid confusion	COO Apr 8, 2018	PM Sep 9, 2018
PR4	Production Team	Complimentary samples to test customer response to specific blends	Product Samples	COO	1/3 of usual soap size	COO May 14, 2018	COO May 16, 2018
PR5	Project Manager	Customer feedback survey	Customer Feedback Program	Social Media Team	80% or higher satisfaction rating	Social Media Team [To be discussed]	COO [To be discussed]
PR6	Project Manager	Simple sample contract that guides procurement process of	Supplier Contracting	PM	Confirms arrangement to procure herbs and natural plants	PM Aug 31, 2018	PM Sep 2, 2018

		natural herbs (though some are available within the community at no charge).					
PR7	Production Team	Stock of soaps available for purchase	Inventory	Production Team	Minimum of 30 soaps per blend	Packaging Team [To be discussed]	PM [To be discussed]
PR8	Packaging Team	Labels must be standardized to maximize on print cost.	Standardized Labeling	Packaging Team	Label size must be the same.	Packaging Team Apr 8, 2018	PM Sep 2, 2018
PR9	COO	Business name that is complementary to the tagline “Be Sweet to Yourself”	Branding/ Logo	Labeling Team	Available for registration at the Corporate Affairs & Intellectual Property Office	COO Apr 4, 2018	COO Apr 8, 2018

PR10	COO	As per local regulation by governing body, the BNSI, all contents	Contents Records	Packaging Team	All contents must be noted and declared to all customers.	Packaging Team Apr 6, 2018	COO Apr 8, 2018
PR11	Instagram, Facebook, YouTube	Social media accounts and email address for customer contact, queries and comments	Social Media Presence	Social Media Agent	Account names closely linked to registered business name where possible.	Social Media Agent Jun 1, 2018	COO Jun 10, 2018
PR12	Sugar Plum Botanicals	Tips, photos and general information for consistent uploading to online accounts	Online Content	Social Media Agent	Photography of products	COO [To be discussed]	PM [To be discussed]

Chart 9 WBS Dictionary (Sources: The Author, 2018 and Free-Management-EBooks.com)

WBS ID	Level	Name of Element	Work Description	Budget (BBD)	Resources	Deliverable
1.1	**1**	Equipment (Mold and Cutter)	The mold and cutters were manufactured locally by a third party. An adjustable twistable screw mechanism on the rectangular prism-shaped mold allows for contraction when soaps are placed in the mold, and expansion and removing the completed "loaf" of soap. The use of PVC board ensures that there is no swelling of the material when the moist soap contents are placed. Estimated time for completion is one week. The cutter mold is also made using PVC board and	$136	COO	Two completed molds and cutters

			includes the knife/blade to ensure that the slices of each bar of soap is standard.			
1.1.1	**2**	Equipment Design	The design was conceptualized based on need with the assistance of online research.	$0	COO	Two completed molds and cutters
1.2	**1**	Recipe Catalog	Measurements required to produce each blend will need to be coordinated, recorded and secured. Printed and electronic copies will be maintained.	$10	Production Team	Recipe Catalog
1.2.1	**2**	Product Samples	Blends will need to be tested before formally launching in the market.	$360	Production Team	Estimated 10 – 12 product blends for sampling
1.2.2	**2**	Customer Feedback Program	Online feedback will be solicited using free online services such as Survey	$160	Social Media Agent	Customer satisfaction report

			Monkey and Google Forms			
1.3	**1**	Supplier Agreements	Printing costs of the agreements, especially for the procurement of herbs and plants from the residential area (at no purchase cost to the company).	$5	Project Manager	Contract template for operational use
1.4	**1**	Inventory	A 3-par will be used for the maintenance of inventory. Given that curing times vary from 2 weeks to 8 weeks, 3 batches or “loaves” of each soap blend (approximately 30 bars) will be maintained in inventory.	$ 900	COO	3-par inventory
1.5	**1**	Standardized Labeling	Labelling must clearly and adequately present company information, contents and branding.	$126 (calculation based on established 3-par)	Packaging Team	3” x 2” label for soap bars and 2¼“ diameter labels for soap rounds

1.5.1	**2**	Branding/ Logo	The Sugar Plum branding must be clearly represented on the labels produced.	Included in Labelling cost	Packaging Team	Visible branding on all labels
1.5.2	**2**	Contents Records	Each soap blend will require a listing of all contents. Hard and electronic copies will be required.	$5	Packaging Team	Contents labels for all soaps
1.6	**1**	Social Media Presence	Social media accounts and email address for customer contact, queries and comments	$0	Social Media Agent	WhatsApp Instagram and Gmail.
1.6.1	**2**	Online Content	The services of a Social Media Agent, contracted at an hourly rate, will be utilized for six months to post according to the monthly communication plan schedule. Rates are based on 1 hour per day.	$1,800	Social Media Agent & COO	Monthly content update outline including photography of completed products, tips, specials offered.

4.2.6 Scope Validation

When acceptance criteria are met, formal signature of acceptance documentation will be completed. A sample of the acceptance form may be viewed in Figure 12 on page 64. Changes will be managed by a Change Request form system, which will be managed by the Project Manager and the sponsoring company to ensure that the line produced does not exceed 7 – 10 blends using local herbs and plants based on those recommended by customer feedback and a satisfaction rating of no less than 80%.

4.3 Schedule Management Plan

According to Carson (2011), “the purpose for developing a SMP is to ensure that the actual development of the schedule is guided by a well thought-out process that will ensure sufficient organizational structure and an approach to efficiently developing the schedule". The owner of the Schedule Management plan will be the Project Manager, with input from the COO and Production team members.

The Critical Path Method (CPM) will be utilized for the project. Microsoft Project 2016 is to the tool used to document activities, insert milestones, estimate durations and assign resources, using expert judgment and analogous and parametric estimating. The scheduling tool will be accessible to all company representatives, but all adjustments, entries and edits will be completed by the PM. After the schedule is developed, close monitoring through weekly reviews of the activities on the critical path and near the critical path will be done in order to identify any variances.

The use of metrics is a key way of measuring whether a project is ahead of, or behind, schedule. Two metrics that will be calculated weekly and utilized will be the Scheduled Variance (SV) and the Schedule Performance Index (SPI). The SV is the difference between the Earned Value and the Planned Value of a

project that is the actual budget is subtracted from the estimated budget set at the beginning of the project. The calculation is otherwise listed as:

SV = (Earned Value) - (Planned Value)

The SPI gives an understanding of the delivery timeline for your project. If SPI is more than 1, the project is ahead of schedule. If SPI less than 1, the project is behind. Listed mathematically, the calculation is:

SPI = (Earned Value) ÷ (Planned Value)

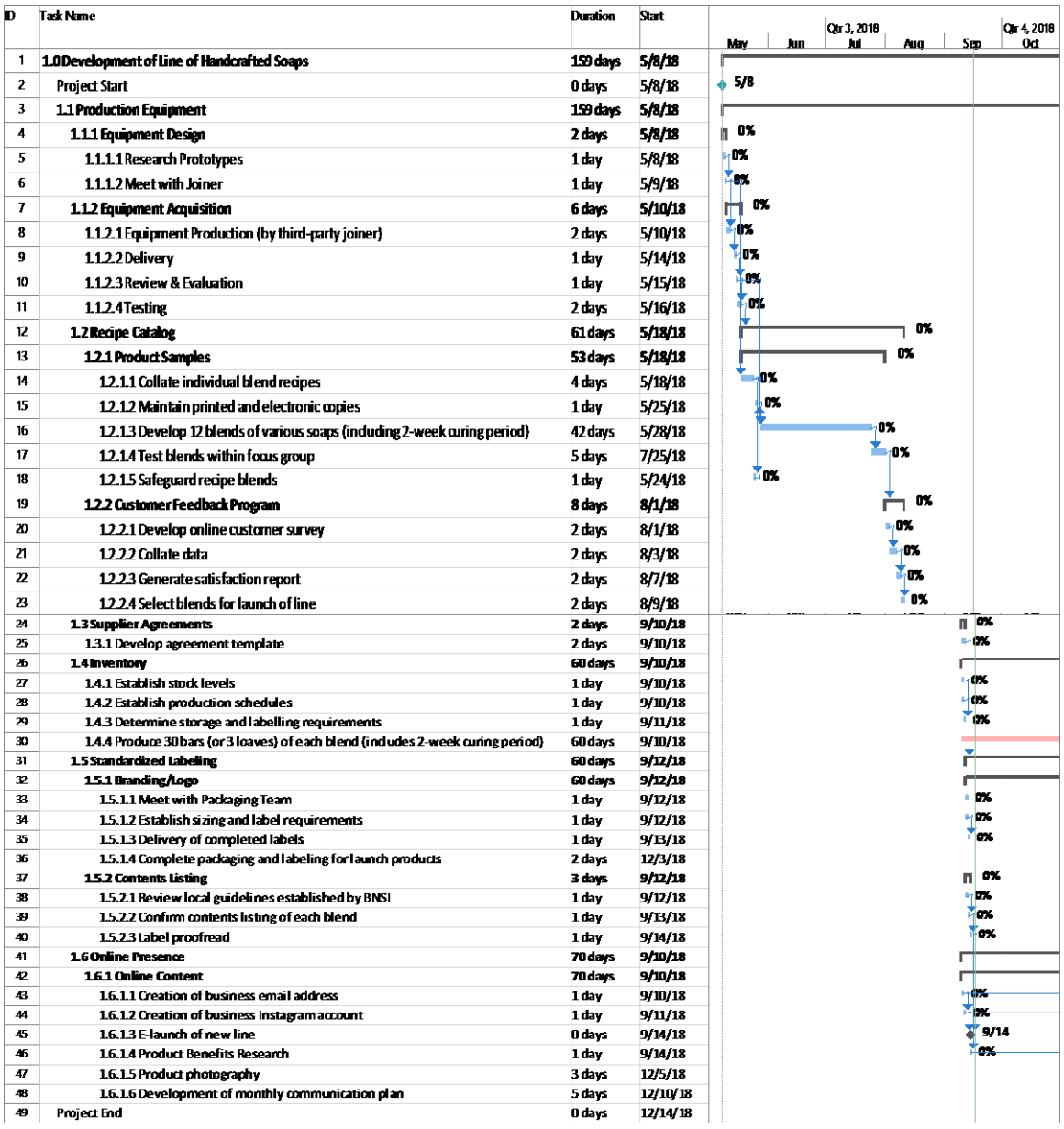
The WBS (on page 38) was the basis for the development of the related work packages and decomposition of work activities. Figure 9 on page 49 presents the full listing of activities. These were developed by the PM, and verified by the COO of the company. The PM also listed milestones and sequenced activities using the auto-scheduling precedence diagramming method available within Microsoft Project 2016.

4.3.1 Schedule Constraints

While there was no pre-established required end date for the project by the company, it is worthy to note that production scheduling may be affected by weather, time availability and wellness of the main soap producer. Additionally, depending on the process used, whether hot or cold production process, completion dates and times may be extended.

The activity resources required will be estimated by the PM as outlined in Figure 9 on page 49. Time for completion of equipment design and production will be measured in days, while the time assigned to planning and execution of the social media campaign is captured primarily “per hours”, computed to working days (8 hours per workday). As it relates to activity resources, soap recipes produces rectangular prism-shaped loaves of soap using the mold designed,

affording 10 bars of soap per loaf. These will be further developed in the resources plan.



ID	Task Name	Duration	Start
1	**1.0 Development of Line of Handcrafted Soaps**	**159 days**	**5/8/18**
2	Project Start	0 days	5/8/18
3	**1.1 Production Equipment**	**159 days**	**5/8/18**
4	**1.1.1 Equipment Design**	**2 days**	**5/8/18**
5	1.1.1.1 Research Prototypes	1 day	5/8/18
6	1.1.1.2 Meet with Joiner	1 day	5/9/18
7	**1.1.2 Equipment Acquisition**	**6 days**	**5/10/18**
8	1.1.2.1 Equipment Production (by third-party joiner)	2 days	5/10/18
9	1.1.2.2 Delivery	1 day	5/14/18
10	1.1.2.3 Review & Evaluation	1 day	5/15/18
11	1.1.2.4 Testing	2 days	5/16/18
12	**1.2 Recipe Catalog**	**61 days**	**5/18/18**
13	**1.2.1 Product Samples**	**53 days**	**5/18/18**
14	1.2.1.1 Collate individual blend recipes	4 days	5/18/18
15	1.2.1.2 Maintain printed and electronic copies	1 day	5/25/18
16	1.2.1.3 Develop 12 blends of various soaps (including 2-week curing period)	42 days	5/28/18
17	1.2.1.4 Test blends within focus group	5 days	7/25/18
18	1.2.1.5 Safeguard recipe blends	1 day	5/24/18
19	**1.2.2 Customer Feedback Program**	**8 days**	**8/1/18**
20	1.2.2.1 Develop online customer survey	2 days	8/1/18
21	1.2.2.2 Collate data	2 days	8/3/18
22	1.2.2.3 Generate satisfaction report	2 days	8/7/18
23	1.2.2.4 Select blends for launch of line	2 days	8/9/18
24	**1.3 Supplier Agreements**	**2 days**	**9/10/18**
25	1.3.1 Develop agreement template	2 days	9/10/18
26	**1.4 Inventory**	**60 days**	**9/10/18**
27	1.4.1 Establish stock levels	1 day	9/10/18
28	1.4.2 Establish production schedules	1 day	9/10/18
29	1.4.3 Determine storage and labelling requirements	1 day	9/11/18
30	1.4.4 Produce 30 bars (or 3 loaves) of each blend (includes 2-week curing period)	60 days	9/10/18
31	**1.5 Standardized Labeling**	**60 days**	**9/12/18**
32	**1.5.1 Branding/Logo**	**60 days**	**9/12/18**
33	1.5.1.1 Meet with Packaging Team	1 day	9/12/18
34	1.5.1.2 Establish sizing and label requirements	1 day	9/12/18
35	1.5.1.3 Delivery of completed labels	1 day	9/13/18
36	1.5.1.4 Complete packaging and labeling for launch products	2 days	12/3/18
37	**1.5.2 Contents Listing**	**3 days**	**9/12/18**
38	1.5.2.1 Review local guidelines established by BNSI	1 day	9/12/18
39	1.5.2.2 Confirm contents listing of each blend	1 day	9/13/18
40	1.5.2.3 Label proofread	1 day	9/14/18
41	**1.6 Online Presence**	**70 days**	**9/10/18**
42	**1.6.1 Online Content**	**70 days**	**9/10/18**
43	1.6.1.1 Creation of business email address	1 day	9/10/18
44	1.6.1.2 Creation of business Instagram account	1 day	9/11/18
45	1.6.1.3 E-launch of new line	0 days	9/14/18
46	1.6.1.4 Product Benefits Research	1 day	9/14/18
47	1.6.1.5 Product photography	3 days	12/5/18
48	1.6.1.6 Development of monthly communication plan	5 days	12/10/18
49	Project End	0 days	12/14/18

Figure 9 Work Activities Listing & Gantt Chart

(Source: The Author, 2018)

Time reserves of 1 – 2 days were included in the activity duration, especially for activities interfacing with external suppliers e.g. equipment supplier or Social Media Agent. Time reserves were also included in the production time for the

soap blends to allow for any breaks in production and additional time required for the curing process to be completed. The scheduling will be completed by the Project Manager, with input from the COO, for validation. With the use of Microsoft Project 2016, the formats of presentation will include Gantt chart and Network Diagram.

It is worthy to note that this particular knowledge area is progressively elaborative. Therefore, the PM will review and adjust the project schedule once per week, on Mondays. Before this date, an update will be sought on the status and progress of the project. Any variances identified will be discussed with the COO, with a view of outlining the necessary corrective action. Scheduling information will be distributed to the appropriate persons, according to the guidelines contained within the communications management plan.

4.3.2 Assumptions, Issues & Risks

The assumptions and issues are available in Chart 10 below.

Chart 10 Schedule Assumptions & Issues (Source: The Author, 2018)

Assumption	**Date Transferred to Risk Management Plan**
There will be timely feedback from customers who sample the soap blends.	
Equipment will be delivered as outlined, and according to the specifications required.	
Cooperation and willingness by suppliers of input herbs and plants to sign the procurement contract.	
Easily retrievable and –accessible recipe catalog information	
Issues	**Date Transferred to Risk Management Plan**
The weather sometimes has an impact on the outcome of production of particular blends	

(containing neem and aloe). Some allowance must be made for any low quality batches to be replaced.	
Risks	**Date Transferred to Risk Management Plan**
The main soap producer received the training on soap manufacture and others must be fully trained on all aspects of production.	
The cost of creating initial inventory may exceed personal capacity of the COO.	

4.4 Cost Management Plan

According to the PMBOK 6th edition (2017), "project cost management should consider the effect of project decisions to the recurring cost of using, maintaining and support the product, service, or result of a project". This plan will document the costs associated with the work activities presented in the activity listing. The resulting budget will be compiled and communicated to all internal teams to ensure monitoring for cost variances. The plan will firstly detail how the costs are estimated, budgeted, managed, monitored and controlled. Estimations will then be completed to determine the monetary resources required to complete the work. Next, the project cost baseline will be determined by the budget, which will be calculated by assigning costs to each work activity. Finally, monitoring of the costs and status of the project will be completed in order to manage changes to the cost baseline.

4.4.1 Plan Cost Management

This process will be done with input from the Project Charter, Schedule Management plan and the Risk Management plan. Expert judgment, data

analysis and meetings will be utilized in the development of the plan. Each work activity identified will be reviewed on the basis of the time estimated and the resources required for costs to be assigned. In meeting with the COO and Production team (who possess expert knowledge of the production processes), costs were discussed and recorded with a view of determining not only the contents required for the production of the soap blends, but also the cost of associated equipment, safety wear and storage and production materials.

4.4.2 Estimate Cost

This process provides the approximation of costs of resources required to complete the project, and will be performed monthly throughout the project. Analogous estimating was used to generate the costs of input materials, which were benchmarked costs from previous and current suppliers. Parametric estimating was used to calculate the cost of the services of an external contractor (Social Media Agent). This was done during a meeting with the COO, whose experience in procurement and expert judgment assisted with the process.

The cost estimates for inputs, as well as for capital costs, were prepared in order to ascertain the cost of one loaf of soap (which is further divided into 10 bars of individual soaps). These costs may are listed in Chart 11 on from page 53. Each work package was cost estimated using Microsoft Excel. Funding will be made available from the sponsoring company, Sugar Plum Botanicals.

Chart 11 Input & Capital Cost Calculations (Source: The Author, 2018)

Content/Item	Qty	Measurement	Equivalent (Oz)	Cost (BBD)	Amt. Used Per Loaf	Measurement	% Used Per Loaf	Cost Per Loaf
Olive Oil	2	Liters	67.62	$ 50.00	10.00	Oz	14.79%	$ 7.39
Castor Oil			16	$ 8.00	2.00	Oz	12.50%	$ 1.00
Coconut Oil	1	Gallon	128	$ 50.00	10.00	Oz	7.81%	$ 3.91
Palm Oil	1	Gallon	128	$ 22.00	8.00	Oz	6.25%	$ 1.38
Shea Butter	1	Lb	16	$ 15.00	2.00	Oz	12.50%	$ 1.88
Lye (NaOH)	2	Lbs	32	$ 13.00	5.00	Oz	15.63%	$ 2.03
Dried Herbs & Plants					1.50	Oz		$ -
Oats	500	Grams	17.637	$ 3.00	1.50	Oz	8.50%	$ 0.26
Sunflower Oil	3	Liters	101.43	$ 18.00	7.00	Oz	6.90%	$ 1.24
Distilled Water	2	Liters	67.62	$ 10.00	6.00	Oz	8.87%	$ 0.89
Tea Tree Oil			2	$ 14.00	0.17	Oz	8.33%	$ 1.17
Black Seed Oil			2	$ 20.00	0.17	Oz	8.33%	$ 1.67
Vitamin E			2	$ 15.00	0.17	Oz	8.34%	$ 1.25
Parchment Paper	250	Sq. Ft.		$ 20.00	1.04	Sq. Ft.	0.42%	$ 0.08
4"x7" crinkle bags	500	units		$ 30.00	10.00	units	2.00%	$ 0.60
Labels - front	10	units		$ 3.20	10.00	units	100.00%	$ 3.20
Labels - back	24	units		$ 2.50	10.00	units	41.67%	$ 1.04
								$ 28.97

Equipment Items In-Hand					
Safety Goggles, Masks & Gloves				$	10.00
Mold	2	units		$	40.00
Crock Pot				$	50.00
Cutter Mold & Knife	2	units		$	96.00
Utensils & Bowls				$	10.00
Stick Blender				$	20.00
Digital Scale				$	14.00
Cloth Towels				$	20.00
Heat Gun				$	50.00
Total				**$**	**310.00**

4.4.3 Determine Budget

As outlined by the PMBOK 6th edition, “a project budget includes all the funds authorized to execute the projects. The cost baseline is the approved version of the time-phased project budget that includes contingency reserves, but excludes management reserves”. Reserve analysis was used as the data analysis technique for this project and a contingency reserve of 5% was applied to the overall budget total on account of the identified risks, which include possible rework on soap blends. With the use of a historical information review for material input costs, the budget for the project and the cost baseline are totaled in Chart 12 on page 55. In addition, capital expenses for equipment were collated and operating costs relating to safety wear and packaging were calculated. A review of capital costs and input costs per soap blend was also completed to ensure that current and potential customer pricing was adequate. Costs relating to contracted services were reviewed in light of the project schedule and the resources required e.g. in the case of the contracted external Social Media Agent, whose fees are based on an hourly rate. The sponsoring

company, Sugar Plum Botanicals, will fully finance the project. The budget is quoted in Barbados dollars (BBD).

Chart 12 Project Budget & Cost Baseline (Source: The Author, 2018)

WBS ID	Work Package	Cost (BBD)
1.1	Equipment	
1.1.1	Design	$ -
1.1.2	Acquisition	$ 136.00
1.2	Catalog	$ 10.00
1.2.1	Samples	$ 360.00
1.2.2	Customer Feedback	$ 160.00
1.3	Contract	$ 5.00
1.4	Inventory	$ 900.00
1.5	Labeling	$ 126.00
1.5.1	Branding/Logo	$ -
1.5.2	Contents Records	$ 5.00
1.6	Social Media	$ -
1.6.1	Online Content (6 months)	$ 1,800.00
		$ 3,502.00
	Contingency Reserve (5%)	$ 175.10
	Cost Baseline	**$ 3,677.10**
	Management Reserve (3%)	$ 105.06
	Total Budget	**$ 3,783.00**

4.4.4 Control Cost

This is the process of monitoring the status of the project to update the project costs, and managing changes to the cost baseline, as defined by the PMBOK 6th edition. Using the cost baseline, schedule elements and work performance data,

project cost will be monitored twice weekly by the Project Manager using two metrics, Cost Variance (CV) and the Cost Performance Index (CPI). The CV will compare the planned budget versus the actual budget. This assists in identifying whether the project is running over, or under, the expected baseline that was originally forecasted.

CV = planned budget vs. actual budget

The CPI is an approximation of how much time the project is behind or ahead of the approved project schedule.

CPI = the ratio of the Planned Budget vs. Actual Money Spent

A project with a CPI of 1 is on the budget and a project with a CV greater than 1 is under budget.

In terms of Cost Policies and Procedures, this project is not complex in nature and does not require spending limits and authority levels at this time. Purchase costs will be rounded up to the nearest dollar and will be listed in Barbados dollars. Costs will be monitored twice per week (Tuesdays and Fridays) and discussed at weekly meetings with the COO (unless urgent contact is required for major variances). In cases of cost changes, these will be discussed with, and approved or rejected by, the COO or designated company representative during the weekly meetings.

4.5 Quality Management Plan

The three project quality management processes will be completed – Plan Quality Management; Manage Quality Management; and Control Quality Management. Quality will be designed into the deliverables. The production of soap is a highly technical endeavor and requires close adherence to measurements and weights. Because of this, an internal quality policy is already in place, especially as it relates to the production of the soap. Similarly, local standards and regulatory compliance will be considered. All labeling must possess the requirements outlined by the Barbados National Standards Institution. The agency operates according to the Standards Act 2006 and the Weights and Measures Act (1977) and Regulations (1985). According to the International Organization for Standardization (ISO), the BNSI's primary functions include the preparation, promotion and implementation of standards in all sectors of the economy; the promotion of quality systems, quality control and simplification in industry and commerce; and the certification of products, commodities and processes.

4.5.1 Plan Quality Management

With input from the stakeholder management plan, risk management plan and the scope baseline, requirements traceability matrix and risk register, expert judgment and meetings will be utilized to create the quality management plan and determine the quality metrics applicable. The acceptance criteria mentioned in the Requirements Traceability Matrix assists in outlining the project's quality requirements. Process mapping was undertaken in order to visually present the steps that exist for the production process. The data is represented in Figure 10 on page 58. This process will be owned and managed by the Project Manager.

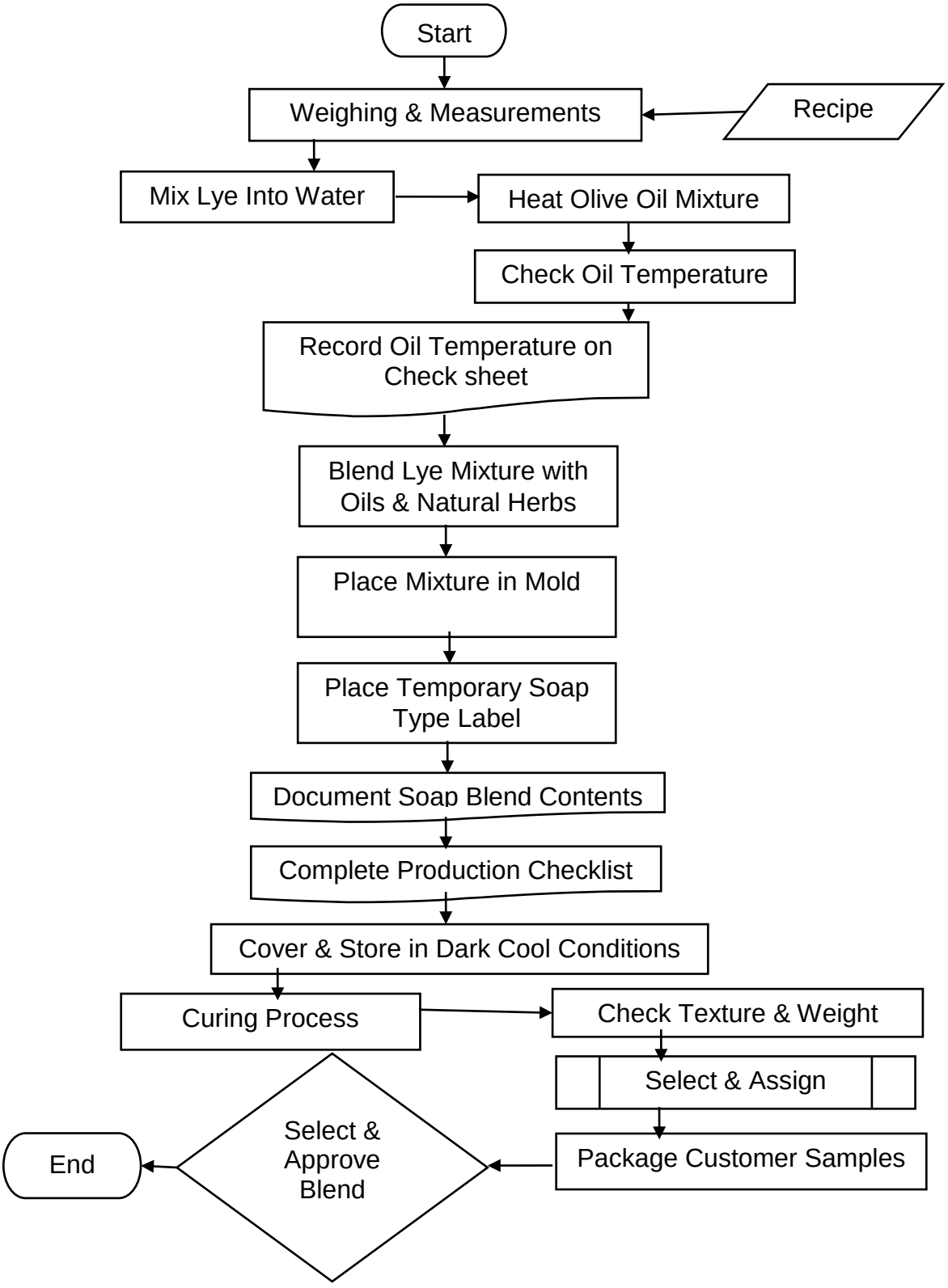


Figure 10 Production Process Flowchart

(Source: The Author, 2018)

Quality objectives for the production process are listed in Chart 13 below and the acceptance criteria follow in Chart 14 on page 60.

Chart 13 Quality Objectives, Metrics & Standards (Source: Simplicable: 14 Examples of Quality Objectives [Blog post] 2017, July 1)

Element	Quality Objective	Quality Metric	Quality Standard
Defects	• Texture of cured soap blend must be solid and dry (no excess oil) • Completed loaf must weigh approximately two pounds (2 lbs.) • Blend must contain olive oil	• Number of defects per week • Percentage of products with weights at least 2 lbs • Percentage of products with olive listed in contents	• Less than 1 defect per week • 80% or more loafs weighing 2 lbs. or more
Timeliness	• Curing process must last 14 calendar days	• SPI	• SPI of 1 or more
Availability	• 30 sample soaps of each blend available for customers.	• Number of products in stock	• Minimum of 3-par of each blend noted during stocktaking
Customer Satisfaction	• Satisfaction rating must be 80% or higher for inclusion into the final product line.	• 80% or higher customer satisfaction rating from customer feedback	• Minimum of 80% satisfaction rating

Safety	• Lye must be added to water and not in the reverse.	• Number of incidents reported during production	• 0 moderate to major injuries reported monthly.
Cost	• Production cost must not exceed BBD$32.30	• CPI	• CPI of 1 or more.

Chart 14 Acceptance Criteria (Source: The Author, 2018)

Acceptance Criteria
Smooth removal of soap from mold
Expansion of mold by ¼" width when removing the finished soaps
Temporary labeling of all finished soap in storage area
Sample soap size is 1/3 of regular bar soap size
80% or higher satisfaction rating
Confirms arrangement to procure herbs and natural plants
Minimum inventory level of 30 soaps per blend
Standardized label size 3" x 2" label for soap bars and 2¼" diameter labels for soap rounds
All contents must be noted and declared to all customers

4.5.2 Manage Quality

Checklists for the production and review processes will be used to ensure that the required steps are taken in the production process, in order to minimize rework, wastage and higher input costs. Through observation of the production, the PM in conjunction with the COO will document and formally establish the quality standards of the project.

SUGAR PLUM BOTANICALS PRODUCTION CHECKLIST

SOAP NAME: _____

BATCH NO: _____

DATE PRODUCED: _____

END OF CURING PERIOD: _____

Check box to confirm inclusion of the following materials:

Olive Oil	☐
Castor Oil	☐
Coconut Oil	☐
Palm Oil	☐
Sunflower Oil	☐
Shea Butter	☐
Vitamin E	☐
[*insert main ingredient]*	☐
[*insert selected fragrance here*]	☐
Lye	☐

Temperature of Olive Oil: _____ °F (must be 110°F)

Producer's Signature: _____

Figure 11 Production Checklist

(Source: The Author, 2018)

Equipment (including the molds, cutters and batteries in the digital scale) will be checked monthly to ensure proper functionality, as part of the overall maintenance schedule. The process is an all-encompassing one, and requires a 360° approach, that is, it will benefit from the input of the PM; the performing

organization (providing guidance and expert knowledge); and the customer (through feedback on products). Most of the input products are weighed on a digital scale in order to ensure accuracy. Information received from the COO and other representatives of the company about the production process must be recorded accurately, as it will be used in the calculation of costs.

The Full Criteria Analytical Method (Rose, 2014) was utilized to determine the priorities to be focused on during the project based on project requirements and stakeholder needs. Firstly, an L-shaped matrix was used in order to facilitate a many-to-many relationship comparison. Stakeholders were reviewed in order to identify the key person or persons affecting the project and assess their relative importance to the project. Quality requirements were also listed, analyzed and prioritized. Charts 16 and 17 on page 63 present the results of the Stakeholder Prioritization analysis and the Stakeholder-Weighted Requirements Prioritization. Appendix 4 from pages 108 to 111 highlight the individual analyses for each stakeholder. The legend or key used for the analysis is presented in Chart 15 below.

Chart 15 Key for L-shaped Matrix (Source: Kenneth Rose, 2018)

Key	
10	much more important
5	more important
1	equally important
1/5	less important
1/10	much less important

The results of the analysis highlights that the three most important requirements for the success of this project are satisfied customers, contents listing (regulatory labeling compliance) and functioning equipment, in that order. These three are followed closely by accurate measurements. While these results may be intuitive, it is important to know and note these needs consistently when executing the project.

Chart 16 Stakeholder Prioritization (Source: Kenneth Rose, 2018)

Stakeholders	Production Team	Customers	Social Media Agent	Packaging Team	Competitors	Equipment Team	Suppliers	Row Total	Row Decimal Value
Production Team		1.00	5.00	1.00	10.00	1.00	1.00	19.00	0.1963
Customers	1.00		5.00	1.00	10.00	5.00	1.00	23.00	0.2376
Social Media Agent	0.20	0.20		0.20	5.00	1.00	0.20	6.80	0.0702
Packaging Team	1.00	1.00	5.00		10.00	1.00	1.00	19.00	0.1963
Competitors	0.10	0.10	0.20	0.10		0.20	0.10	0.80	0.0083
Equipment Team	1.00	0.20	1.00	1.00	5.00		1.00	9.20	0.0950
Suppliers	1.00	1.00	5.00	1.00	10.00	1.00		19.00	0.1963
							Grand Total	**96.80**	

Chart 17 Stakeholder-Weighted Requirements Prioritization (Source: Kenneth Rose, 2018)

Stakeholder-Weighted Requirements Prioritization	Production Team	Customers	Social Media Agent	Packaging Team	Competitors	Equipment Team	Suppliers	Row Total	Row Decimal Value
Functioning equipment	0.0294	0.0258	0.0014	0.0068	0.0003	0.0514	0.0358	0.1509	0.1560
Standardized soap size	0.0046	0.0357	0.0014	0.0439	0.0015	0.0146	0.0215	0.1232	0.1274
Customer satisfaction rating	0.0294	0.0748	0.0160	0.0322	0.0038	0.0040	0.0358	0.1961	0.2027
Minimum inventory level	0.0270	0.0135	0.0069	0.0088	0.0004	0.0040	0.0473	0.1078	0.1115
Standardized label size	0.0026	0.0262	0.0014	0.0439	0.0003	0.0040	0.0186	0.0971	0.1004
Accurate measurements	0.0592	0.0172	0.0018	0.0186	0.0003	0.0085	0.0186	0.1241	0.1284
Contents listing	0.0441	0.0444	0.0085	0.0420	0.0017	0.0085	0.0186	0.1679	0.1736
							Grand Total	**0.97**	

All stakeholders are not created equal and it is worthy to note that customers, the suppliers and packaging and production teams were the identified as the most important stakeholders. Similarly, the PM must pay special attention to, and meet, the requirements of this grouping. Audits by an external party or group will not be facilitated during the project. Therefore, the production checklists will be rigorously reviewed by the PM and used as the basis of quality reporting and updates when meeting with the COO. A sign-off sheet was created to ensure that the acceptance criteria are met for the equipment design from the external supplier and will be signed off when delivered and tested.

SUGAR PLUM BOTANICALS ACCEPTANCE FORM

DATE RECEIVED: _____

EQUIPMENT TYPE: Soap Mold_____

EQUIPMENT NO.: M01_____

Check box to confirm inclusion of the following materials:

Criteria	Initial Below to Accept
PVC material used	
Adjustable screw to ¼"	
Rectangular-Prism Shape	
18" in length	
7" in height	

Figure 12 Acceptance Form

(Source: The Author, 2018)

4.5.3 Control Quality

As prescribed by the PMBOK 6th edition, this is the process of monitoring and recording results of executing quality management activities. This process also verifies compliance to specifications established during the planning stage. The

quality metrics derived from the sample soap production will be reviewed and considered. A check sheet will also be developed and made available to report any defects found or issues that may detract from optimum product quality. A sample check sheet may be viewed in Chart 18 below.

Chart 18 Quality Check Sheet (Source: PMI, 2017, p. 302)

Defect/Date	Date 1	Date 2	Date 3	Day 4	Day 5
Oily Texture					
Weight less than 2 lbs					
Missing Ingredient	_____	_____	_____	_____	_____
Labelling error					

It must be noted that when using the hot process (supervised cooking of soap mixture using a crock pot), saponification (a process necessary to ensure that the harmful lye is no longer present in the contents of the soap) is complete after two weeks during a process called curing. The checklist must therefore be consulted during this Control process to ensure that the expected end dates for curing are adhered to before the packaging process is finalized. Scheduled meetings with company representatives, particularly the COO, will afford the opportunity for the PM to update project documents and seek the approval for any change requests.

As mentioned previously, there are a number of requirements to be followed for the soap-making process to be completed successfully. The PM will review the performance data when the sample batches are completed versus the quality metrics identified. These will include defects identified, causes of defects and verified deliverables. While the customer feedback system will be managed and monitored by an external party, the Social Media agent, some of the elements to be included in the electronic surveys will include product quality and appearance; satisfaction level (whether as expected, below or above expectation); likelihood to repeat purchase and recommend; and identification of which blend of soap

was purchased. Customer satisfaction reporting will confirm whether the required level of 80% is achieved in order to review ratings which fall below this percentage, and responding accordingly – whether to exclude from the final product line, or whether there was an error in the production process that will require rework.

4.6 Risk Management Plan

This area will focus on the processes of conducting risk management planning, identification, analysis, response planning, response implementation and monitoring risk on the project. The plan will ensure the identification of all risks to this project and seek increase the probability and/or impact of positive risks and decrease the probability and/or impact of negative risks, which contribute to project success (PMI, 2017, p. 395). The Project Manager will be the risk manager for all aspects of the project.

4.6.1 Plan Risk Management

Risks were identified at the beginning of the project and the project charter was used as a guide in this process. Expert judgment of the PM, COO and soap producers were used to identify overall project risk and individual project risks. Project size and project importance were two considerations included in the planning, as this small project has the potential to establish Sugar Plum as one of the key players in this niche market in the beauty and personal care sector.

A Risk Breakdown Structure (RBS) will be utilized to identify the project risk categories. This is a hierarchal visual representation of potential sources of project risk. The RBS for this project may be viewed in Figure 13 on page 67. The risk appetite for this project overall is 7% of each budgeted activity.

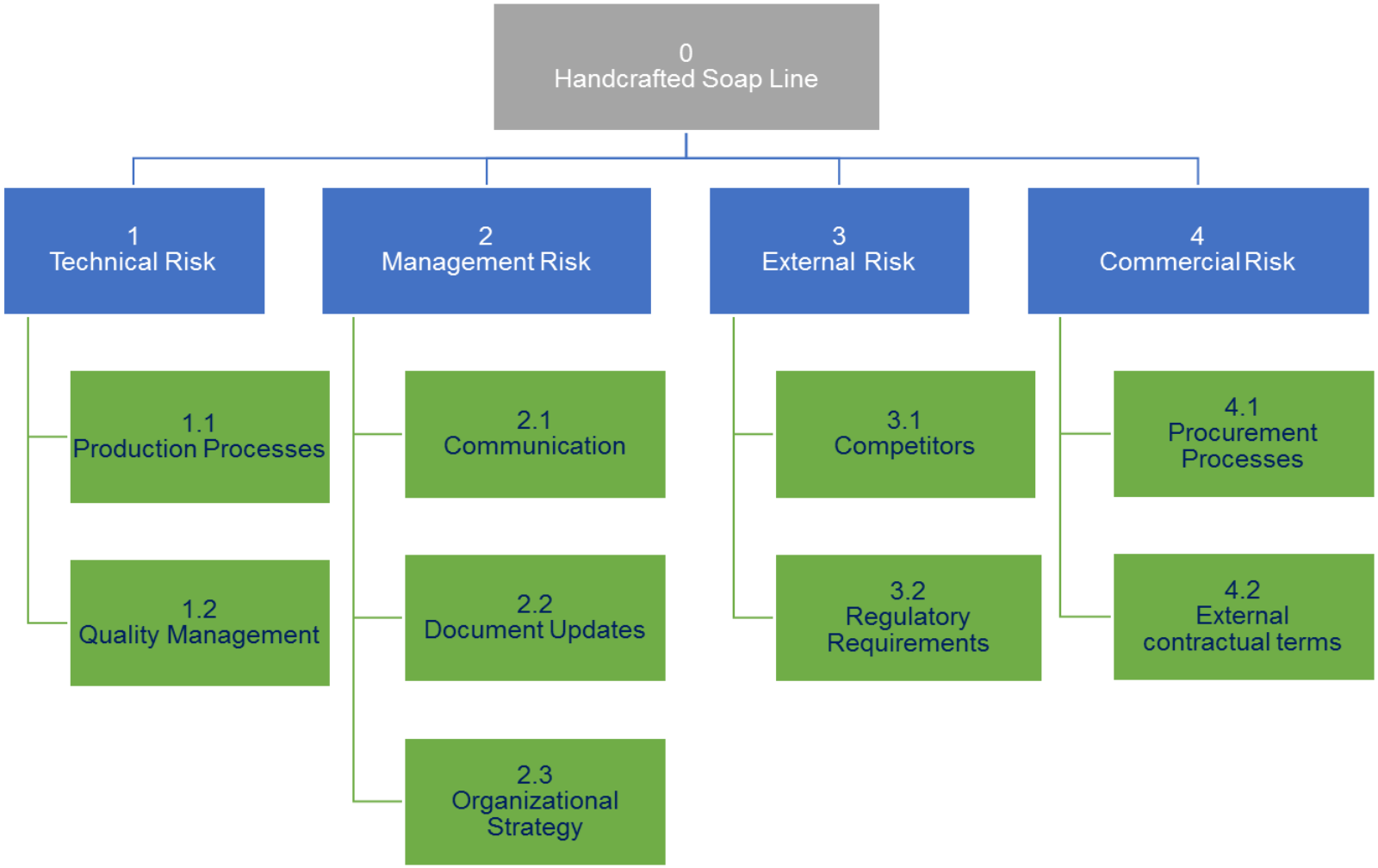


Figure 13 Risk Breakdown Structure

(Source: The Author, 2018)

4.6.1.1 Risk Probability & Impacts

Risk probability defines the risk likelihood and promotes the common understanding of risk ranking while minimizing the subjective factor when ranking risk. The size of the impact varies in terms of cost and impact on health, human life, or some other critical factor. Four impact areas have been identified for the project – time, cost, quality and safety.

Chart 19 Overall Impact Scale (Source: Team 1 Assignment Part 2, 2018)

High	Significant impact on project
Medium	May require mitigation
Low	Can be managed without mitigation

Chart 20 Impact Area Scales (Source: Team 1 Assignment Part 2, 2018)

Impact Area	Scale	Description
Time	High	> 2 weeks
	Medium	1 week
	Low	< 2 days
Cost	High	> 5% above budget
	Medium	3 – 4% above budget
	Low	1 – 2% above budget
Quality	High	Significant impact on overall quality
	Medium	Some impact in key areas
	Low	Minor impact on overall functionality
Safety	High	Moderate to major injury
	Medium	Minor injury
	Low	Incident

Impact areas and associated scales connect to the Probability & Impact (P&I) Matrix, which is used to rank the probability and impact of a risk occurring by assigning values to the risks being assessed. The probability is the chance of the risk occurring and the impact is the effect of what happens if the risk occurs,

imagining the situation after the risk has occurred. The P&I Matrix below outlines the rankings and scales to be used in assessing risk in this project. If the impact of a risk is high, the Project Manager will take steps to lower it. Once the risk score has been determined, the Project Manager will proceed to risk planning, which includes risk responses and other actions. The “traffic light” method was applied, where three colors are assigned to the different levels of risk. Risks in the red zone must be carefully managed. For this project, the total risk score for the project is 45, with one activity considered to be high risk, that of ensuring that the labeling is produced according to local standards. These two items need to be managed very closely.

Chart 21 Probability & Impact Matrix (Source: The Author, 2018)

Probability	Description	Impact	Description	Risk Score	Risk Category
1	10 – 30 %	1	1 – 2% above budget	From 1 to 3	Low
2	31 – 69%	2	3 - 4% above budget	From 4 to 6	Moderate
3	70 – 100 %	3	Over 5% above Budget	From 7 to 9	High

4.6.2 Identify Risks

This is the generation and characterization of individual project risks and overall project risk. With the resource management plan, scope baseline, cost baseline, schedule baseline and quality management plan in mind, tools and techniques used for this process include expert judgment, meetings with company representatives and a review of the production checklist. The result of this process is the Risk Register, which is presented in Chart 22, and highlights the causes of risk, consequences, owners and triggers.

Chart 22 Risk Register (Source: The Author, 2018)

RBS	Cause	Risk	Consequence	Trigger	Owner
1.1	Exothermic reaction with lye	Injury during production	Moderate to major injury including loss of sight or poisoning from inhalation.	Creation of lye solution (lye with water)	COO
1.2	Key components missed or incorrect measurements	Poor outcome of soap texture	Rework costs	Incomplete or unavailable production checklist	COO
2.1	Unclear production schedules	Delays in production	Project execution delays	Samples unavailable for testing among customers	PM
2.2	Outdated cost estimates	Reduction in potential sales margins	Decrease in company profitability	Incomplete document updates	PM
2.3	Project is funded personally by company principal (COO)	Inability to meet expenses	Project execution delays and overall customer dissatisfaction Decrease in company profitability	Unavailability of input materials.	PM

			and overall project effectiveness.		
3.1	Increase in competitors in niche market.	Market response and sales not as projected	Decrease in company profitability and overall project effectiveness	Sluggish sales	PM
3.2	Incomplete labeling	Products recalled	Rework costs	Failure of BNSI audit	PM
4.1	Supplier price increases	Project over budget	Increase in cost to customer	Notification from supplier regarding expected price changes	COO
4.2	Products unavailable or closure of small business suppliers.	Procurement delays	Decrease in company profitability and overall project effectiveness. Limited blend selection.	Limited availability	PM

4.6.3 Perform Qualitative Analysis

Qualitative analysis is seen as essential and is a non-negotiable aspect of risk management, since it is responsible for the generation and identification of individual risks. Whether using expert judgement or multi-faceted stakeholder engagement during brainstorming sessions or meetings, this type of analysis is the prerequisite and predecessor of quantitative analysis. Chart 23 facilitates the qualitative analysis and it outlines the probability, impact, and the PxI score for the purpose of further analysis. The “traffic light” system was applied.

Chart 23 Risk Probability & Impact Matrix (Source: The Author, 2018)

RBS	Risk	Probability	Impact	PxI
1.1	Injury during production	1	3	3
1.2	Poor outcome of soap texture	2	3	6
2.1	Delays in production	2	3	6
2.2	Reduction in potential sales margins	1	3	3
2.3	Inability to meet expenses	2	3	6
3.1	Market response and sales not as projected	2	3	6
3.2	Products recalled	3	3	9
4.1	Project over budget	2	3	3
4.2	Procurement delays	1	3	3
TOTAL PROJECT RISK SCORE				**45**

4.6.4 Perform Quantitative Analysis

Quantitative analysis is not always or necessarily required. Given the simple nature, small budget and short duration of this project, quantitative analysis will not be included and risk responses can follow on directly from qualitative risk analysis

4.6.5 Plan Risk Responses

The three strategy responses for this project will be Accept (acknowledge threat without proactive action); Mitigate (action is taken to reduce the probability of occurrence and/or impact; and Avoid (elimination of the threat). The specific risk responses to individual risks and associated implications for cost and time are presented in Chart 24 below.

Chart 24 Risk Responses (Source: The Author, 2018)

RBS	Risk	PxI	Strategy	Response/Comments	Strategy Implications
1.1	Injury during production	3	**Accept**	This risk can be almost unavoidable with effective training of all persons involved in the soap production process.	This training can be provided in-company (no charge applicable) and is estimated to last one to two hours.
1.2	Poor outcome of soap texture	6	**Mitigate**	Follow guidelines and recipes closely. Require confirmation that the process is followed fully.	No additional cost will be required for this step. Ensuring that the steps are

					followed and the checklists are completed may add 15 – 30 minutes to production time.
2.1	Delays in production	6	**Mitigate**	Communicate with Production Team by not only posting production schedule, but also engaging them each day before production begins.	No additional cost will be required for this step. Ensuring that the steps are followed and the checklists are completed may add 15 – 30 minutes to production time.
2.2	Reduction in potential sales margins	3	**Accept**	Materials are purchased on an ongoing basis and any changes in supplier pricing will be immediate.	Costs of input material and supplies are non-negotiable and alternative suppliers will be reviewed.
2.3	Inability to meet expenses	6	**Mitigate**	Careful planning will be required to ensure that cash flow accommodates all input purchases.	Cost baseline is $3,783 for the project.
3.1	Market response and sales not as projected	6	**Mitigate**	Continue to meet customer needs and demands, while also monitoring new entrants to the market.	At least one hour each week should be taken by the COO to review customer feedback and competitors.

3.2	Products recalled	9	**Avoid**	BNSI regulatory requirements for labeling should be followed.	There is no additional space requirement or cost to include the one-time inclusion of the required information on the label.
4.1	Project over budget	3	**Mitigate**	Close monitoring of e-launch costs, social media agent hourly fees, and production, will be completed on a weekly basis.	There is no additional cost to monitor the costs. It is estimated that an additional two hours.
4.2	Procurement delays	3	**Accept**	Input materials are readily available at various retail outlets.	This may add an estimated one hour to the purchasing process.

4.6.6 Monitor Risk Responses

The PM will monitor the implementation of risk response plans, track identified risks, identify and analyze any new risks. Along with input from the schedule, work performance data will be reviewed to confirm the status of risk responses implemented, risks that have occurred, and risks that can be closed out. Monitoring of the SPI and CPI, as incorporated in the Cost- and Schedule Management Control processes, will also assist in ensuring that individual risks are closely tracked.

4.7 Resources Management Plan

The PMBOK 6th edition outlines that the resources management plan "establishes the approach and the level of management effort needed for managing project resources". This is usually based on the complexity of the project. For the purpose of this project, the focus will center on human resources. Human- or team resources, both internal and external to the organization, were required to complete the work activities. This plan will describe how the roles, responsibilities and staffing management will be addressed and structured within a project.

4.7.1 Plan Human Resources Management

Activity Resource Requirements were identified in conjunction with the activity listing in the project schedule. The performing organization is a microbusiness and human resources are therefore limited. Three external parties have been contracted to complete the project – the PM, Equipment supplier, Social Media Agent. The allocation of the team resources are presented in responsibility assignment matrix format using a RACI (responsible, accountable, consult, inform) Chart, presented in Chart 25 on pages 77 and 78.

Chart 25 RACI Chart (Source: The Author, 2018)

Task Name	PM	COO	Packaging Team	Production Team	Equipment Supplier	Social Media Agent
	Internal				External	
1.1 Production Equipment						
1.1.1 Equipment Design						
1.1.1.1 Research Prototypes	I	R	I	C	I	I
1.1.1.2 Meet with Joiner	I	R	I	C	A	I
1.1.2 Equipment Acquisition						
1.1.2.1 Equipment Production (by third-party joiner)	I	C	I	C	R	I
1.1.2.2 Delivery	I	I	I	I	R	I
1.1.2.3 Review & Evaluation	I	A	I	C	A	I
1.1.2.4 Testing	I	A	I	R	I	I
1.2 Recipe Catalog						
1.2.1 Product Samples						
1.2.1.1 Collate individual blend recipes	I	R	I	C		
1.2.1.2 Maintain printed and electronic copies	I	R	I	I		
1.2.1.3 Develop 12 blends of various soaps (including 2-week curing period)	I	A	C	R		
1.2.1.4 Test blends within focus group	R	I	I	I		
1.2.1.5 Safeguard recipe blends	I	R	I	A		
1.2.2 Customer Feedback Program						
1.2.2.1 Develop online customer survey	A	C	I	I		R
1.2.2.2 Collate data	I	C	I	I		R
1.2.2.3 Generate satisfaction report	I	C	I	I		R
1.2.2.4 Select blends for launch of line	I	R	I	I		I

1.3 Supplier Agreements						
1.3.1 Develop agreement template	R	I				
1.4 Inventory						
1.4.1 Establish stock levels	I	R	I	A		
1.4.2 Establish production schedules	I	A	C	R		
1.4.3 Determine storage and labelling requirements	I	R	C	C		
1.4.4 Produce 30 bars (or 3 loaves) of each blend (includes 2-week curing period)	I	A	C	R		
1.5 Standardized Labeling						
1.5.1 Branding/Logo						
1.5.1.1 Meet with Packaging Team	I	R	A	C		
1.5.1.2 Establish sizing and label requirements	I	A	R	C		
1.5.1.3 Delivery of completed labels	I	A	R	I		
1.5.1.4 Complete packaging and labeling for launch products	I	A	R	I		
1.5.2 Contents Listing						
1.5.2.1 Review local guidelines established by BNSI	I	R	C	I		
1.5.2.2 Confirm contents listing of each blend	I	R	A	I		
1.5.2.3 Label proofread	R	A	C	I		
1.6 Online Presence						
1.6.1 Online Content						
1.6.1.1 Creation of business email address	C	A				R
1.6.1.2 Creation of business Instagram account	C	A				R
1.6.1.3 E-launch of new line	C	A				R
1.6.1.4 Product Benefits Research		R	I	I		I
1.6.1.5 Product photography		A	I	I		R
1.6.1.6 Development of monthly communication plan	C	A	I	I		R

4.7.1.1 Resources Acquisition & Calendar

The Production and Packaging teams, along with the COO, comprise the functional team. Other external resources are contractual in nature, as required in the case of the equipment supplier, and ongoing for a fixed period, as is the case with the Social Media & Marketing Agent. The Production team will complete duties during the afternoon periods of weekdays (Mondays to Fridays) and on Saturdays. The Social Media & Marketing Agent will be engaged to produce online content on a daily basis, each calendar day for a 6-month period.

4.7.2 Acquire Project Team

The project team members are all pre-assigned employees of the functional organization. There is an overlap of functions, as the COO often leads the production processes. No negotiation, virtual team or subcontracting will be required to acquire resources for this project.

4.7.3 Develop Project Team

Refresher training will be completed at the beginning to remind those involved in the production process of the safety requirements. Team resources play a vital role in the successful completion of this project. Five-minute huddles will be instituted at the start of production each day in order to share status updates and to give feedback on performance to date.

4.7.4 Managing the Team

Team performance will be monitored throughout the execution of the project. Rewards and recognition will be accorded when production targets are met during the production period for samples and for selected blends, according to quality and schedule requirements. An on-time and quality target of 95% will be in place. Therefore, team absences will be closely monitored.

4.8 Communications Management Plan

Planning communications management ensures that there is a “documented approach to effectively, and efficiently, engage stakeholders by presenting relevant information in a timely manner” (PMI, 2017). The stakeholder register will be consulted in order to ensure that all stakeholders are considered when planning communications.

4.8.1 Plan Communications Management

An analysis of communications requirements assists with determining the information needs of project stakeholders. This will be completed using a Communications Matrix, as presented in Chart 27.

4.8.2 Manage Communications

Given the interpersonal nature of the majority of communication, close attention to body language will be required. For the meetings, agenda and guidelines will be used and for the written communication, particular attention will be paid to writing style. An example of meeting guidelines is provided in Chart 26 below.

Chart 26 Meeting Guidelines (Source: CDC UP, 2006)

• Minutes from previous meeting	• Action items/deliverables from previous meeting
• Review/address team issues	• Project status reports
• Task updates/change requests	• Risk updates
• Document current action items	• Document meeting minutes

Chart 27 Communications Matrix (Source: TeamGantt, 2018)

Communication	Purpose	Medium	Frequency	Audience
Project Status Reports	Project status and general company updates are shared.	Face-to-face (Huddles)	Daily Weekly	Production Team Packaging Team
Product Information	To provide content for social media 7 days in advance of publishing/posting (4 healthful tips on personal care; 2 product features; and one team member or satisfied customer feature).	Email Social Media: Instagram	Weekly Daily	Social Media Agent Customers (current and potential)
Customer Feedback	To inform supplier of product quality	Telephone Call/Email	Once	Equipment Supplier
Technical Information Request	Confirm requirements for labelling to ensure compliance	Telephone Call/Email	Once	Government: BNSI
Team Meetings	To provide project status updates and performance information.	Face-to-face	Weekly	Project Manager, COO, Production Team
Price Reviews	Review input costs at suppliers	In-person	Monthly	Suppliers

4.8.3 Control Communications

This is the process of monitoring and controlling the communications throughout the project life cycle to ensure that the information requirements of the stakeholders are met. Records management of planned communications is key. A repository will be created for social media online content and project documents. For the purpose of business continuity, alternate storage using external hardware storage and online cloud-based storage will also be utilized. The maintenance of the social media and email accounts will be initially managed by the Social Media & Marketing Agent. For monitoring, access to the account will also be provided to the company COO. These, along with responses to requests from stakeholders will be recorded using a Communications Record Log, as outlined below in Figure 14.

SUGAR PLUM BOTANICALS COMMUNICATIONS RECORD LOG

DATE	QUERY/ISSUE	ASSIGNED TO	OUTCOME

Figure 14 Communications Record Log

(Source: The Author, 2018)

4.9 Procurement Management Plan

According to the PMBOK 6th edition (2017), procurement includes the processes necessary to purchase or acquire products or services or results required from outside the project team. Currently, the organization does not possess, or operate according to, established procurement policies. Input materials and supplies are purchased as needed from retail stores on a non-negotiable cash basis.

4.9.1 Plan Procurement Management

This process identifies project requirements that are best fulfilled by acquiring products and services external to the organization versus those that can be handled internally. While essential oils may be produced by the performing organization, all other input oils will be required form external sources. Utilizing the information produced in the cost analysis completed within the Cost Management Plan, an assessment of the material usage frequency was possible. Using an extended “traffic light system” (including a fourth color), it was noted that material usage varied, and the need to replace also varied. Chart 28 on page 84 highlights this assessment, which will assist in planning procurement and inventory management.

4.9.2 Conduct Procurements

This project is not complex in nature and while it does not require bidding and proposal selection, written agreements with suppliers are recommended to ensure continuity of procurement, especially from residents and persons who have made their trees and plants readily accessible to the COO as input materials. This administration will utilize simple easy-to-read templates and will replace the legal contents of official contracting. A sample of the written agreement is presented in Figure 15 on page 85. All purchasing of the input materials will be completed by the COO.

Chart 28 Input Cost and Usage/Replacement Frequency Calculations (Source: The Author, 2018)

Content/Item	Qty	Measurement	Equivalent (Oz)	Cost (BBD)	Amt. Used Per Loaf	Measurement	% Used Per Loaf	Cost Per Loaf	No. of Uses
Olive Oil	2	Liters	67.62	$50.00	10.00	Oz	14.79%	$7.39	6.76
Castor Oil			16	$8.00	2.00	Oz	12.50%	$1.00	8.00
Coconut Oil	1	Gallon	128	$50.00	10.00	Oz	7.81%	$3.91	12.80
Palm Oil	1	Gallon	128	$22.00	8.00	Oz	6.25%	$1.38	16.00
Shea Butter	1	Lb	16	$15.00	2.00	Oz	12.50%	$1.88	8.00
Lye (NaOH)	2	Lbs	32	$13.00	5.00	Oz	15.63%	$2.03	6.40
Dried Herbs & Plants				-	1.50	Oz			
Oats	500	Grams	17.637	$3.00	1.50	Oz	8.50%	$0.26	11.76
Sunflower Oil	3	Liters	101.43	$18.00	7.00	Oz	6.90%	$1.24	14.49
Distilled Water	2	Liters	67.62	$10.00	6.00	Oz	8.87%	$0.89	11.27
Tea Tree Oil			2	$14.00	0.17	Oz	8.33%	$1.17	12.00
Black Seed Oil			2	$20.00	0.17	Oz	8.33%	$1.67	12.00
Vitamin E			2	$15.00	0.17	Oz	8.34%	$1.25	12.00
Parchment Paper	250	Sq. Ft.		$20.00	1.04	Sq. Ft.	0.42%	$0.08	240.38
4"x7" crinkle bags	500	units		$30.00	10.00	units	2.00%	$0.60	50.00
Labels - front	10	units		$3.20	10.00	units	100.00%	$3.20	1.00
Labels - back	24	units		$2.50	10.00	units	41.67%	$1.04	2.40

KEY Daily Weekly Fortnightly Rarely

SAMPLE SUPPLIER AGREEMENT

This agreement is made on this the _____ day of _____, in the year 2018.

BETWEEN

Jane Doe c/o Sugar Plum Botanicals of Checker Hall, St. Lucy hereinafter called the **Recipient.**

AND

John Smith of Coles Cave Road of Grape Hall, St. Lucy hereinafter referred to as the **Supplier.**

Whereas the parties have agreed that the **Supplier** will provide the **Recipient** with a _____ [specify amount] of _____ [specify natural herb or plant] at no charge for the period _____ to assist in the production of personal care products under the label Sugar Plum Botanicals.

_____	_____	_____
Jane Doe	John Smith	Date
Sugar Plum Botanicals		

This agreement is witnessed by:

_____	_____
Name	**Date**

Figure 15 Sample Supplier Agreement

(Source: The Author, 2018)

4.9.3 Control Procurements

This process usually involves the management of procurement relationships and the monitoring of contract performance. For this project, focus will be centered on monitoring supplier costs and availability. As outlined in the Cost Management Plan, supplier costs will be reviewed monthly to ensure that the best value is afforded. Any related change requests will be discussed at meetings under the appropriate agenda item.

4.9.4 Close Procurements

This process relates to the completion of each procurement. With a cash basis for purchasing in place, no contract reviews, negotiations or audits will be required.

4.10 Stakeholder Management Plan & Stakeholder Register

Stakeholders are any person, group or organization that can influence, or be affected by, the project. Stakeholder management focuses on continuous communication with stakeholders in order to understand their needs, address any issues they may have, and engage their specific interests.

4.10.1 Identify Stakeholders

All stakeholders have been identified and the main ones were highlighted on the completion of an interview with the Company's COO. The activities included in the approach were performed by the Project Manager and are listed below in Chart 29, along with their scheduled completion dates.

Chart 29 Stakeholder Identification Approach (Source: The Author, 2018)

Activity	Completion Date
Interviews with Company COO	August 19, 2018
Review of Competitors	August 13, 2018
Development of Stakeholder Register	August 20, 2018
Stakeholder Analysis Matrix	August 20, 2018
Stakeholder Engagement Matrix	August 27, 2018

The identification of key stakeholders was completed with the use of a Stakeholder Register, which is presented in Chart 30 from page 88. An analysis of stakeholders follows in Figure 16 on page 91. This analysis was completed using the Power-Interest Grid and specific related comments are presented in Chart 31 on page 92.

Chart 30 Stakeholder Register (Source: Osvaldo Martinez, UCI, 2013)

ID	Stakeholders	Roles/Responsibilities	Main Expectations	Major Requirements	Influence /Impact	Additional Comments
1	Customers	These end-users and intermediary gift, retail and/or health and wellness shops will drive revenue generation for the company by purchasing the soaps produced.	The desired product(s) at an affordable price.	Product availability	High	Customer satisfaction will be key to the success of the sale of the products created.
2	Suppliers	Many inputs are required to produce soap, most of which are procured from external sources.	Consistent purchase of input products	Good credit	High	Input costs have a direct link to the final cost of the product, as well as the possible scheduling of production.
3	Production Team	To produce soaps with natural ingredients that offer health benefits	Consistent production results	Availability of input materials and equipment	High	Production logs and content records will be essential to allow for the

		using the required weights and measurements of the contents.				curing phase to be complete.
4	Packaging Team	To produce accurate and attractive packaging and labelling for the products.	Effective communication of accurate soap contents.	Good credit and accurate information	Medium	Labelling must accurately represent the product contents.
5	Equipment Providers	To produce and provide the soap molds and cutters.	Information shared by the production team on the uses of the equipment required.	Accurate dimensions for construction purposes.	Medium	Adjustable soap molds allow for easy and efficient extraction of completed soaps. Cutters also ensure standard net weights for each bar of soap.
6	Competitors	To produce their own soap lines to customers.	Revenue from this niche market.	Continued interest in natural handcrafted personal care	Medium	Competitors must be monitored for the development of trends, pricing and any overall shifts or changes in

				items by customers.		customer preferences.
7	Government: Barbados National Standards Institution (BNSI) and Barbados Revenue Authority (BRA)	To monitor small business operations to ensure compliance with national standards and corporate requirements.	Registration of business and compliance with established regulations.	Payment of required statutory fees.	Low	Declaration of revenue and corporate tax only apply for business who generate in excess of

An analysis of stakeholders assists in identifying stakeholder expectations and concerns, the requirements and the power-interest levels of each stakeholder.

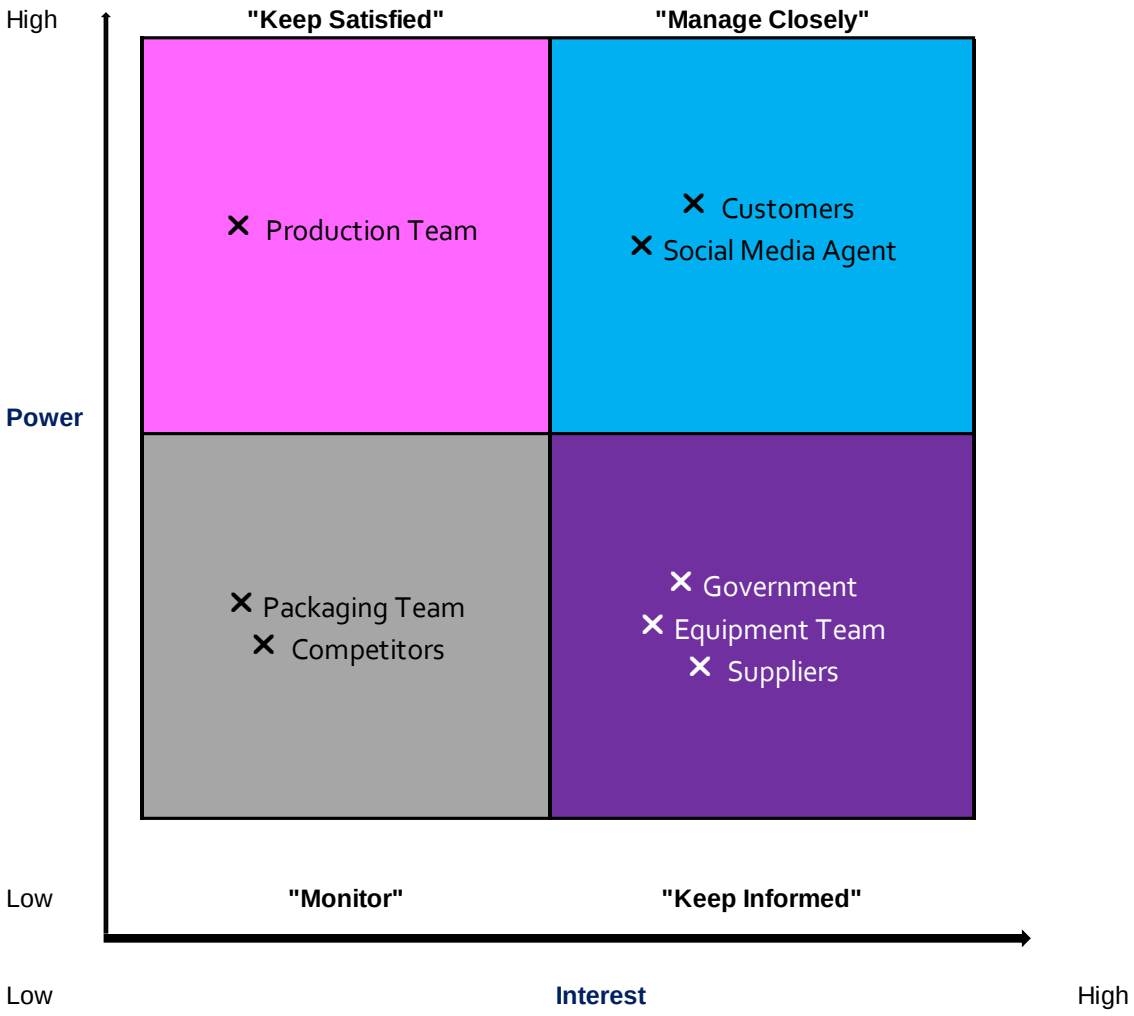


Figure 16 Power-Interest Grid

(Source: Osvaldo Martinez, UCI Stakeholders and Scope Management 2013)

Chart 31 Stakeholder Analysis (Source: Osvaldo Martinez, UCI, 2013)

Stakeholder	Analysis & Comments
Production Team	This team has the expertise, knowledge and training to produce quality products using the appropriate methods. All production relies on this team.
Customers	Customer preferences and satisfaction must be borne in mind when developing, confirming or deciding to expand, the product line.
Social Media Agent	This agent must be closely managed since the majority of advertising will be completed using social platforms. Viral content, updates and posts can be both good and bad for business and must be keenly reviewed.
Packaging Team	This team is responsible for the production of labels and for assisting with packaging the completed products. Compliance with national regulations is necessary.
Competitors	Other small business offering similar products have the potential to erode market share. Competitors must be monitored for changes in customer preferences and trends.
Government	National regulations must be satisfied during the development of the line. Government is not actively involved in the production or sales, and may only be directly engaged should the company be selected for an audit or inspection.
Equipment Team	Customized molds and cutters will ensure efficiency and consistency during the production processes. This team is engaged at intervals for one-time production of molds etc.
Suppliers	These are independent external businesses and business contacts. Building mutually beneficial relationships will be key to ensuring that input materials are readily available.

4.10.2 Plan Stakeholder Management

This process includes a clear, actionable plan to interact with project stakeholders to support the project's interests (PMI, 2017). Stakeholders will be engaged using a variety of methods and media including meetings, reviews, checklists, feedback forms and surveys in order to move them from current (C) to desired (D) state. This is summarized in Chart 32 below.

Chart 32 Stakeholder Engagement Matrix (Source: PMBOK 6th edition, 2017)

Stakeholder	Unaware	Resistant	Neutral	Supporting	Leading
Production Team				C	D
Customers				C	D
Social Media Agent				C	D
Packaging Team				C	D
Competitors	C		D		
Government	C		D		
Equipment Team			C	D	
Suppliers			C	D	

Details relating to the frequency and methods of communication were outlined in detail in the Communications Matrix within the Communications Plan. Specifically relating to meetings, these will be held with the Production Team once weekly (Mondays), with suppliers' reviews occurring once monthly (Thursdays).

4.10.3 Manage Stakeholder Engagement

This process is concerned with anticipating needs and reactions of stakeholders to ensure that appropriate action can be taken to gain support and reduce negative impacts. An outline of the Stakeholder Management schedule is provided in Chart 33 on page 94.

Chart 33 Stakeholder Management Activity List (Source: The Author, 2018)

Activity	Completion Date
Interviews with Company COO	August 19, 2018
Review of competitors	August 13, 2018
Development of Stakeholder Register	August 20, 2018
Stakeholder Analysis Matrix	August 20, 2018
Stakeholder Engagement Matrix	August 27, 2018
Development of Customer Feedback Program	August 28, 2018
Market Survey (via checklist)	Last weekday at the end of every quarter
Product Label Review & Verification	September 10, 2018
Meetings with Production Team	Weekly (Mondays)
Suppliers' Reviews	Monthly (Thursdays)

4.10.4 Control Stakeholder Engagement

This process relates to monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders (PMI, 2017). During the weekly project meetings, an assessment of stakeholder engagement will be completed. This will include the status of the current engagement state to the desired, as well as the addition of any new stakeholders throughout the project life cycle.

5 CONCLUSIONS

This niche market is a viable one. With the management of input costs and subsequent maintenance of affordable pricing levels, profit margins can be relatively healthy. However, due to the inflexibility of the soap-making process, where alternative inputs are not possible, the procurement process continues to be highly sensitive to any major changes in the market and in costs.

1. The project charter was updated as required and it guided the development and execution of the overall project management plan.
2. The scope management plan was key in avoiding scope creep. Scope creep has the capacity to be detrimental to project outcomes and to the success of SMEs, whose budgeting and overall capacity do not allow for major variances from scheduled plans. The work packages identified were simplified and commitment was encouraged to maintaining the acceptance criteria, particularly outlined in the Requirements Traceability Matrix.
3. 159 days is to the total number of days required to complete the project from equipment design to project end. With approximately just under 23 weeks available, this includes time reserves for soap production and curing, as well as reserves for activities completed by external parties.
4. The importance of cost management must never be minimized. With effective cost management, the profit margins for Sugar Plum Botanicals will increase and maintain better pricing position within the market.
5. It is essential for training to be ongoing and documented to ensure that the safety processes are followed correctly. While efficient record-keeping is usually a shortfall for SMEs and often viewed as tedium by some small business owners, documentation will be key to promoting safety and minimizing injury, both minor and major.
6. Safety, especially during the production process, is paramount. While there exists the possibility of death and major injury to one’s person due to the

inclusion of the essential lye, the focus must be encompass the other major and minor risks contained within other plans.

7. The selection and use of communication channels increase with the number of stakeholders and the volume of messages crafted for each of these stakeholders. As these new products are introduced to the market, product popularity is to be expected and the formalization of a company communication strategy will assist beyond the project end date.
8. It was determined that agreements are the most appropriate tool to be utilized to formalize gifted input items from neighboring areas and communities. As currently obtains, cash on delivery will be the format of payment to SME suppliers which may be unable to offer a credit facility.
9. For this small business, human resources must be maximized in order to ensure that the production schedule is fulfilled. The full team, internal and external, will be engaged for the completion of tasks as outlined in the RACI chart.
10. It is vital to identify and effectively engage project stakeholders. The visual representation of the stakeholders in grid format proved helpful in identifying the requirements of each stakeholder, with a view of assessing current state vis-à-vis desired state.

6 RECOMMENDATIONS

This project is the first of its kind for this newly founded company and the Company's COO will need to evaluate a number of recommendations. The project closure process will be key in evaluating overall project success, and the developing of the lessons learned. Training and re-training will also be required as part of the continuing education of the teams, and to maintain production levels, the offer of incentives to reduce absenteeism should be considered. The following are the recommendations to be considered for this project.

1. There should be close monitoring of the work activities and these may be revised and adapted for application to other product lines.
2. The achievement of the targets set can be communicated throughout the organization. This will ensure that all teams are aware of the production status. Creative ways to communicate this outside of the formal meeting setting can be utilized. Summary updates via mobile phones can be developed.
3. Capital costs for equipment were viewed as upfront costs and not included in the cost analysis of the soaps. Therefore, a segment of the profit should be assigned to equipment replacement. While replacement may not immediate or frequent, it must be considered in the costing structure of this line.
4. Quality checks will form part of the quality assurance activities. The introduction of incentives could assist in ensuring that the checks are completed as prescribed.
5. Risk management, especially during the production process, is extremely important. Posting of safety information and reminders in the production area could be made available. Also, a written company policy relating to training and retraining to reduce risks may be considered. In cases of emergency, First Aid/CPR training and biennial recertification could be arranged for the soap producers.

6. Social media platforms can be specifically tailored for business to afford maximum exposure within selected market segments. Business tools available on Instagram could be reviewed and considered as one of the tools to increase brand awareness, and potentially increase sales. As popularity increases, retaining a Social Media agent to follow up on queries and answer customer questions may be required. Additionally, local events such as farmers' markets and manufacturing expositions could be considered as avenues for further exposure, beyond the social media platforms.
7. Procurement is currently a simple process for Sugar Plum Botanicals, whereby materials are purchased as needed according to the 3-par inventory level. However, should demand increase sharply, contracts may need to be considered to formalize the supply relationship, not necessarily to facilitate special pricing or payment arrangements, but to secure availability of materials.
8. For the duration of the project, the reward and recognition of functional team members could be considered and budgeted. This has the potential to positively influence team morale and be a key motivator for meeting established targets.
9. Some consideration could be given to the use of other stakeholder grids such as the Power-Influence, in order to examine stakeholders using another perspective. In addition, other stakeholders (manufacturing and small business associations) should be included if the Company opts to participate in local expositions and tradeshows.

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8 APPENDICES

Appendix 1: FGP Charter

<table>
<tr><th colspan="2">PROJECT CHARTER</th></tr>
<tr><td>Date</td><td>Project Name:</td></tr>
<tr><td>May 14, 2018</td><td>To create a project management plan for the development of a new line of handcrafted natural body soap.</td></tr>
<tr><td>Knowledge Areas / Processes</td><td>Application Area (Sector / Activity)</td></tr>
<tr><td>Knowledge Areas:
Project Integration Management, Scope Management, Time Management, Cost Management, Quality Management, Human Resource Management, Communication Management, Risk Management, Procurement Management & Stakeholder Management

Process groups:
Planning</td><td>Microbusiness: Health & Beauty</td></tr>
<tr><td>Start date</td><td>Finish date</td></tr>
<tr><td>May 14, 2018</td><td>November 16, 2018</td></tr>
<tr><td colspan="2">Project Objectives (general and specific)</td></tr>
<tr><td colspan="2">General objective:
To develop a project management plan for the creation of a new line of handcrafted natural body soap.

Specific objectives:
1. To produce a project charter which officially authorizes resources assignment to produce a project plan.
2. To create a scope management plan to ensure that all required work in included to successfully complete the project.
3. To create a schedule management plan to support the development of a project schedule to ensure that time constraints are observed.
4. To create a cost management plan to define the processes for developing and managing a project budget to ensure that the project is completed within the budget constraints.
5. To develop a quality management plan to highlight the quality requirements to ensure results meet expectations for approval within time, cost and scope constraints.
6. To create a risk management plan to minimize overall risk in the development of the product line.
7. To create a communication plan to ensure time and effective communication with all stakeholders.
8. To develop a procurement plan to acquire products and services required by the project.
9. To create a human resources management planto outline the resources required to support the planning of the project.
10. To develop a stakeholder management plan to effectively engage all project stakeholders.</td></tr>
<tr><td colspan="2">Project purpose or justification (merit and expected results)</td></tr>
<tr><td colspan="2">Soapmaking is a skill that requires patience, extreme accuracy in measurement and close adherence to health and safety standards. What began as a hobby has quickly converted to a demand which currently exceeds supply for handcrafted body soaps using natural ingredients with several specific health benefits. This microbusiness is in need of formalize processes to assess costs, competitors, suppliers for input products and maximize on the conversion of</td></tr>
</table>

current demand to actual sales.

Description of Product or Service to be generated by the Project – Project final deliverables

The Project Management Plan for the creation of a new line of handcrafted body soaps under the brand Sugar Plum Botanicals. This document will assist in future expansion of the product line to include facial soap, liquid handsoaps and lotions. This document can also be adapted and updated to assist other similar microbusinesses in the health & beauty sector.

Assumptions

Project will be developed using data and information made available by Sugar Plum Botanicals.
Project information will be readily available and accurate for analysis
There will be a complete and early review of all individual- and overall project risks.
Tutors and reviewers will be responsive to queries and requests for clarification.

Constraints

1. 5-week break in the assessment and assistance for the Final Graduation Project (FGP) provided by the Tutor during the completion of Course 11, which is scheduled to begin on June 18, 2018.
2. 6 months to development the plan may hinder the successful development of this niche area and new market entry.
3. Both the functional organization and project teams are small in size and overlapping of tasks is expected.
4. Financial resources are not assured with microbusinesses.
5. The composition of the project team is unknown.

Preliminary risks

Poor record-keeping by the microbusiness may lead to inaccurate findings/costs and negatively impact the quality of the resulting plan.

Budget

While online modaility of the programme normally requires electronic submission, the cost of printing and postage of the final project may form part of the budget.

Milestones and dates

Milestone	Start date	End date
Project Charter	May 14, 2018	May 18, 2018
Project WBS	May 14, 2018	May 18, 2018
Introduction Chapter	May 21, 2018	May 25, 2018
FGP Schedule	May 21, 2018	May 25, 2018
Theoretical Framework	May 28, 2018	June 1, 2018
Methodological Framework	June 4, 2018	June 8, 2018
Executive Summary	June 11, 2018	June 15, 2018
Bibliography & Indices	June 11, 2018	June 15, 2018
Acquisition of Signed Charter	June 11, 2018	June 15, 2018
Graduation Seminar Approval	June 18, 2018	June 22, 2018
Tutoring Process	July 30, 2018	October 21, 2018
Review of Previous Submissions	August 6, 2018	August 10, 2018
Development (Results)	August 13, 2018	September 14, 2018
Conclusions	September 17, 2018	September 21, 2018
Recommendations	September 24, 2018	September 28, 2018
Bibliography & Appendices	October 1, 2018	October 5, 2018
Assignment of Reviewers	October 8, 2018	October 12, 2018
Submission of FGP for Review	October 12, 2018	October 12, 2018
Reading by Reviewers	October 15, 2018	October 26, 2018
Adjustments & Modifications	October 29, 2018	November 9, 2018
Presentation to Board of Examiners	November 12, 2018	November 16, 2018

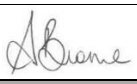
Relevant historical information

Training in soapmaking was completed for a 12-week period from January 2018 by the main soap producer. Production of body soaps continued as a hobby with sampling done by friends and relatives. With plans in place for the official registration of the company business name and acquisition of packaging equipment, Sugar Plum Botanicals stands ready to launch its soaps with unique blends of Barbadian natural herbs and spices. Given the anticipated launch of the brand into the market, no similar efforts have been executed previously for this company.

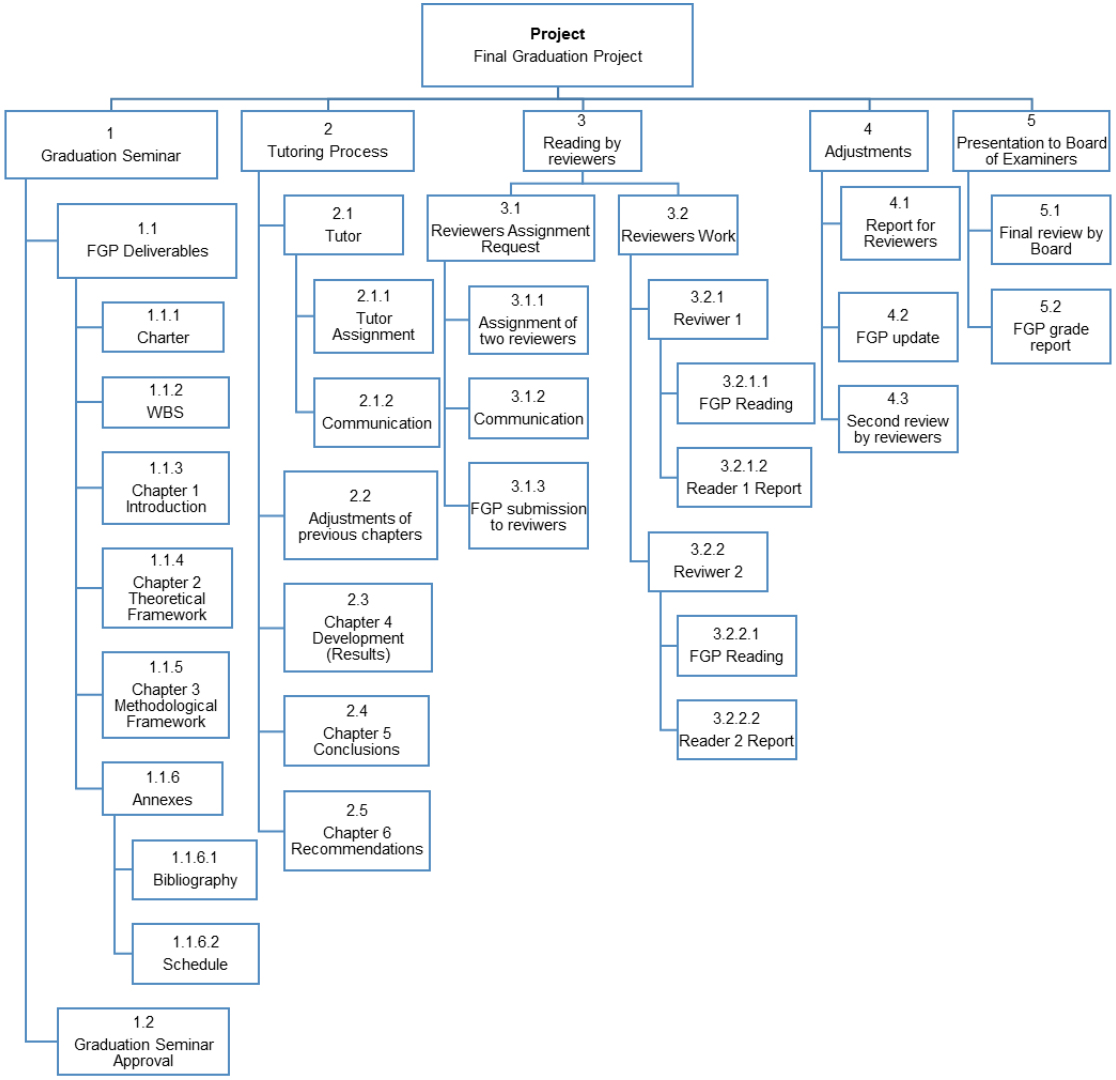
Stakeholders

Direct stakeholders:
Project Manager
Company Chief Operating Officer
Company Chief Executive Officer
FGP Professor
Academic Assistant
Tutor
Reviewers

Indirect stakeholders:
Customers
Competitors
Suppliers
Packaging Team
Equipment Team
Health & Wellness Stores
Retail Gift Shops

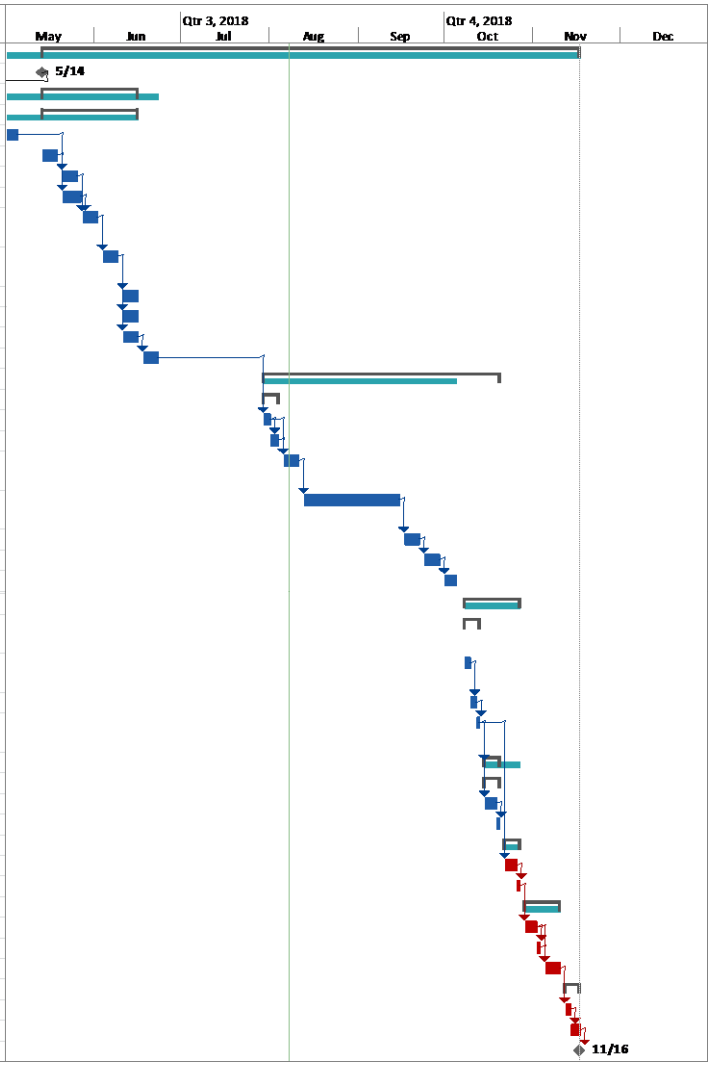
Project Manager: Alison Xiomara Brome	**Signature:** 
Authorized by:	**Signature:**

Appendix 2: FGP WBS



Appendix 3: FGP Schedule

ID	Task Name	Duration	Start	Finish
1	**Final Graduation Project**	**135 days**	**5/14/18**	**11/16/18**
2	FGP Start	0 days	5/14/18	5/14/18
3	**1,Graduation Seminar**	**25 days**	**5/14/18**	**6/15/18**
4	**1.1,FGP Deliverables**	**25 days**	**5/14/18**	**6/15/18**
5	1.1.1,Charter	5 days	4/30/18	5/4/18
6	1.1.2,WBS	5 days	5/14/18	5/18/18
7	1.1.3,Chapter 1 Introducti	5 days	5/21/18	5/25/18
8	1.1.4,FGP Schedule	5 days	5/21/18	5/26/18
9	1.1.5,Chapter 2 Theoretical framework	5 days	5/28/18	6/1/18
10	1.1.6,Chapter 3 Methodological	5 days	6/4/18	6/8/18
11	1.1.7,Executive Summary	5 days	6/11/18	6/15/18
12	1.1.8,Bibliography & Indic	5 days	6/11/18	6/15/18
13	1.1.9,Signed Charter	5 days	6/11/18	6/15/18
14	1.2,Graduation Seminar app	5 days	6/18/18	6/22/18
15	**2,Tutoring process**	**60 days**	**7/30/18**	**10/19/18**
16	**2.1,Tutor**	**5 days**	**7/30/18**	**8/3/18**
17	2.1.1,Tutor assignment	2 days	7/30/18	7/31/18
18	2.1.2,Communication	3 days	8/1/18	8/3/18
19	2.2,Adjustments of previous chapters (If	5 days	8/6/18	8/10/18
20	2.3,Charter 4 Development (Results)	25 days	8/13/18	9/14/18
21	2.4,Chapter 5 Conclusions	5 days	9/17/18	9/21/18
22	2.5,Chapter 6 Recommendat	5 days	9/24/18	9/28/18
23	2.6,Bibliography & Appendi	4 days	10/1/18	10/4/18
24	**3,Reading by reviewers**	**15 days**	**10/8/18**	**10/26/18**
25	**3.1,Reviewers assignment request**	**5 days**	**10/8/18**	**10/12/18**
26	3.1.1,Assigment of two reviewers	2 days	10/8/18	10/9/18
27	3.1.2,Communication	2 days	10/10/18	10/11/18
28	3.1.3,FGP submission to reviewers	1 day	10/12/18	10/12/18
29	**3.2,Reviewers work**	**5 days**	**10/15/18**	**10/19/18**
30	**3.2.1,Reviewer**	**5 days**	**10/15/18**	**10/19/18**
31	3.2.1.1,FGP reading	4 days	10/15/18	10/18/18
32	3.2.1.2,Reader 1 report	1 day	10/19/18	10/19/18
33	**3.2.2,Reviewer**	**5 days**	**10/22/18**	**10/26/18**
34	3.2.2.1,FGP reading	4 days	10/22/18	10/25/18
35	3.2.2.2,Reader 2 report	1 day	10/26/18	10/26/18
36	**4,Adjustments**	**10 days**	**10/29/18**	**11/9/18**
37	4.1,Report for reviewers	4 days	10/29/18	11/1/18
38	4.2,FGP update	1 day	11/2/18	11/2/18
39	4.3,Second review by reviev	5 days	11/5/18	11/9/18
40	**5,Presentation to Board of Exa**	**5 days**	**11/12/18**	**11/16/18**
41	5.1,Final review by board	2 days	11/12/18	11/13/18
42	5.2,FGP grade report	3 days	11/14/18	11/16/18
43	FGP End	0 days	11/16/18	11/16/18



Task		Inactive Task		Start-only	
Split		Inactive Milestone		Finish-only	
Milestone		Inactive Summary		Deadline	
Summary		Manual Task		Critical	
Project Summary		Duration-only		Critical Split	
External Tasks		Manual Summary Rollup		Progress	
External Milestone		Manual Summary			

Appendix 4: Quality Management Stakeholder L-shaped Matrices

Production Team	Functioning equipment	Standardized soap size	Customer satisfaction	Minimum inventory level	Standardized label size	Accurate measurements	Contents listing	Row Total	Row Decimal Value
Functioning equipment		1.00	1.00	5.00	5.00	5.00	1.00	18.00	0.1499
Standardized soap size	1.00		0.20	0.20	1.00	0.20	0.20	2.80	0.0233
Customer satisfaction	1.00	5.00		5.00	5.00	1.00	1.00	18.00	0.1499
Minimum inventory level	0.20	5.00	1.00		10.00	0.10	0.20	16.50	0.1374
Standardized label size	0.20	1.00	0.10	0.10		0.10	0.10	1.60	0.0133
Accurate measurements	0.20	5.00	10.00	10.00	10.00		1.00	36.20	0.3014
Contents listing	1.00	5.00	5.00	5.00	10.00	1.00		27.00	0.2248
							Grand Total	**120.10**	

Customers	Functioning equipment	Standardized soap size	Customer satisfaction	Minimum inventory level	Standardized label size	Accurate measurements	Contents listing	Row Total	Row Decimal Value
Functioning equipment		0.20	1.00	0.20	5.00	1.00	5.00	12.40	0.1084
Standardized soap size	5.00		0.20	5.00	1.00	5.00	1.00	17.20	0.1503
Customer satisfaction	1.00	5.00		10.00	5.00	10.00	5.00	36.00	0.3147
Minimum inventory level	5.00	0.20	0.10		0.10	1.00	0.10	6.50	0.0568
Standardized label size	0.20	1.00	0.20	10.00		1.00	0.20	12.60	0.1101
Accurate measurements	1.00	5.00	0.10	1.00	1.00		0.20	8.30	0.0726
Contents listing	0.20	1.00	0.20	10.00	5.00	5.00		21.40	0.1871
							Grand Total	**114.40**	

Social Media Agent	Functioning equipment	Standardized soap size	Customer satisfaction	Minimum inventory level	Standardized label size	Accurate measurements	Contents listing	Row Total	Row Decimal Value
Functioning equipment		1.00	0.10	0.20	1.00	1.00	0.20	3.50	0.0375
Standardized soap size	1.00		0.20	0.20	1.00	1.00	0.20	3.60	0.0385
Customer satisfaction	10.00	5.00		5.00	10.00	5.00	5.00	40.00	0.4283
Minimum inventory level	5.00	5.00	0.20		5.00	1.00	1.00	17.20	0.1842
Standardized label size	1.00	1.00	0.10	0.20		1.00	0.20	3.50	0.0375
Accurate measurements	1.00	1.00	0.20	1.00	1.00		0.20	4.40	0.0471
Contents listing	5.00	5.00	0.20	1.00	5.00	5.00		21.20	0.2270
							Grand Total	**93.40**	

Packaging Team	Functioning equipment	Standardized soap size	Customer satisfaction	Minimum inventory level	Standardized label size	Accurate measurements	Contents listing	Row Total	Row Decimal Value
Functioning equipment		0.20	0.20	1.00	0.20	1.00	0.20	2.80	0.0348
Standardized soap size	5.00		1.00	5.00	1.00	5.00	1.00	18.00	0.2239
Customer satisfaction	5.00	1.00		1.00	1.00	0.20	5.00	13.20	0.1642
Minimum inventory level	1.00	0.20	1.00		0.20	1.00	0.20	3.60	0.0448
Standardized label size	5.00	1.00	1.00	5.00		5.00	1.00	18.00	0.2239
Accurate measurements	1.00	0.20	5.00	1.00	0.20		0.20	7.60	0.0945
Contents listing	5.00	1.00	0.20	5.00	1.00	5.00		17.20	0.2139
							Grand Total	**80.40**	

Competitors	Functioning equipment	Standardized soap size	Customer satisfaction	Minimum inventory level	Standardized label size	Accurate measurements	Contents listing	Row Total	Row Decimal Value
Functioning equipment		0.20	0.10	1.00	1.00	1.00	0.20	3.50	0.0350
Standardized soap size	5.00		1.00	1.00	5.00	5.00	1.00	18.00	0.1800
Customer satisfaction	10.00	1.00		10.00	10.00	5.00	10.00	46.00	0.4600
Minimum inventory level	1.00	1.00	0.10		1.00	1.00	0.20	4.30	0.0430
Standardized label size	1.00	0.20	0.10	1.00		1.00	0.20	3.50	0.0350
Accurate measurements	1.00	0.20	0.20	1.00	1.00		0.20	3.60	0.0360
Contents listing	5.00	1.00	0.10	5.00	5.00	5.00		21.10	0.2110
							Grand Total	**100.00**	

Equipment Team	Functioning equipment	Standardized soap size	Customer satisfaction	Minimum inventory level	Standardized label size	Accurate measurements	Contents listing	Row Total	Row Decimal Value
Functioning equipment		5.00	10.00	10.00	10.00	10.00	10.00	55.00	0.5408
Standardized soap size	0.20		5.00	5.00	5.00	0.20	0.20	15.60	0.1534
Customer satisfaction	0.10	0.20		1.00	1.00	1.00	1.00	4.30	0.0423
Minimum inventory level	0.10	0.20	1.00		1.00	1.00	1.00	4.30	0.0423
Standardized label size	0.10	0.20	1.00	1.00		1.00	1.00	4.30	0.0423
Accurate measurements	0.10	5.00	1.00	1.00	1.00		1.00	9.10	0.0895
Contents listing	0.10	5.00	1.00	1.00	1.00	1.00		9.10	0.0895
							Grand Total	**101.70**	

Suppliers	Functioning equipment	Standardized soap size	Customer satisfaction	Minimum inventory level	Standardized label size	Accurate measurements	Contents listing	Row Total	Row Decimal Value
Functioning equipment		1.00	1.00	1.00	1.00	1.00	5.00	10.00	0.1825
Standardized soap size	1.00		1.00	1.00	1.00	1.00	1.00	6.00	0.1095
Customer satisfaction rating	1.00	1.00		5.00	1.00	1.00	1.00	10.00	0.1825
Minimum inventory level	1.00	1.00	0.20		5.00	5.00	1.00	13.20	0.2409
Standardized label size	1.00	1.00	1.00	0.20		1.00	1.00	5.20	0.0949
Accurate measurements	1.00	1.00	1.00	0.20	1.00		1.00	5.20	0.0949
Contents listing	0.20	1.00	1.00	1.00	1.00	1.00		5.20	0.0949
							Grand Total	**54.80**	

Appendix 5: Certificate of Review

CERTIFICATE OF REVIEW

for the
Universidad para la Cooperación Internacional (UCI)

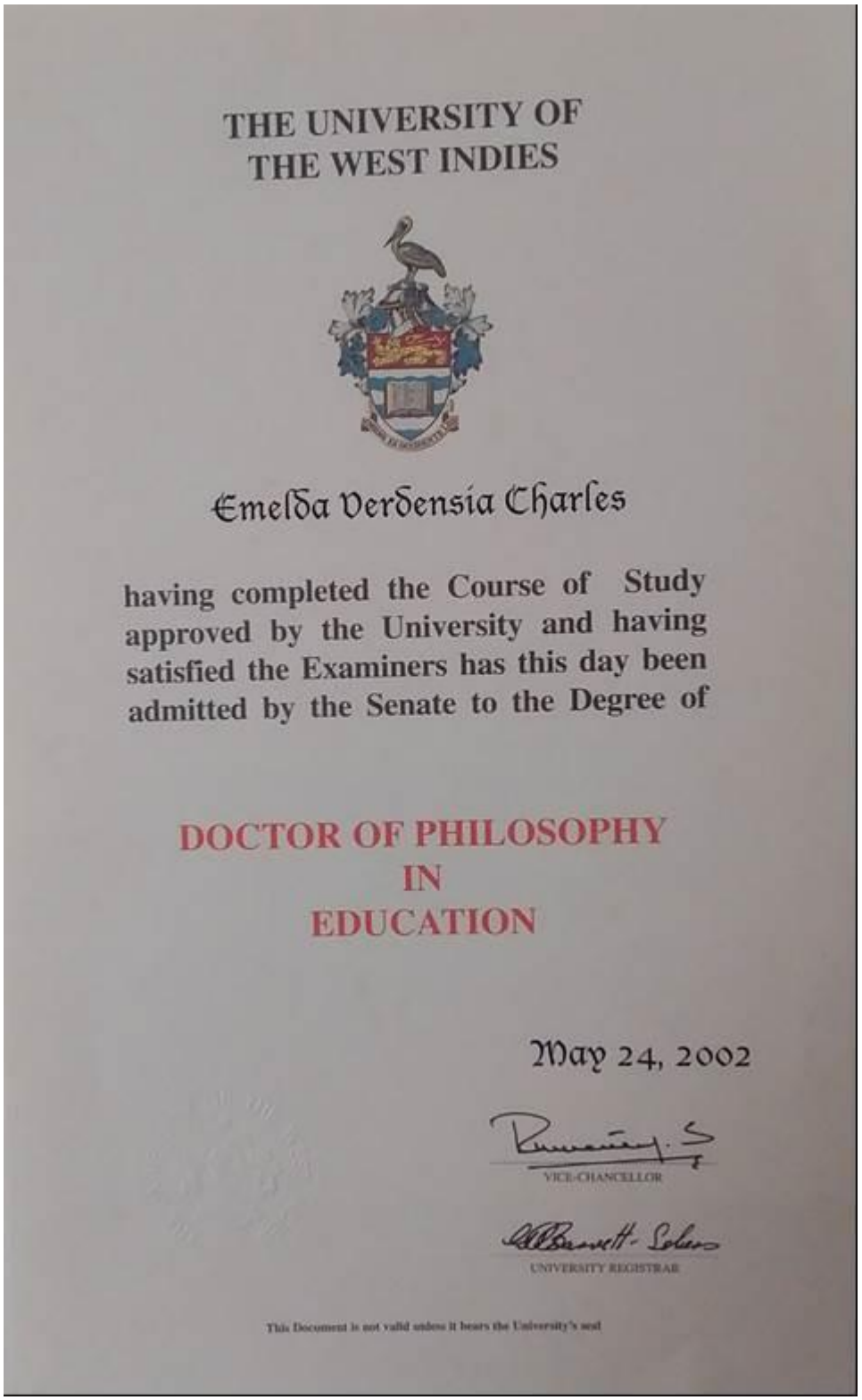
This certifies that Alison Xiomara Brome has made all the grammatical and typographical corrections to the Final Graduation Project document as I have advised.

The document presents accurate use of the English Language.

Emelda Charles-Clarke, PhD

Retired Educator & Remedial Reading Specialist

Appendix 6: Reviewer Credentials



THE UNIVERSITY OF
THE WEST INDIES

Emelda Verdensia Charles

having completed the Course of Study approved by the University and having satisfied the Examiners has this day been admitted by the Senate to the Degree of

DOCTOR OF PHILOSOPHY
IN
EDUCATION

May 24, 2002

VICE-CHANCELLOR

UNIVERSITY REGISTRAR

This Document is not valid unless it bears the University's seal