UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED.

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This Final Graduation Project was approved by the University as partial fulfilment of the requirements to opt for the Master in Project Management (MPM) Degree

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DEDICATION

I dedicate this final graduation project to Mikhail. Baby bro, anything is possible if you put your mind to it.

ACKNOWLEDGMENTS

I am very grateful to the UCI faculty members who have availed their time, experience, and effort to me to ensure that I could successfully complete my Final Graduation Project. I would like to extend my deepest gratitude to my Tutor, Mr. Carlos Castro, who graciously guided me through my project from beginning to end.

I must acknowledge the support and involvement of Mrs. Karis-Ann Rhoden-Gordon from Dairy Industries Jamaica Limited (DIJL), who assisted me identifying and retrieving vital business process information to be included in this document.

To my parents who supported my decision in pursuing this new field of study, thank you for lending me your insight and inspiration.

Finally, I must thank my Heavenly Father who has granted me the wisdom and perseverance to see this degree program through to its ending.

ABSTRACT

The objective of this final graduation project is to develop a project management plan for the product development project of cream cheese at Dairy Industries Jamaica Limited (DIJL). The product development processes at DIJL has few documentations which governs them however these do not conform completely with the ten knowledge areas outlined in Project Management Institute's (PMI) guidebook titled Project Management Body of Knowledge (PMBOK®).

The end result of this body of work is a compilation of subsidiary project management plans which will direct the project for the development of cream cheese at DIJL as well as serve as a benchmark for future projects. To accomplish this, an analytical research methodology and the guidance provided in PMBOK® are used.

After the application of an analytical research methodology to DIJL's processes and documentation, it was observed that the Business Development Team did not possess any appropriate project management plans or documentation except for an Activity List with resources assigned that was being used to implement their project activities. As an improvement measure, the author prepared ten subsidiary plans which the DIJL team will use to manage the implementation of the cream cheese development project. It is recommended that the Project Team adopt these subsidiary plans, formally train the Project Team in the principles of project

management and replace the pre-existing communications strategy with the Communications Management Plan elaborated in this FGP.

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ABBREVIATIONS AND ACRONYMS

AMA – American Management Association

ADPI -Disc A Scorched Particles

BOM – Bill of Materials

BSJ – Bureau of Standards Jamaica

CFR – Code of Federal Regulations

CFU – Colony Forming Units

CPI – Cost Performance Index

CV – Cost Variance

DIJL – Dairy Industries Jamaica Limited

EC – European Commission

EVM – Earned Value Management

FDA – Food and Drug Association

FGP – Final Graduation Project

FSMS – Food Safety Management System

FSSC – Food Safety System Certification

GMP – Good Manufacturing Practices

GRAS – Generally Regarded as Safe

HACCP – Hazard Analysis Critical Control Points

ID – Identifier

MOHW – Ministry of Health and Wellness

NPD – New Product Development

OPA – Organization Process Assets

PD – Product Development

PM – Project Manager

PMBOK – Project Management Body of Knowledge

PMI – Project Management Institute

PMP – Project Management Professional

PVC – Polyvinyl Chloride

QA – Quality Assurance

QC – Quality Control

RACI – Responsible, Accountable, Consult, and Inform

RBS – Risk Breakdown Structure

RFI – Request for Information

RFQ – Request for Quotation

RM – Requirements Management

SAP – System Application and Product in Processing

SMP – Scope Management Plan

SPI – Schedule Performance Index

SV – Schedule Variance

TIRG – This Is Really Great

UCI – Universidad para la Cooperación International

US – United States

USA – United States of America

USD – United States Dollar

WBS -Work Breakdown Structure

EXECUTIVE SUMMARY

Dairy Industries Jamaica Limited (DIJL) is a dairy product processing facility located at 111 Washington Boulevard Kingston 20 in Jamaica. Since its inception in 1964, DIJL has been making strides in the local and regional markets in providing customer favourite processed canned cheese and other dairy products such as cheese spread, yogurt, and powdered milk. To stay relevant and competitive, the company has embarked on several new product development ventures including creamed cheese.

There is a current weakness in the existing project management approach within the Business Development Department which has responsibility for the development of new products. While there are policies and procedures in place to guide along the development of new products from ideation to launching of the products, these elements do not fully satisfy the requirement for projects to have a project management plan consisting of the various subsidiary plans documented before the execution phase of the project. As such, it was the intention of this present work to provide a solution to this problem thereby increasing the efficiency and productivity of their new product development process.

The general objective was to create a Project Management Plan, framed within the standards of the Project Management Institute, to manage the product development project of cream cheese. The specific objectives were to: to create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan; to create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured; to create a schedule management plan to ensure timely completion of the project; to create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget; to create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives; to create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project; to create a project communications management plan to ensure that the information requirements of the project and associated stakeholders are timely and effectively met; to create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to optimize the chances of project success; to create a project procurement management to manage the purchase or acquisition of resources outside of the project team; to create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed.

The selected methodology for this final graduation project was the analytical research method which examined existing documentation at DIJL for the creation of the missing project management elements and sought their alignment with the

10 Knowledge Areas presented in the PMBOK® Guide. Additional sources of information used in the elaboration of this FGP were interviews with key team members from project sponsor as well internal policies, procedures and meeting minutes.

This body of work lead to the resolution of DIJL's project management documentation shortfalls which were identified at the during data collection for the FGP as presented in the results section of the FGP. Ten subsidiary plans were subsequently created to achieve each of the specific objectives set forth in this FGP, specifically the Project Integration Management Plan, Project Scope Management Plan, Project Schedule Management Plan, Project Cost Management Plan, Project Quality Management Plan, Project Resource Management Plan, Project Communications Management Plan, Project Risk Management Plan, Project Procurement Management Plan, and Project Stakeholder Management Plan. The cream cheese project will have the benefit of being the first product that was developed following sound project management principles based on PMIs sixth edition of PMBOK. All subsequent new product development projects will adopt the project management plan formats developed in this FGP to improve the overall project management within DIJL.

Some recommendations were formulated at the end of the elaboration of the ten subsidiary plans for implementation by the DIJL team. It is recommended that DIJL adopts the Project Management Plan defined herein, create and execute project charters for each future project, maintain a record of actual costs for materials and labour, bolster their communications and stakeholder management strategies through early engagement of the important stakeholders, identify, and engage project management training for the Business Development Department, and acquire a project management information system to centralize project management related documentation. Implementation of these recommendations will improve the existing systems within DIJL and better align project execution with business objectives and strategic goals.

1 INTRODUCTION

1.1. Background

Dairy Industries Jamaica Limited (DIJL) is a dairy product processing facility located in St. Andrew Jamaica. Established in 1964, DIJL are the proud producers of the famous “Tastee cheese” processed canned cheese and other milk-based products such as cheese spread, powdered milk, and yogurt. The company exists under a joint venture agreement between the Jamaican company Grace Kennedy Group and New Zealand company Fonterra Co-operative Group Limited.

DIJL stays ahead of the local competition by leveraging the strength and innovation of both parent companies. The company has a well-trained Business Development Department which is responsible for not only finding new markets for the existing products but to create new products and make modifications to existing formulations. The product development process follows a six (6) phase approach governed by twelve (12) procedures involving inputs from various departments and external bodies.

Whilst there appears to be a project management methodology in place, a true project management approach guided by a Project Management Plan is not followed and does not consider all 10 project management knowledge areas. With the development and launch project of their latest product idea – cream cheese on the horizon the Business Development Manager, who is

the primary project sponsor, has requested for a Project Management Plan to be created on their behalf. With the creation of this project management plan as set out by this Final Graduation Project (FGP), the DIJL Business Development Department will receive a comprehensive Project Management Plan which can be used as a benchmark and template for all future new product launches.

1.2. Statement of the problem

The new product development process at DIJL is guided by internal policies and procedures however, it does not possess all the elements of the project management process as outlined in the Project Management Institute's (PMI) guidebook Project Management Body of Knowledge (PMBOK®). The absence of a formal project management plan can cause disruptions to the anticipated result of projects. At DIJL, the lack of a comprehensive plan causes delays in the launch of new product offerings since not all risks and requirements are not considered in the very brief planning stage. Additionally, the inadequate identification and management of internal stakeholders has led to breakdowns in communication that also lead to delays in the schedule. For the successful execution of their next product development project, a Project Management Plan conforming to the requirements of the PMBOK® will be created along with the associated forms and project documents.

1.3. Purpose

The purpose of the project is to develop a Project Management Plan for the project to develop the new product (cream cheese) to increase the current product offerings at DIJL. The Project Management Plan will provide the necessary management strategies related to the ten project management knowledge areas that DIJL may apply during the implementation of the project. By implementing the Project Management Development Plan developed in this FGP, DIJL will benefit from more efficient processes that are capable new products in a shorter delivery period having considered all requirements and potential constraints and developing plans to manage them.

This management plan will also lead to a 60% improvement of the existing internal project management planning processes within the Business Development Department in accordance the established project management process defined in PMBOK®. This body of work seeks to align the project management processes for the development project of cream cheese through research of and consultation with PMI's guide.

1.4. General objective

To create a Project Management Plan, framed within the standards of the Project Management Institute, to manage the product development project of cream cheese effectively.

1.5. Specific objectives

1. To create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan.
2. To create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured.
3. To create a schedule management plan to ensure timely completion of the project.
4. To create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget.
5. To create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives.
6. To create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project.
7. To create a project communications management plan to ensure that the information requirements of the project and associated stakeholders are timely and effectively met.
8. To create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to optimize the chances of project success.

9. To create a project procurement management to manage the purchase or acquisition of resources outside of the project team.
10. To create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed.

2 THEORETICAL FRAMEWORK

1.6. Company/Enterprise framework

2.1.1 Company/Enterprise background

DIJL is a well-known dairy products processor which committed to providing nutritious milk-based products to Jamaicans and Caribbean members as well as customers located in the USA, Canada, and British Diaspora. Being an ever-evolving business, DIJL facilitates innovation through the planning and implementation of a wide range projects from construction to food safety management system to new product development. The construction and food safety management system projects are usually supported by external professionals who serve as consultants and utilise the tenets of project management as outlined in PMBOK®. This is not exactly the case for the new product development processes.

The Business Development Manager in their acknowledgement of the gaps in their project management process has determined that to improve the delivery of its internal operations, a more structured and carefully planned project management approach is required. By applying the principles of PMI as outlined in PMBOK®, the strategic goals for technology and innovation can be met and exceeded in a carefully tailored manner.

As a starting point, the first product development project that will subject to an acceptable project management process will be the development and launch of

their latest new product – cream cheese. I, the Assistant Project Manager, was contracted to develop the associated project management plans in keeping with the ten knowledge areas of project management which will be used as the standard for planning all future product launches.

2.1.2 Mission and vision statements

Mission: To give outstanding value to our shareholders by supplying convenient, affordable, and nutritious products in our chosen markets through manufacturing excellence and mutually beneficial partnerships with our customers with a motivated, well-trained, and flexible team. (“FSMS Training Presentation”, 2020)

Vision: Trusted and loved for our cheese and unique dairy products. (“FSMS Training Presentation”, 2020)

The management of DIJL strives to provide its manufactured goods and establish long lasting relationships to its target customers through supplying nutritious products. Additionally, the company is committed to maintaining a skilled workforce as per their mission statement. The vision statement shows the how important brand image and brand loyalty is to DIJL. This FGP will add value to the company’s goal to provide quality nutritious dairy product to its customers by optimizing the new product development processes which is its leading innovation process for the business.

2.1.3 Organizational structure

DIJL is a small company which has in its employ 41 permanent staff and 70 seasonal workers who are contracted from a third-party agency. The management team including the Business Development Team are all permanent staff and have the authority to execute functions and make decisions are required for the development of the cream cheese product launch. The product launch project will have the support of other departments such as the Marketing Department, Operations Department, Maintenance Department, Quality Department, Purchasing Department, Finance Department, and Warehouse Department.

The figure below (**Figure 1**) depicts the organizational structure of DIJL that have direct involvement in the new product development process. At the head of the company is Mr. Radcliffe Walker - the General Manager who has overall responsibility and oversight for the company. The Business Development Department is led by Mrs. Karis-Ann Rhoden-Gordon the Business Development Manager.

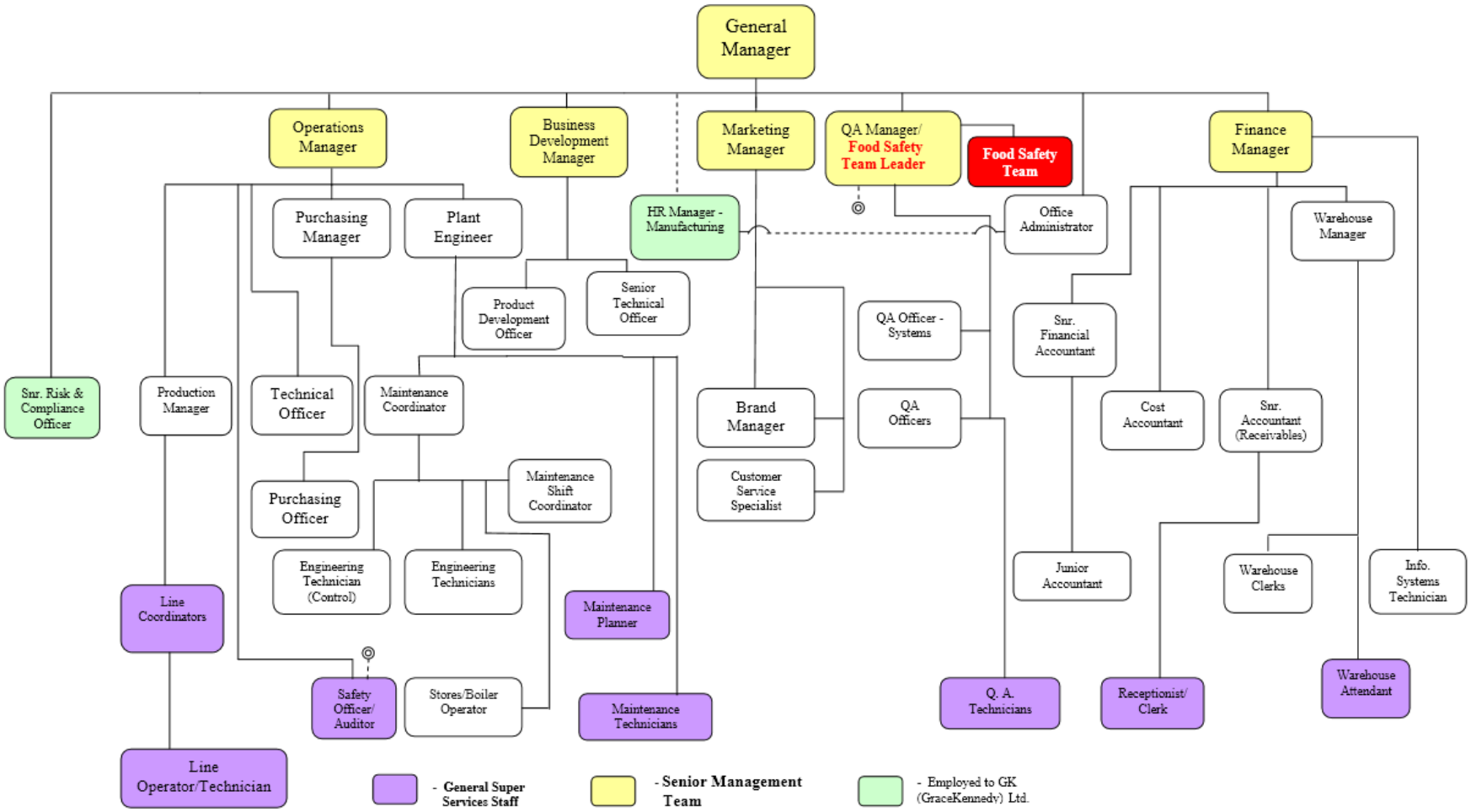

Figure 1: Organizational structure ("FSMS Manual Appendix B", 2017)

2.1.4 Products offered

DIJL began the manufacturing of its flagship product - canned cheese in 1968 after four years of distributing cheese products for its business partner Fonterra Co-operative Group Limited. Since then, DIJL has added four more product lines to its offerings - vacuum-packed cheese, yogurt powdered milk and cheese spread which fall under its seven brands - Tastee, Anchor, TIRG, Cheder, Crest, Country Gold, Good2Grow. There is the intention to add new products such as drinkable yogurt, ice cream, sour cream, and cream cheese to the existing line up products and are at varying stages of the new product development process. The cream cheese project is still in the early development phase and is set to be launched mid-year of 2022 (Rhoden-Gordon, personal communication, May 26, 2021).

This FGP will assist in the formalization of the planning process for the cream cheese project and will be adapted to the other new products that will be launched thereafter.

1.7. Project Management Concepts

2.1.5 Project

The development of new products at DIJL follows a series of steps to arrive at a result which, if of acceptable quality is then handed over from the Business Development Department to the Operations Department for incorporation into day-to-day activities. This arrangement is a classic illustration of what a project is.

According to PMBOK® Sixth (6th) Edition, a project is defined as “a temporary endeavour undertaken to create a unique product, service, or result.” (PMI, 2017, p. 4). This definition makes the further distinction that for an endeavour to be considered as a project, it must produce a new result that was not previously available which is the case for the product development project of the development and launch of cream cheese. Cream cheese is not a current product of DIJL and none of the existing products can be used as a direct substitute for customers who require cream cheese.

A project is thought of as temporary because they have a “definite beginning and end” which does not translate to the duration of the project. The deliverables of a project can exist beyond the end of the project which is the case for the cream cheese product which will be produced by the operations department and supported by the other relevant departments after the end of the project. (PMI, 2017, p. 5)

2.1.6 Project management

For projects to be successful, there must be a governing framework and set of skills/competencies which must be employed. Project management is the vehicle through which knowledge, skills, tools, and techniques are applied to project activities to meet the requirements of a project. (PMI, 2017, p. 10). Alternately, project management can be thought of as a “unique branch of learning that deals

with planning, monitoring, and controlling of one-time endeavours.” (Dinsmore, 2006, p. 5). The project management process is comprised of ten knowledge areas which will be further discussed in section 2.2.5. Project management typically follows five steps or phases which comprise the project life cycle.

2.1.7 Project life cycle

To successfully execute a project, a project manager must apply knowledge, and a range of skills and tools. The result or outcome of the project can be unique or repetitive and must be achieved within a finite period. The knowledge, skills, and tools are usually grouped into activities or processes. A well-known body of knowledge for project management is PMI's PMBOK® Guide. It identifies five process groups also known as project phases which organizes related activities within the same group, namely: Project Initiation, Project Planning, Project Execution, Project Monitoring and Control and Project Closure (PMI, 2017). As per PMI (2017), “a project management process group is a logical grouping of project management processes to achieve project objectives.” (PMI, 2017, p. 21).

The characteristic of projects having a finite period is supported in project management through the breaking down of the project into life-cycle phases. The project life cycle as defined by PMI is the series of phases that a project passes through from its start to its completion. Project phases are a collection of logically related project activities that culminates in the completion of one or more deliverables. These phases essentially organize the project in a systematic way to achieve the desired project outcome (PMI, 2017). Kerzner (2017) states in his

textbook on project management that the life-cycle phase approach is not an attempt to put handcuffs on the project manager but to provide a methodology for uniformity in project planning and control (Kerzner, 2017).

At the end of each project phase there is a period of review to assess what was accomplished as well as to seek approval for the next phase, make changes or even make the decision to terminate the project. In the project management arena this is known as a handoff, on-off ramp or simply a gate. Project gates can take the form of a meeting attended by the project manager, sponsor, senior management, and in some cases the customer. Review meetings also allow the project manager to firm up budgets and schedules for the upcoming phases.

Project life cycles can be linear (**Figure 2**), iterative/agile, (**Figure 3**), or a combination of both – hybrid (**Figure 4**).

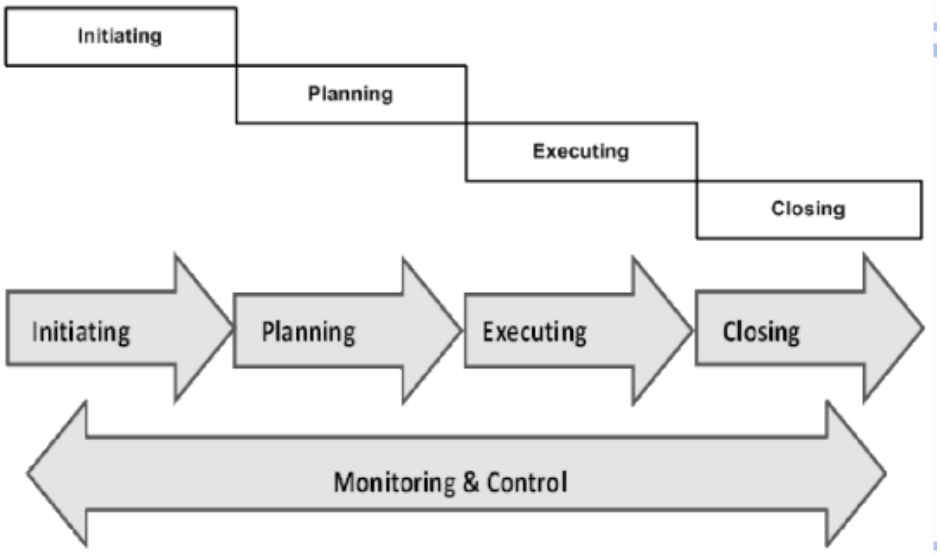

Figure 2: Linear-Waterfall Life Cycle (Boyde, 2014).

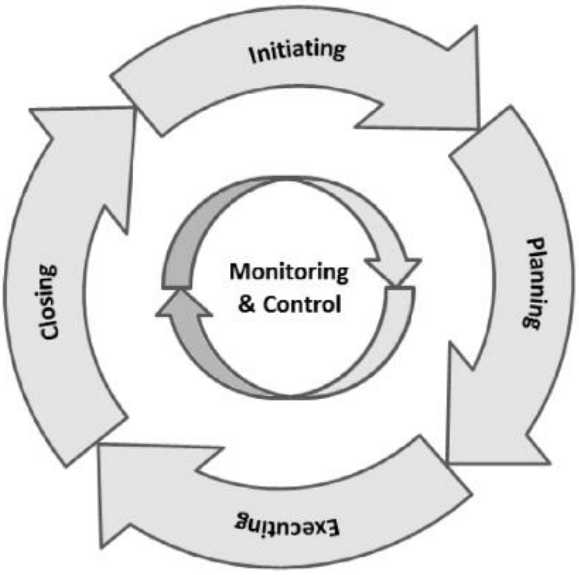

Figure 3: Iterative/Agile Life Cycle (Boyde, 2014).

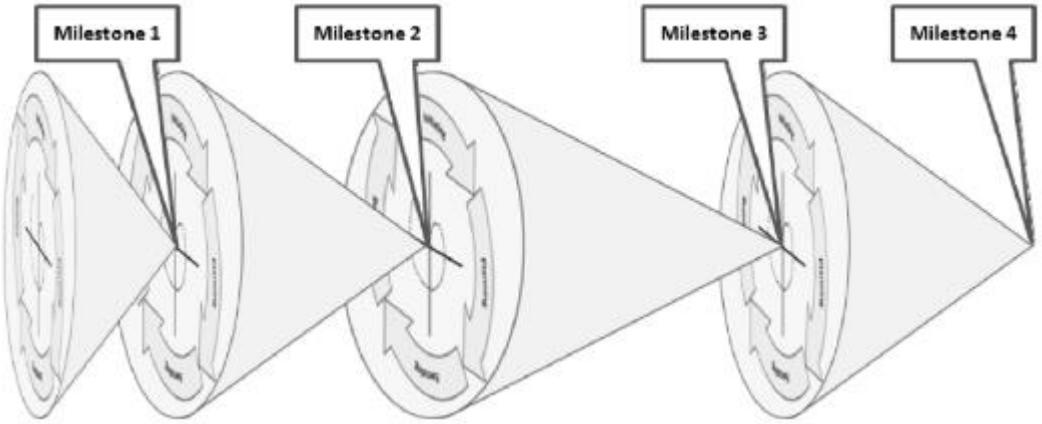

Figure 4: Combination of iterative and linear life cycles (Boyde, 2014).

Projects are usually organized by phases to group similar activities together to ensure that a systematic approach is taken to successfully bring a project from initiation to closing. Over the life cycle of a project the process groups will have some interactions as illustrated in **Figure 5** below.

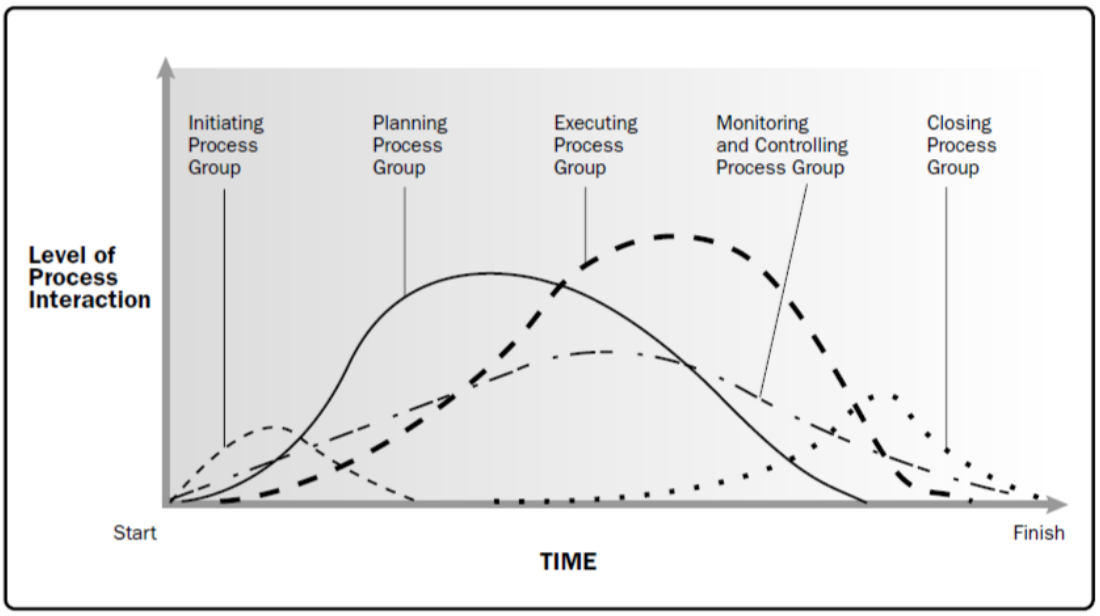

Figure 5: Combination of iterative and linear life cycles (Boyde, 2014).

This FGP will be developed and produce the Project Management Plan for the project to develop and launch cream cheese. The creation of the Project Management Plan will layout the roadmap which is to be followed by the Business Development Team to ensure the success of their project. The Business Development Team will then execute their project according to their six (6) phase process as stated below:

1. PHASE 1: Business Strategy
2. PHASE 2: Product and Process Development
3. PHASE 3: Product Testing
4. PHASE 4: Design Review
5. PHASE 5: Product Launch Preparation
6. PHASE 6: Product Launch

(Rhoden-Gordon, personal communication, May 26, 2021)

In the initiation phase of the FGP, the project will commence after the review, acceptance, and authorization of the project charter by the sponsor. It is at this point that the Project Manager will be given the authority to utilize organizational resources for the generation of the FGP.

2.1.8 Project management processes

The management of a project life cycle is done via the execution of a series of project management activities termed as management processes. Each of these project management processes generates at least one or more than one output from single of multiple inputs using appropriate project management tools and techniques. These outputs can take the form of a project deliverable or project outcome and they link project management processes to each other in a logical manner. This means the output of a process could serve as an input to another management process or are a deliverable of the project itself or the specific project phase (PMI, 2017). For example, the outputs of the Graduation Seminar will be the inputs for the tutoring process in the FGP.

The development of the Project Management Plan for the Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited will only involve the initiating and planning project management process groups. The output for this FGP is the project management plan that integrates and consolidates the subsidiary management plans necessary to manage the project of DIJL.

Specifically, the Project Management Plan will include the following subsidiary plans:

- Scope Management Plan
- Schedule Management Plan
- Cost Management Plan
- Quality Management Plan
- Resource Management Plan
- Communications Management Plan
- Risk Management Plan
- Project Procurement Management Plan
- Stakeholder Engagement Plan

2.1.9 Project management knowledge areas

The discipline of project management is divided into parts by PMI in its publication PMBOK®. These ten parts are called the ten (10) project management knowledge areas. These knowledge areas coincide with the five (5) process groups which in turn are comprised of forty-nine (49) project management processes. **Figure 6** maps the 10 knowledge areas to the 5 process groups (PMI, 2017). All elements of the 10 project management knowledge areas will be used to elaborate this FGP. The rest of this section will provide summaries on each of the 10 knowledge areas.

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 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 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 Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 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 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor 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 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

Figure 6: Project Management Process Group and Knowledge Area Mapping. Reprinted from PMBOK® Guide 6th Edition 2017, p. 25.

2.1.9.1.1 Project Integration Management

“Project Integration Management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups” (PMI, 2017, p. 69). The processes involved in Project Integration Management are outlined below in **Figure 7**.

This knowledge area essentially coordinates the entire project from start to finish, linking together the grey areas between the other nine knowledge areas. It is in this knowledge area where the project charter is developed (process 4.1) which formally authorizes the existence of the Project Management Plan for the Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited project and provides the project manager with the authority to apply organizational resources to project activities (PMI, 2017, p. 70).

In this FGP, the other Project Integration Management process that will be used is 4.2 Develop Project Management Plan that is defined as “the process of defining, preparing, and coordinating all plan components and consolidating them into an integrated project management plan.” (PMI, 2017, p. 70). This is the heart and purpose of the FGP and will be fully elaborated throughout this project. The main benefit of this process is that it produces a comprehensive document (project management plan) that defines what needs to be done and how it is to be done to execute DIJL’s project (**Figure 8**).

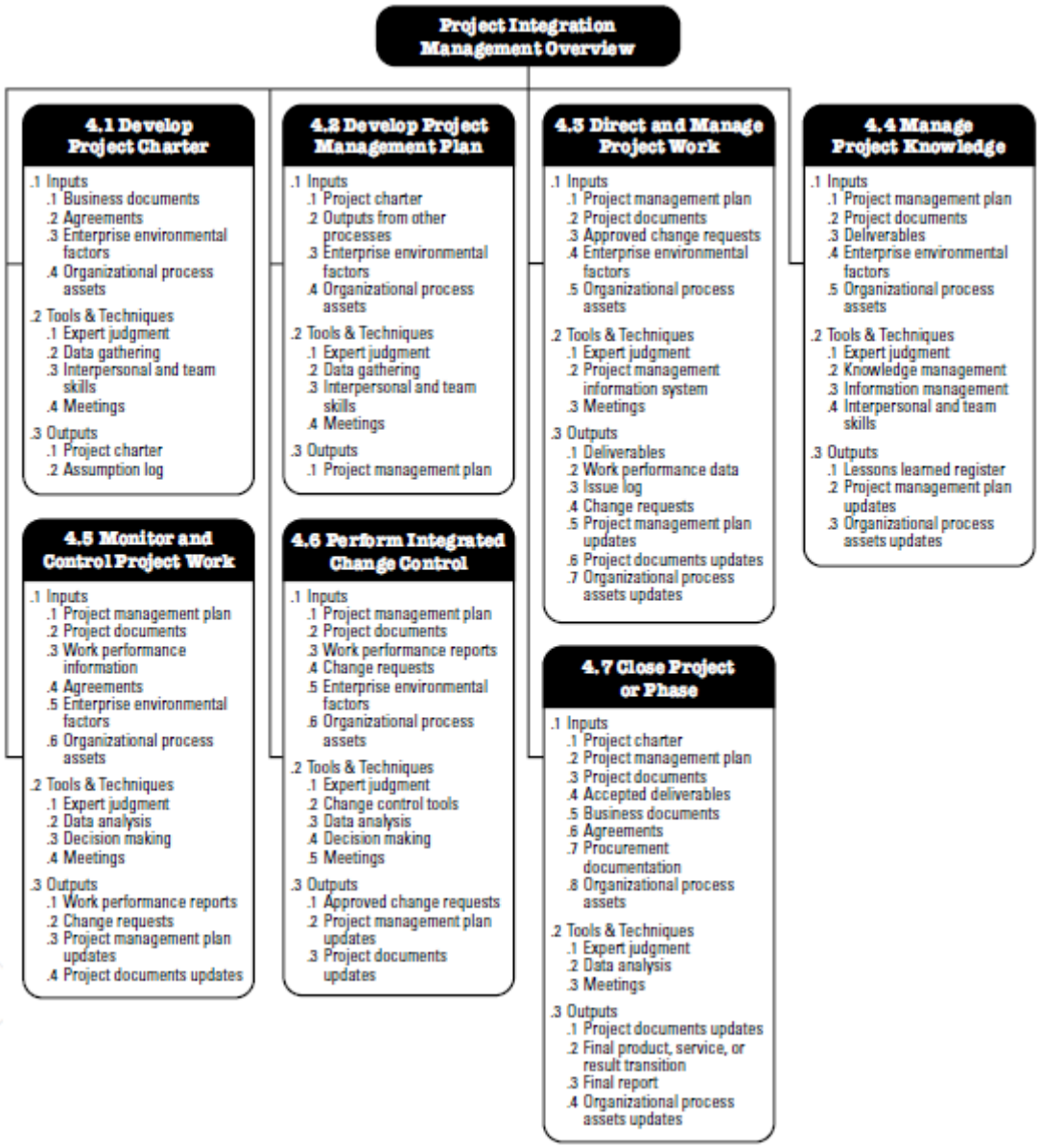

Figure 7: Project Integration Management Overview. Reprinted from PMBOK® Guide 6th Edition 2017, p. 71.

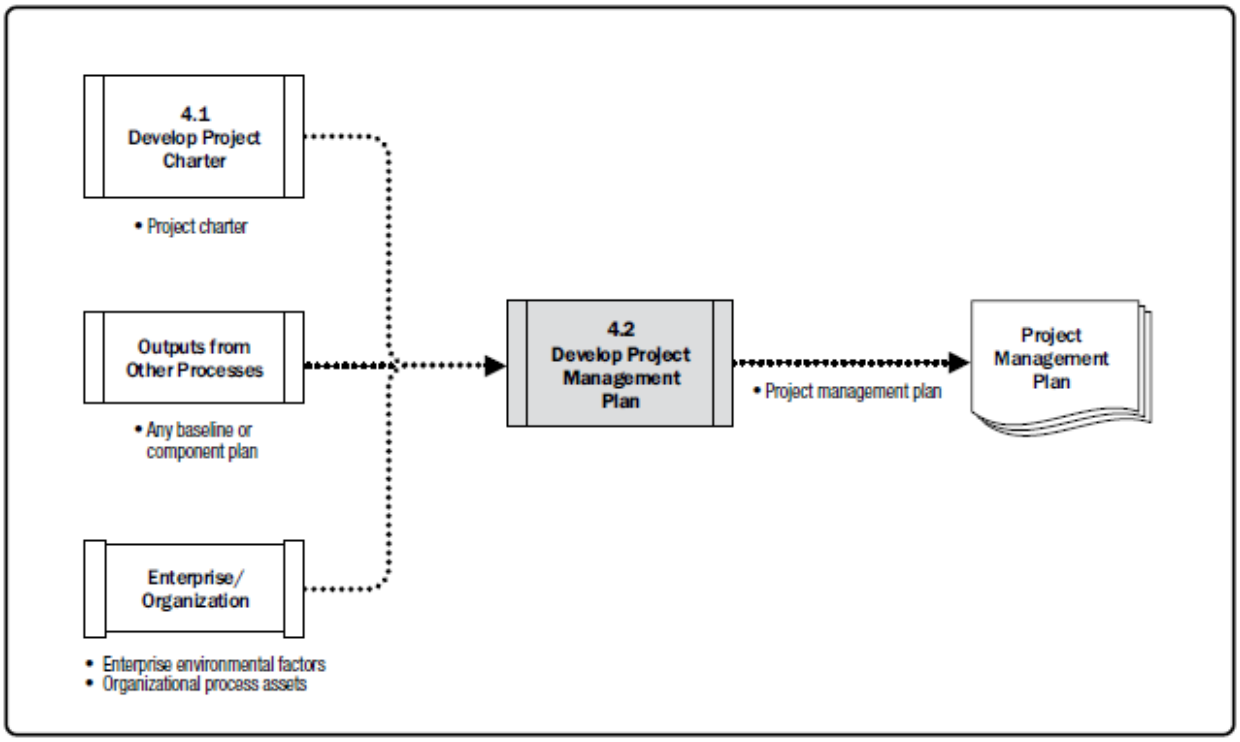

Figure 8: Develop Project Management Plan: Data Flow Diagram. Reprinted from PMBOK® Guide 6th Edition 2017, p. 82.

2.1.9.1.2 Project Scope Management

"Project Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully." (PMI, 2017, p. 129). It consists of five processes (**Figure 9**). Dinsmore (2006) argues that the most critical success factor of any project is comprehensive scope management (Dinsmore, 2006 p. 74). The scope management plan will be formally developed in this FGP using processes 5.1, 5.2, 5.3, and 5.4 and will be guided by the following definitions thereof:

> **"5.1 Plan Scope Management —** The process of creating a scope management plan that documents how the project

and product scope will be defined, validated, and controlled.

5.2 Collect Requirements — The process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives.

5.3 Define Scope — The process of developing a detailed description of the project and product.

5.4 Create WBS — The process of subdividing project deliverables and project work into smaller, more manageable components.” (PMI, 2017, p. 129).

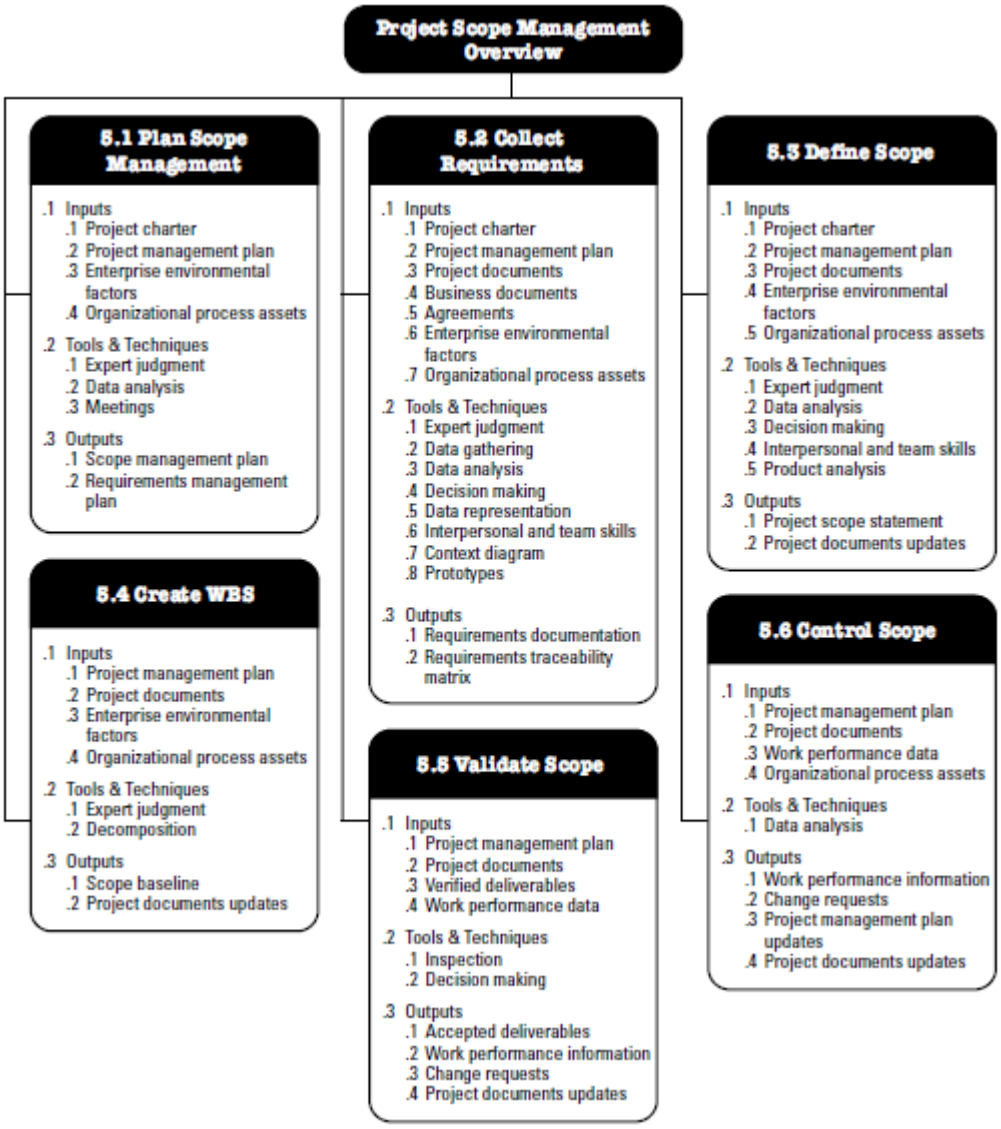

Figure 9: Project Scope Management Overview. Reprinted from PMBOK® Guide 6th Edition 2017, p. 130.

2.1.9.1.3 Project Schedule Management

According to PMBOK® (2017), “Project Schedule Management includes the processes required to manage the timely completion of the project.” (PMI, 2017, p. 173). An overview of this knowledge area is captured in **Figure 10** below. The project schedule for this FGP will give a detailed outline of how and when the FGP will deliver the outcomes or deliverable for the Project Management Plan for the

Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited project.

Processes 6.1 to 6.5 detailed in **Figure 10** will be utilized in the FGP to generate the Schedule Management Plan, Schedule Baseline, Project Schedule, and Project Calendars. Microsoft Project was the software that was used to create the FGP project schedule. The guiding definitions for the schedule management processes are as follows:

> "**6.1 Plan Schedule Management** —The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
> **6.2 Define Activities** —The process of identifying and documenting the specific actions to be performed to produce the project deliverables.
> **6.3 Sequence Activities** —The process of identifying and documenting relationships among the project activities.
> **6.4 Estimate Activity Durations** —The process of estimating the number of work periods needed to complete individual activities with the estimated resources.
> **6.5 Develop Schedule** —The process of analysing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model for project execution and monitoring and controlling." (PMI, 2017, p. 173).

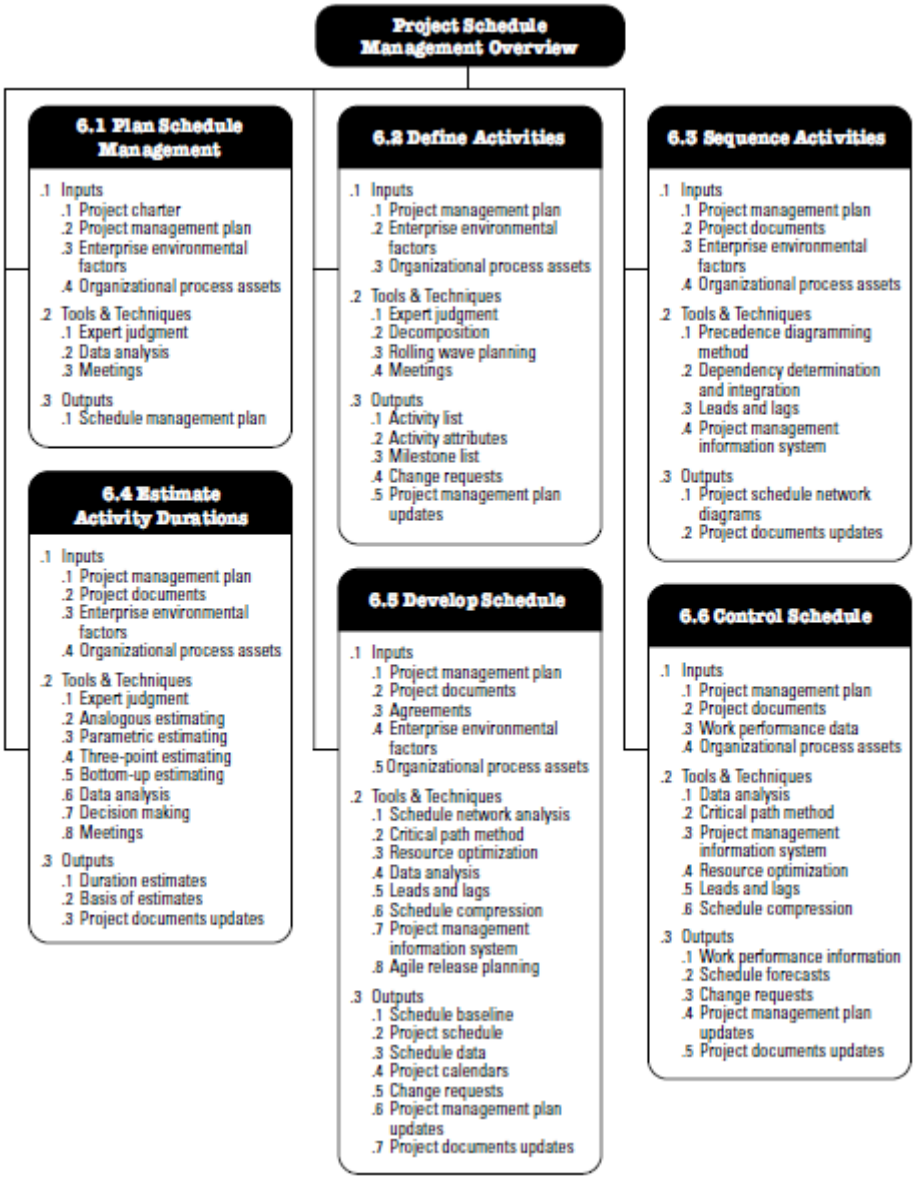

Figure 10: Project Schedule Management Overview. Reprinted from PMBOK® Guide 6th Edition 2017, p. 174.

2.1.9.1.4 Project Cost Management

To complete the FGP within the budgeted cost, all cost related factors must be considered. Project Cost Management is defined as “the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget.” (PMI,

2017, p. 231). **Figure 11** below provides an overview of the Project Cost Management processes applicable to this FGP. Definitions for the applicable Project Cost Management Processes are as follows:

> "**7.1 Plan Cost Management—**The process of defining how the project costs will be estimated, budgeted, managed, monitored, and controlled.
>
> **7.2 Estimate Costs—**The process of developing an approximation of the monetary resources needed to complete project work.
>
> **7.3 Determine Budget—**The process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline." (PMI, 2017, p. 231).

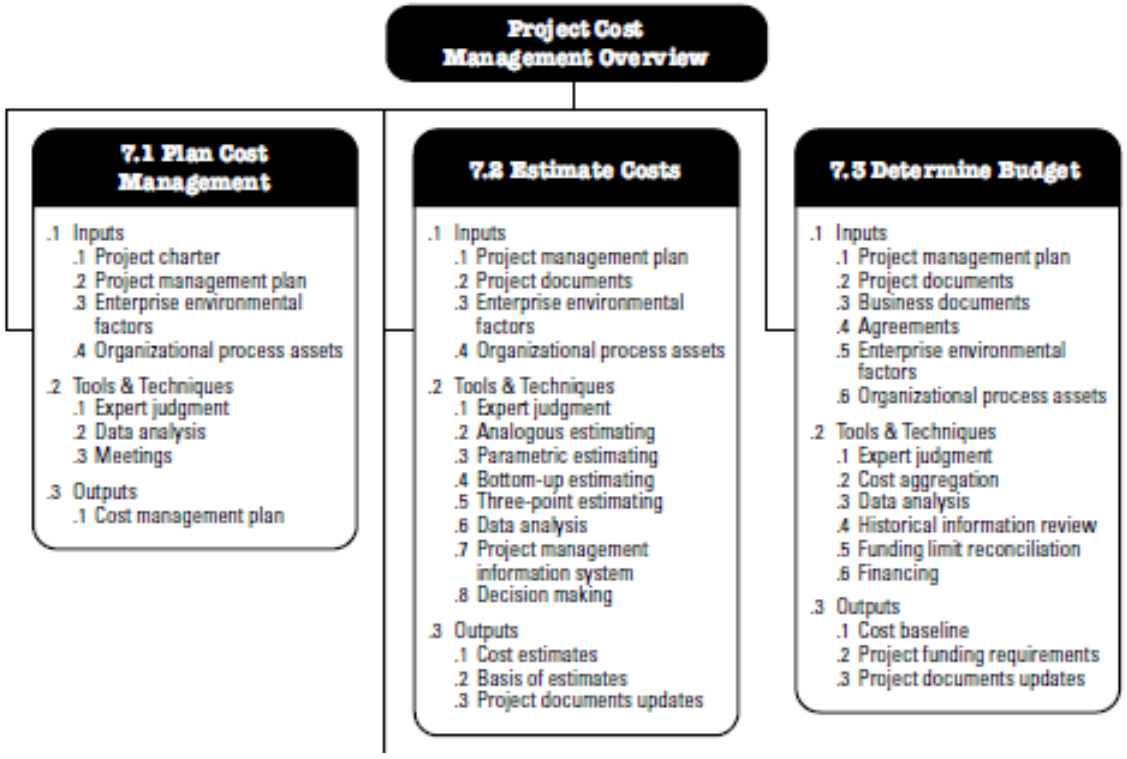

Figure 11: Project Schedule Management Overview. Reprinted from PMBOK® Guide 6th Edition 2017, p. 174.

2.1.9.1.5 Project Quality Management

The Project Quality Management knowledge area “determines the quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken.” (Dinsmore, 2006, p. 8). Specifically, it considers the stakeholders’ objectives when planning, managing, and controlling the project to ensure that requirements of the project and the stakeholders are met (PMI, 2017, p. 271). This knowledge area consists of 3 processes however only the first process – 8.1 Plan Quality Management – will be used in the FGP.

Plan Quality Management is “the process of identifying quality requirements and/or standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements and/or standards.” (PMI, 2017, p. 271). The inputs, tools & techniques, and outputs for this process are captured in **Figure 12**.

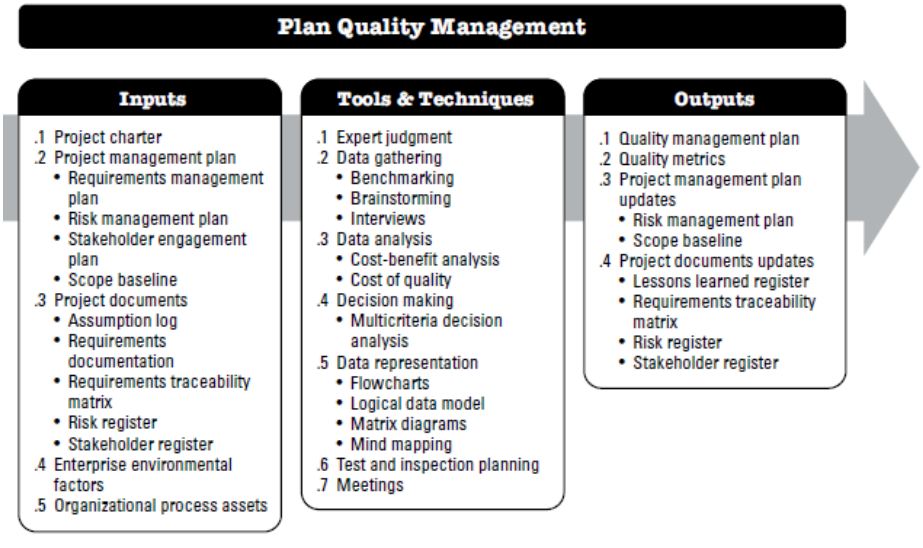

Figure 12: Plan Quality Management: Inputs, Tools & Techniques. Reprinted from PMBOK® Guide 6th Edition 2017, p. 272.

2.1.9.1.6 Project Resource Management

"Project Resource Management includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project." (PMI, 2017, p.307). An overview of this knowledge area is captured in **Figure 13** below. For the FGP only process 9.1 Plan Resource Management will be utilized. Plan Resource Management, according to PMI is "the process of defining how to estimate, acquire, manage, and utilize physical and team resources." (PMI, 2017, p.307).

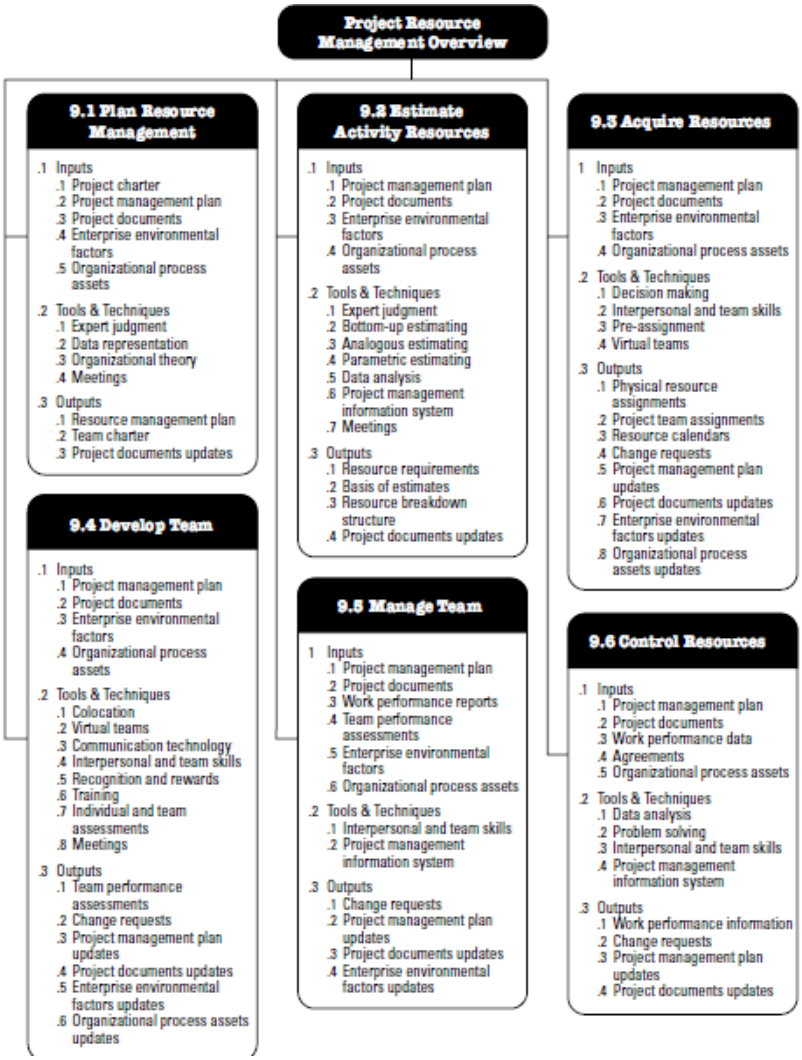

Figure 13: Project Resource Management Overview. Reprinted from PMBOK® Guide 6th Edition 2017, p. 308.

2.1.9.1.7 Project Communications Management

Communication is the intended or unintended exchange of information. In a project communication is a very important tool used to share thoughts, ideas, requirements, and challenges of the project. Dinsmore (2006) in the AMA Handbook of Project Management states that Project Communications Management "includes all the activities that ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information. These include Communications Planning, Information Distribution, Performance Reporting, and Managing Stakeholders." (Dinsmore, 2006, p. 8). Like Project Quality Management, Project Communications Management has only one process that is applicable to the FGP – 10.1 Plan Communications Management (**Figure 15**). As per PMI, Plan Communications Management is the process of developing an appropriate approach and plan for project communication activities based on the information needs of each stakeholder or group, available organizational assets, and the needs of the project." (PMI, 2017, p.360).

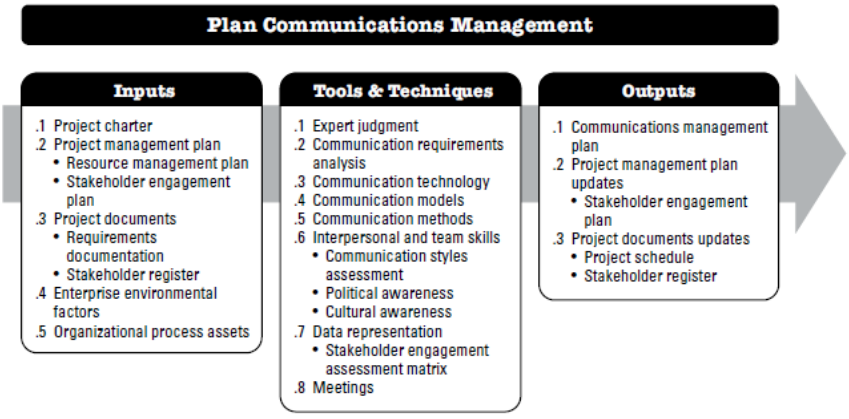

Figure 14: Plan Communications Management: Inputs, Tools & Techniques, and Output. Reprinted from PMBOK® Guide 6th Edition 2017, p. 366.

2.1.9.1.8 Project Risk Management

“Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project. (PMI, 2017, p.395). An overview of this knowledge area is detailed in **Figure 15** below. Processes 11.1 through to 11.5 are applicable to the elaboration of this FGP. Definitions for the applicable Project Risk Management Processes are as follows:

> “**11.1 Plan Risk Management—**The process of defining how to conduct risk management activities for a project.
>
> **11.2 Identify Risks—**The process of identifying individual project risks as well as sources of overall project risk and documenting their characteristics.
>
> **11.3 Perform Qualitative Risk Analysis—**The process of prioritizing individual project risks for further analysis or action by assessing their probability of occurrence and impact as well as other characteristics.
>
> **11.4 Perform Quantitative Risk Analysis—**The process of numerically analysing the combined effect of identified individual project risks and other sources of uncertainty on overall project objectives.
>
> **11.5 Plan Risk Responses—**The process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as to treat individual project risks.” (PMI, 2017, p.395)

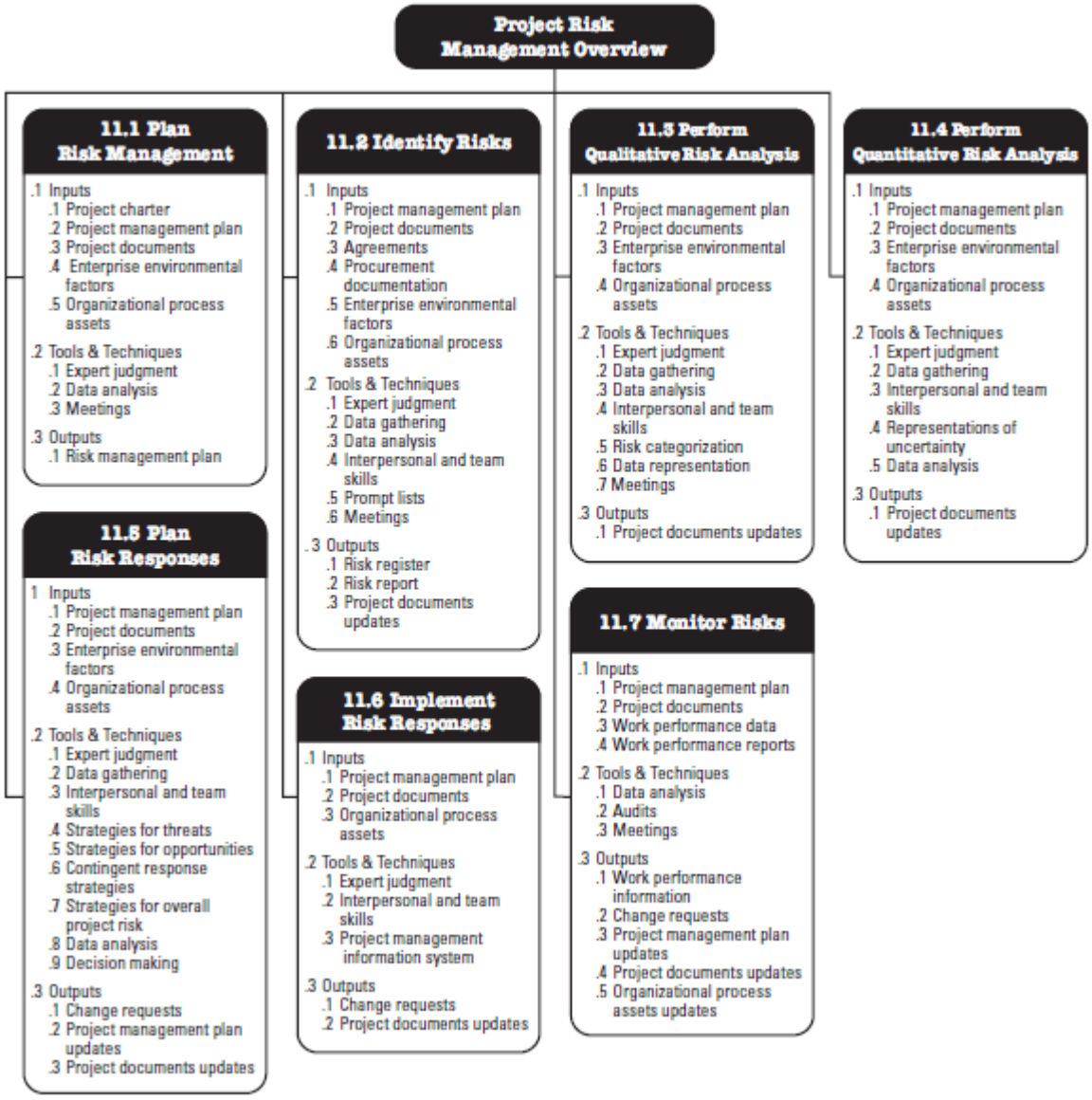

Figure 15: Project Risk Management Overview. Reprinted from PMBOK® Guide 6th Edition 2017, p. 396.

2.1.9.1.9 Project Procurement Management

Project Procurement Management encompasses all the processes involved in the purchase or acquisition of products, services or results that have been identified as being required outside of the organization/ project team to complete the project

work. “Planning for purchases or acquisitions, contracting, requesting seller responses, source selection, and contract administration (including closure) are all part of Procurement Management.” (Dinsmore, 2006, p. 8). This knowledge area consists of 3 processes however only the first process – 12.1 Plan Procurement Management – will be used in the FGP.

“Plan Procurement Management — The process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.” (PMI, 2017, p.459). The overview for this process is captured in **Figure 16**.

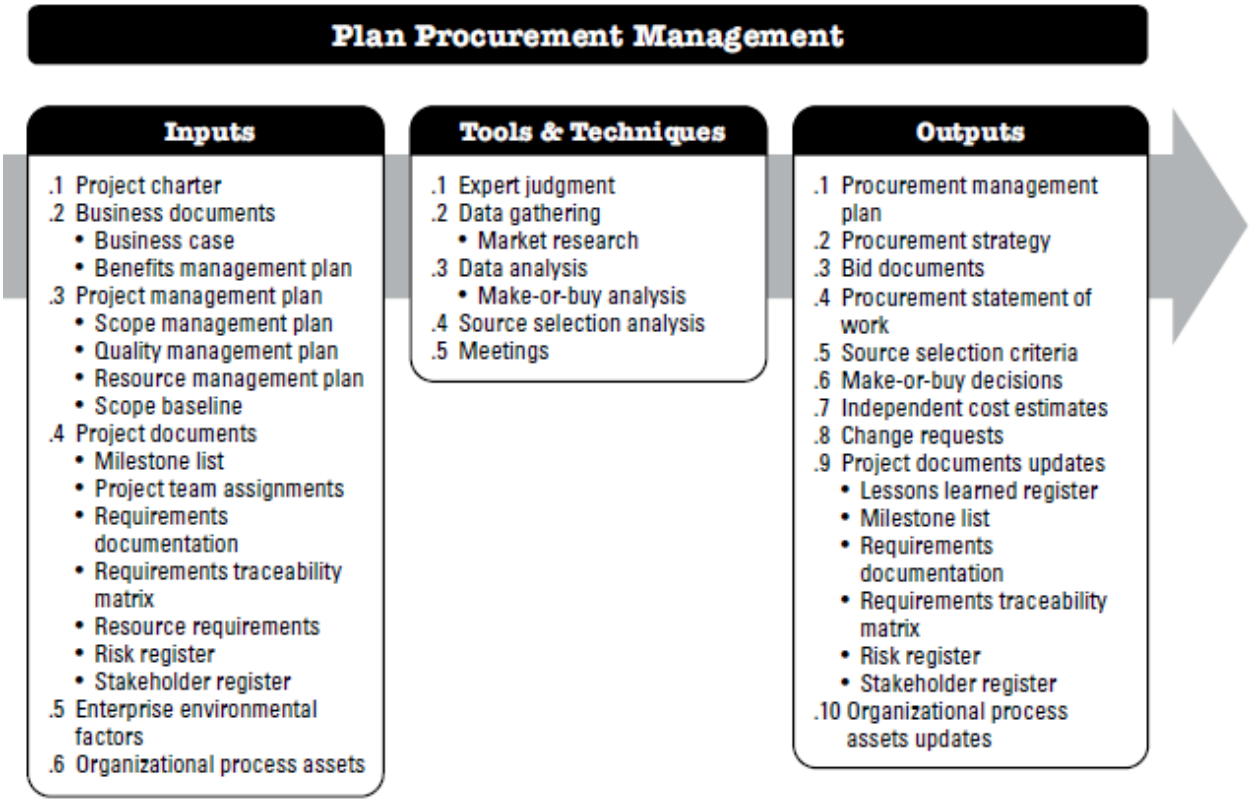

Figure 16: Plan Communications Management: Inputs, Tools & Techniques and Outputs. Reprinted from PMBOK® Guide 6th Edition 2017, p. 46.

2.1.9.1.10 Project Stakeholder Management

PMI defines Project Stakeholder Management as “Project Stakeholder Management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyse stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution.” (PMI, 2017, p.501). **Figure 17** gives an overview for this knowledge area.

Of the four Project Stakeholder Management processes outlined in PMBOK®, Identify Stakeholders (13.1) and Plan Stakeholder Management (13.2) are the only two applicable to Project Management Plan for the Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited project

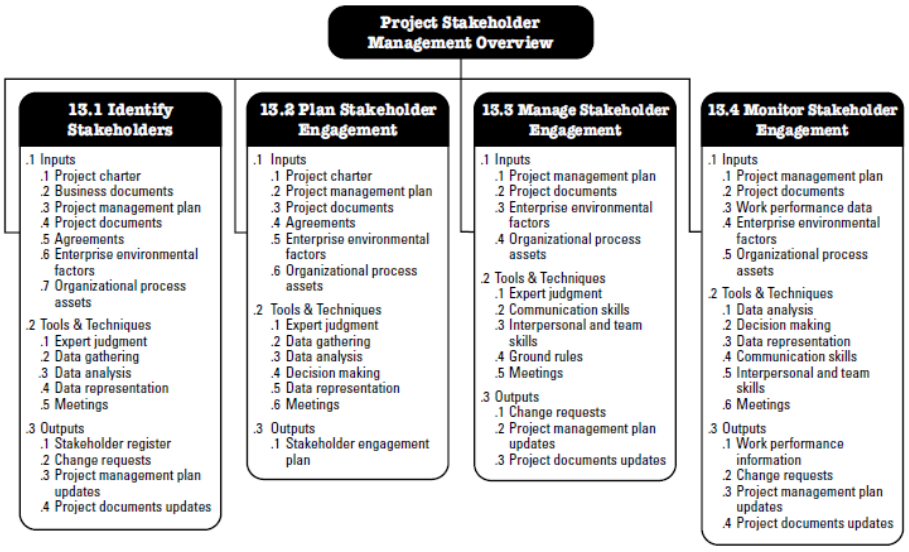

Figure 17: Project Stakeholder Management Overview. Reprinted from PMBOK® Guide 6th Edition 2017, p. 502.

1.8. Other applicable theory/concepts related to the project topic and context

2.1.10 New Product

A product is considered as new when its degree of change for customers is sufficient to require the design or resign of marketing strategy. The product is new to the introducing company even though similar variants may already exist in the marketplace. (Shurti, n.d). Cream cheese would fall into the category of new product line at DIJL as it will allow DIJL to enter the cream cheese market for the very first time.

2.1.11 New Product Development

According to Shurti (n.d), new product development is how the possibility of creating a product is investigated. This includes the decision process for determining the feasibility to create or not create the product as well as if it would be profitable for the company to do so (Shurti, n.d).

3 METHODOLOGICAL FRAMEWORK

1.9. Information sources

The word information is so vast in definition that no one expression truly captures its essence. According to the Collins English Dictionary information can be defined as “1) knowledge acquired through experience or study; 2) knowledge of specific and timely events or situations; news; 3) the act of informing or the condition of being informed; 4) information applies to data that are gathered in any way, as by reading, observation, hearsay, etc.” (Collins English Dictionary, n.d).

From the definitions presented the meaning of information is dependent on the context in which it is used and has relationships with knowledge, data, and communication. Knowledge is a personal form of information which involves the person gaining it via personal experiences and education. Data is unprocessed information and communication involves the codification, transmission and decoding of information (“Overview of Information Sources”, n.d).

Information can be accessed through various channels, but one concept remains constant – the location or avenue from which information is gathered is known as the information source. Information sources can be organized based on their content, the type of information and mode of distribution. From this, two general categories of information sources can be defined – documentary sources and non-documentary sources. Documented sources are those which have been recorded for use/access by future generations. On the other hand, un-documented sources

are those whose information is not recorded in any form. Some examples of information sources include but are not limited to television, radio, publications, research, books, internet, magazines, humans, and newspaper (“Overview of Information Sources”, n.d).

There are three fundamental categories of information sources know as primary sources, secondary sources, and tertiary sources (“Overview of Information Sources”, n.d). In this FGP, only primary and secondary sources of information will be considered.

3.1.1 Primary sources

“Primary sources are those sources which contain original information that has been published, reported or recorded for the first time.” (“Overview of Information Sources”, n.d).

The FGP will be developed using the following primary information sources: personal interviews with team members of DIJL and other stakeholders relevant to the sponsor’s project, minutes from meetings related to the development and launch of cream cheese. **Chart 1** details the specific primary information source that will be used in this FGP.

3.1.2 Secondary sources

“Secondary sources of information are mostly dependent upon primary sources of information for their existence. They usually present the contents of primary documents in condensed form or list them in a helpful way so that existence of primary documents is known and access to them is made easy.” (“Overview of Information Sources”, n.d).

For the elaboration of this FGP, the PMBOK® Guide, PMI database and other reputable library databases will be used as secondary sources. **Chart 1** details the specific secondary information source that will be used in this FGP.

Chart 1: Information sources (Source: T. Patterson, The Author, June 2021)

Objectives	**Information sources**	
	Primary	**Secondary**
To create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan.	Meeting minutes, personal interview with lead project manager (expert)	PMBOK® Guide, and PMI database.
To create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured.	Meeting minutes, personal interview with lead project manager (expert)	PMBOK® Guide, PMI database, and the internet

Chart 1: Information sources (Source: T. Patterson, The Author, June 2021)

Cont'd

Objectives	Information sources	
	Primary	**Secondary**
To create a schedule management plan to ensure timely completion of the project.	Personal interview with lead project manager (expert)	PMBOK® Guide, and the internet
To create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget.	Meeting minutes, personal interview with lead project manager (expert)	PMBOK® Guide, and PMI database
To create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives.	Meeting minutes, personal interview with lead project manager (expert)	PMBOK® Guide, PMI database, and the internet
To create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project.	Personal interview with lead project manager (expert)	PMBOK® Guide, PMI database, and the internet
To create a project communications management plan to ensure that the information requirements of the project and associated stakeholders are timely and effectively met.	Personal interview with lead project manager (expert)	PMBOK® Guide, PMI database, and the internet

Chart 1: Information sources (Source: T. Patterson, The Author, June 2021)

Cont'd

Objectives	Information sources	
	Primary	**Secondary**
To create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to optimize the chances of project success.	Personal interview with lead project manager (expert)	PMBOK® Guide, PMI database, and the internet
To create a project procurement management to manage the purchase or acquisition of resources outside of the project team.	Purchasing institutions, personal interviews with lead project manager (expert)	PMBOK® Guide, PMI database, and the internet
To create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed.	Personal interview with lead project manager (expert)	PMBOK® Guide, PMI database, and the internet

1.10. Research methods

According to C. Crawford in Singh (2006), "Research is simply a systematic and refined technique of thinking, employing specialised tools, instruments, and procedures to obtain a more adequate solution of a problem than would be

possible under ordinary means. It starts with a problem, collects data or facts, analysis these critically and reaches decisions based on the actual evidence. It evolves original work instead of mere exercise of personal. It evolves from a genuine desire to know rather than a desire to prove something. It is quantitative, seeking to know not only what but how much, and measurement is therefore, a central feature of it." (Singh, 2006, p. 1)

"Method is defined as orderliness and regularly or habitual practice of them in action" (Singh, 2006, p. 80). Therefore, research methodology is the use of systematic procedures by a researcher from the identification of the research problem to its final conclusion (Singh, 2006, p. 79). For the development of the FGP, an analytical research method will be utilized.

3.1.3 Analytical method

The analytical research method is "a type of qualitative inquiry which draws from the disciplines of philosophy (the meaning of concepts), history, and biography." Additionally, analytical research offers a description and interpretation of recent activities or the past from selected sources (McMillian, 1997, p. 464). It is with this research method the FGP will be elaborated from the examination of information from multiple trusted sources to prepare the deliverables listed in chart 5. **Chart 2** below indicates the research method that will be used for the specific objectives.

Chart 2: Research methods (Source: T. Patterson, The Author, June 2021)

Objectives	**Research methods**
	Analytical Research Method
To create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 1 above, to drive decision making when creating the project charter.
To create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 2 above, to drive decision making when creating the documents that will comprise the project scope management plan.
To create a schedule management plan to ensure timely completion of the project.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 3 above, to drive decision making when creating the documents that will comprise the project schedule management plan.
To create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 4 above, to drive decision making when creating the documents that will comprise the project cost management plan.

Chart 2: Research methods (Source: T. Patterson, The Author, June 2021)

Cont'd

Objectives	**Research methods**
	Analytical Research Method
To create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 5 above, to drive decision making when creating the documents that will comprise the project quality management plan.
To create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 6 above, to drive decision making when creating the documents that will comprise the project resource management plan.
To create a project communications management plan to ensure that the information requirements of the project and associated stakeholders are timely and effectively met.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 7 above, to drive decision making when creating the documents that will comprise the project communications plan.
To create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 8 above, to drive decision making when

optimize the chances of project success.	creating the documents that will comprise the project risk management plan.

Chart 2: Research methods (Source: T. Patterson, The Author, June 2021)

Cont'd

Objectives	**Research methods**
	Analytical Research Method
To create a project procurement management to manage the purchase or acquisition of resources outside of the project team.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 9 above, to drive decision making when creating the documents that will comprise the project procurement management plan.
To create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed.	The analytical method will be employed by using facts or information from the sources identified in **Chart 1** objective 10 above, to drive decision making when creating the documents that will comprise the project stakeholder management plan.

1.11. Tools

According to the PMBOK® Guide, a tool is defined as "something tangible, such as a template or software program, used in performing an activity to produce a product or result" (PMI, 2017, p. 724).

Each tool used in the elaboration of this Final Graduation Project is identified and explained below. In addition, the information is summarized in **Chart 3**.

I. Project charter template - guides the development of the project charter.

II. Requirements traceability matrix template - ensures that project requirements are necessary and will be met.

III. Work Breakdown Structure (WBS) online generator - breaks down the project into smaller components so it can be more easily managed.

IV. Requirements Management Plan template – describes how the requirements will be analysed, documented, and managed.

V. Requirements documentation template - captures the requirements documentation.

VI. Scope Management Plan template - guides the development of the scope management plan and all its subcomponents.

VII. Project Management Plan template - guides the development and organization of the project management plan and all its subcomponents.

VIII. Schedule Management Plan template - guides the development of the project management plan and all its subcomponents.

IX. Scheduling tool – developed in Microsoft Project 2016 to create the Project Schedule using Schedule network analysis.

X. Activity List template – captures the list of activities for the project.

XI. Cost Management Plan template – develops the cost management plan that will guide the project team during the project’s lifecycle.

XII. Project Budgeting template – created in Microsoft Excel for Microsoft 365, develops the project budget, and track financial transactions throughout the project's lifecycle.

XIII. Cost Baseline template – outlines the development of the cost baseline.

XIV. Quality Management Plan template – outlines the development of the Quality Management Plan.

XV. Quality Management tools – examples include cause-and-effect diagrams, flowcharts, check sheets and control charts to be used throughout the project. The use of these tools will be outlined in the Quality Management plan.

XVI. Resource Management Plan template – guides the planning of resource management.

XVII. Responsibility Assignment Matrix – identifies team members and assigns them responsibilities.

XVIII. Communications Management Plan template – guides the development of the communications management plan.

XIX. Communication Matrix – created in Microsoft Excel for Microsoft 365, plans communications between project team and stakeholder management.

XX. Risk Management Plan and Risk Register template – developed in Microsoft Excel for Microsoft 365, identifies, and classifies risks, and plans risk responses.

XXI. Procurement Management Plan template – aids in identification of contracts and purchasing decisions.

XXII. Stakeholder Management Plan template – aids in identification and classification of stakeholders and plans stakeholder management.

XXIII. Stakeholder Analysis Chart – aids in analysis and classification of project stakeholders.

XXIV. Stakeholder Register template – aids in identification of project stakeholders.

XXV. Stakeholder Engagement Assessment Matrix – details how each project stakeholder should be engaged based on their level of involvement in the project.

Chart 3: Tools (Source: T. Patterson, The Author, June 2021)

Objectives	**Tools**
To create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan.	Project Charter template and Project Management Plan template
To create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured.	Requirements traceability matrix template, Microsoft Visio Professional 2016, Requirements Documentation template, Project Requirements Management Plan template, Work Breakdown Structure generator, and

	Project Scope Management Plan template
To create a schedule management plan to ensure timely completion of the project.	Project Schedule Management Plan template, Microsoft Project 2016, Microsoft Visio Professional 2016, and Activity List template

Chart 3: Tools (Source: T. Patterson, The Author, June 2021) Cont'd

Objectives	**Tools**
To create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget.	Project Cost Management Plan template, Microsoft Excel for Microsoft 365 Project Budgeting template, and Cost Baseline template
To create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives.	Project Quality Management Plan template and Quality Management tools (check sheets)
To create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project.	Project Resource Management template and Responsibility Assignment Matrix
To create a project communications management plan to ensure that the information requirements of the project and associated stakeholders are timely and effectively met.	Project Communications Management Plan template and Communications Matrix

To create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to optimize the chances of project success.	Project Risk Management Plan template, and Risk Register template

Chart 3: Tools (Source: T. Patterson, The Author, June 2021) Cont'd

Objectives	**Tools**
To create a project procurement management to manage the purchase or acquisition of resources outside of the project team.	Project Procurement Management Plan template
To create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed.	Project Stakeholder Management Plan template, Stakeholder Analysis Chart, Microsoft Excel for Microsoft 365, Stakeholder Register template, Stakeholder Engagement Assessment Matrix, Mindtools Online Stakeholder Power/Interest Grid Creator

1.12. Assumptions and constraints

"An assumption is a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration." (PMI, 2017, p. 699). PMI (2017) also defines a constraint as "limiting factor that affects the execution of a project, program, portfolio, or process." (PMI, 2017, p. 701). As required for the FGP, the assumptions and constraints considered for each project objective is detailed in Chart 4 below.

Chart 4: Assumptions and constraints (Source: T. Patterson, The Author, June 2021) Cont'd

Objectives	Assumptions	Constraints
To create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan.	The charter will be created before all other subsidiary documents.	There are only six (6) days allocated to create the project charter. Also, stakeholder identification is scheduled to occur at the same time as the development of the project charter.
To create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured.	The clients have disclosed all the information required to develop the scope. The scope management plan will identify all the work required.	The scope may change as the project progresses.

To create a schedule management plan to ensure timely completion of the project.	The time allocated for the development of the Project Management Plan.	The time allocated for the development of the FGP must not exceed 3 months.
To create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget.	The budget created during planning will accurately depict the financial resources required.	Not enough time and resources available to complete a detailed budget.

Chart 4: Assumptions and constraints (Source: T. Patterson, The Author, June 2021) Cont'd

Objectives	Assumptions	Constraints
To create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives.	The quality management plan will identify all the technical and managerial quality requirements of the project.	Stakeholders' requirements may change as well as their level of interest.
To create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project.	All resources required for the execution of the project will be properly identified and made available.	Some of the resources may not be readily available due to being shared with other projects.
To create a project communications management plan to ensure that the information requirements of the project and associated	The organization has the technology required to suffice the communication needs of all stakeholders.	The availability of electricity and consistency of internet access must be dependable.

stakeholders are timely and effectively met.		
To create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to optimize the chances of project success.	There is sufficient information required to adequately identify most, if not all, project risks.	All the project risks need to be identified within the planning phase (stage) or as early as possible.

Chart 4: Assumptions and constraints (Source: T. Patterson, The Author, June 2021) Cont'd

Objectives	Assumptions	Constraints
To create a project procurement management to manage the purchase or acquisition of resources outside of the project team.	All suppliers to be used are compliant with company and regulatory requirements.	Unexpected delays in lead times of international suppliers due to supply disruptions
To create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed.	The stakeholder management plan will include a complete list of all stakeholders involved and a plan as to how to properly manage each.	Stakeholder requirements and level of interest may change during the project

1.13. Deliverables

A project deliverable “is any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project.” (PMI, 2017, p. 704).

Chart 5: Deliverables (Source: T. Patterson, The Author, June 2021) Cont’d

Objectives	Deliverables
To create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan.	Project Charter
To create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured.	Scope Management Plan, Requirements Management Plan, Requirements Document and Requirements Traceability Matrix
To create a schedule management plan to ensure timely completion of the project.	Schedule Management Plan, Activity List, Schedule Network Diagram, Resource assignments and activity durations, and Schedule in Gantt chart
To create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget.	Cost Management Plan, Cost Baseline and Project Funding Requirements

Chart 5: Deliverables (Source: T. Patterson, The Author, June 2021) Cont'd

Objectives	Deliverables
To create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives.	Quality Management Plan
To create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project.	Resource Management Plan
To create a project communications management plan to ensure that the information requirements of the project and associated stakeholders are timely and effectively met.	Communication Management Plan and Communications Matrix
To create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to optimize the chances of project success.	Risk Management Plan and Risk Register
To create a project procurement management to manage the purchase or acquisition of resources outside of the project team.	Procurement Management Plan
To create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which	Stakeholder Management Plan, Stakeholder Analysis Chart, and Stakeholder Register

appropriate management strategies can be developed.	

4 RESULTS

Introduction

This section of the Final Graduation Project (FGP) presents the subsidiary project management plans which comprise the project management plan which is the main aim of this FGP. The following plans were developed using pre-existing files and documentation at DIJL as well PMBOK® as the primary guide: Project Integration Management Plan, Project Scope Management Plan, Project Requirements Management Plan, Project Schedule Management Plan, Project Cost Management Plan, Project Quality Management Plan, Project Resource Management Plan, Project Communications Management Plan, Project Risk Management Plan, Project Procurement Management Plan and Project Stakeholder Management Plan. Other support project management documents will be prepared using PMBOK® and suitable templates identified on the internet.

Data gathering sessions were held with the project manager and other key stakeholders to capture the required information for the various plans and documents. The objectives of this FGP were used to compartmentalize this section into ten (10) sections for ease of communication and comprehension. Additional details are provided in each subsection to support each subsidiary plan.

4.1. Project Integration Management Plan

Development of the Project Management Plan for the Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited begins with the elaboration of a Project Charter which is the aim of specific objective number one (1). This Project Charter comprises the first process in the Project Management Knowledge Area known as Project Integration Management. This process involves the creation a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan.

To ensure that all the relevant information was captured in a Project Charter template and Project Management Plan template from the PMI database were consulted to develop the Project Charter of this FGP in accordance with the PMBOK® Guide 2017 issue.

The Project Charter contains vital information to the authorization of the project and consists of the following: project purpose, measurable project objectives and related success criteria, high-level requirements, assumptions and constraints, key deliverables, overall project risks, a summary milestone schedule, project budget, stakeholder list, criteria necessary for project approval, the identification of the Project Manager, and the sponsor's authorization of the Project Charter (PMI, 2017, p. 81).

The Project Integration Management Plan continues with details on the Project Management Plan, direction and management of project work, management of project knowledge, monitoring and control of project work, integrated change control, and closure of project or phase. These are discussed after the presentation of the Project Charter below.

PROJECT CHARTER

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Project Purpose

To develop a cream cheese product, acidified by mesophilic lactic acid starter culture, suitable for the Jamaican consumer market, processed on the present Cultured Product line with a minor adaption, of a volume to increase production by 30%.

Project Justification

The Dairy Industries Jamaica Limited (DIJL) is desirous of diversifying the product offerings in the Cultured Products Department at its food processing facility to create a greater brand presence. One of the newest products on the horizon for DIJL is cream cheese. DIJL intends to capture a portion of the market share by creating Jamaica's first locally produced cream cheese. By introducing this new product DIJL seeks to spread the existing business risk and ensure business continuity.

Measurable Project Objectives and Success Criteria

Objectives

In developing a cream cheese product for the Jamaican consumer market, four specific objectives were:

a) To conduct product, processing, and marketing research on the new product development (NPD) process for cream cheese.
b) To integrate consumer research in the NPD process for cream cheese.
c) To develop an acceptable cream cheese product for the Jamaican market by December 2022.
d) To increase overall production volume across all processing lines by launching a cream cheese product.

Success Criteria

The result of the development of the new cream cheese product at DIJL will be considered successful when:

a) The newly formulated product is accepted by the target market for cream cheese within the dairy products sector.
b) The cream cheese production scale trial runs do not exceed three trails before the commercial run.
c) There is an overall increase in profit attributable to the sale of cream cheese at the end of fiscal year 2022.

High Level Requirements

DIJL is well known for its Tastee processed canned cheese which is loved by all Jamaicans locally and in the Diaspora. Due to this the company is currently in the maturation stage of the company life cycle and therefore the introduction of new products will bring renewed attention to the household known brand. The cream cheese product must gain higher visibility of DIJL dairy products in the local market by tapping further into the spreadable cheese niche which is currently saturated by imported products. This new product should be carefully formulated to suit the pallet of the average Jamaican consumer to ensure market acceptance and repeat purchases.

High Level Project Description

DIJL is a dairy food manufacturer in Jamaica which is known for its unique dairy products. DIJL has an active Business Development Department

which manages and executes the development of new products. One of the new products currently in the pipeline for launch is cream cheese. This product is classically new to the business and will enable the company to tap into new niches within the local market and eventually the regional market.

This dairy product was selected since there is no locally produced variety of soft, mild flavoured cheese that is spreadable and can be used as an ingredient in a variety of meals and desserts for example cheesecake (Phadungath, 2005.)

Constraints

The expenses arising from the execution of this project should not exceed three hundred thousand ($300,000.00) USD. The duration of the project should not exceed twenty (20) months. Where seventeen (17) months are dedicated to the research and development of the cream cheese and the remaining three (3) months are dedicated production scale up and launching of the cream cheese.

Assumptions

Finances:

It is assumed that the client possesses the necessary capital to execute the project without disrupting the usual operations operational expenses.

Labour

It is assumed that the requisite competence and quantity of skilled labourers are available in-house for the execution of the project successfully.

Equipment

It is assumed that all equipment required in the development and production of cream cheese is available in-house.

Project Schedule

It is assumed that twenty (20) months are sufficient to complete all project deliverables on time.

Budget

It is assumed that a sum of three hundred thousand ($300,000.00) USD can complete the project and its deliverables.

Project Planning

It is assumed that ingredient/packaging material permits will be approved as per schedule for successful project completion.

Preliminary Scope

This project involves the new product development and launch of a cream cheese that will be accepted by the intended market. This includes:

- Business Strategy – see scope management plan for specifications
- Product and Process Development - see scope management plan for specifications
- Product Testing - see scope management plan for specifications
- Design Review - see scope management plan for specifications
- Product Launch Preparation - see scope management plan for specifications
- Product Launch - see scope management plan for specifications

Key Deliverables

Project deliverables for the development of cream cheese by DIJL include

- Project charter
- Packaging requirements
- Product formulation
- Ingredient list
- Packaging material list
- Benchtop trials
- Preliminary customer evaluation
- Scale-up production trial
- Consumer panel evaluation report
- Shelf-life evaluation report
- Sensory evaluation
- Nutritional analysis

- HACCP study
- Product cost
- Validation study of prototype, package, process, and equipment
- Approved artwork for packaging materials
- Marketing/launch plan
- Value proposition
- Raw material, product, and package specifications
- Documentation of procedures, work instructions, and monitoring forms
- Training of key personnel in procedures, work instructions, and monitoring forms
- Pre-launch documentation

Overall Project Risks

The risks identified associated with this project include:

- **Financial**
  - The increase in the cost of raw materials and packaging materials after the finalization of product costing which may lead to budget overruns.
  - Underestimation of costs associated with the project.

- **Health**
  - Project completion can be delayed if any of the key employees involved in the project contract the Covid-19 virus and require extended absence from work or hospitalization.

- **Regulatory**
  - Delays in or refusal of permit application for raw materials/packaging materials may lead to delays in project schedule.

- **Scheduling**
  - Shipping delays due to ongoing Covid-19 pandemic may pose a threat to the timely completion of the project.

- **Quality**
  - Raw materials are of inferior quality.

- **Stakeholder**
  - Customer/consumer rejection of formulated product

Summary Milestone Schedule

Chart 6: Summary Milestone Schedule (Source: T. Patterson, The Author, October 2021)

Milestone	Start	Finish
Determine and quantify market	1-Apr-21	28-May-21
Investigate legal and regulatory requirements for market	31-May-21	29-Jul-21
Determine packaging requirements	31-May-21	18-Jun-21
Conduct feasibility study	31-May-21	29-Sep-21
Present feasibility study to NPD Committee	30-Sep-21	30-Sep-21
Develop project charter	1-Oct-21	8-Oct-21
Conduct business analysis	11-Oct-21	14-Oct-21
Approval of project charter	15-Oct-21	15-Oct-21
Develop formulation	18-Oct-21	10-Dec-21
Identify/contact suppliers and source material	13-Dec-21	14-Jan-22
Conduct benchtop trials	13-Dec-21	21-Jan-22
Preliminary consumer evaluation	24-Jan-22	18-Feb-22
Design and Development Verification	21-Feb-22	25-Feb-22
Scale-up production trial	28-Feb-22	25-Mar-22
Consumer Panel Exercise	28-Mar-22	22-Apr-22
Conduct shelf life & stability studies	28-Mar-22	29-Apr-22

Chart 6: Summary Milestone Schedule (Source: T. Patterson, The Author, October 2021) Cont'd

Milestone	Start	Finish
Conduct sensory evaluation	28-Mar-22	22-Apr-22
Complete HACCP study	28-Mar-22	29-Apr-22
Complete nutritional analysis	2-May-22	13-May-22
Development of packaging and raw material specification	2-May-22	13-May-22
Review cost and price targets	2-May-22	13-May-22
Validate prototype, package, and equipment	16-May-22	27-May-22
Finalize ingredient statement, nutritional analysis, and product claim	16-May-22	27-May-22
Packaging design	20-Jun-22	8-Jul-22
Artwork development	20-Jun-22	8-Jul-22
Regulatory approval of artwork	11-Jul-22	22-Jul-22
Confirmation of artwork with printers	25-Jul-22	5-Aug-22
Develop Marketing/ Launch Plan	8-Aug-22	19-Aug-22
Apply for ingredient permit	8-Aug-22	19-Aug-22
Procure and receive packaging and raw material for production run	22-Aug-22	23-Sep-22
Complete Bill of Materials (BOM) for SAP	22-Aug-22	2-Sep-22
Document all procedures, work instructions, and forms	12-Sep-22	2-Sep-22
Conduct training of relevant staff in procedures, work instructions, and forms	5-Sep-22	16-Sep-22
Document all raw material, product, and packaging specifications	5-Sep-22	16-Sep-22
Pre-commercial run	26-Sep-22	7-Oct-22

Chart 6: Summary Milestone Schedule (Source: T. Patterson, The Author, October 2021) Cont'd

Milestone	Start	Finish
Finalize process flow, line layout, product yields and labour model	10-Oct-22	21-Oct-22
Scale-up production	24-Oct-22	11-Nov-22
Complete pre-launch documentation	14-Nov-22	14-Nov-22
Product Presentation to PD Committee, Board and DIJL Staff	15-Nov-22	18-Nov-22
Product Presentation to Distributors & Key Consumer Groups	21-Nov-22	1-Dec-22
Develop marketing campaign artefacts	2-Dec-22	8-Dec-22
Hand-over marketing campaign artefacts	9-Dec-22	9-Dec-22
First commercial run	12-Dec-22	13-Dec-22
Execute first sale to distributor	14-Dec-22	15-Dec-22
Execute marketing plan and roll out media campaign	16-Dec-22	22-Dec-22
Launch to customers	23-Dec-22	23-Dec-22

Project Budget

Chart 7: Project Budget (Source: T. Patterson, The Author, October 2021)

Items	**Project Cost ($ USD)**
Administration and Project Management Operations	65,000.00
Material Cost	235,000.00
Contingency (4%)	12,000.00
Total	**300,000.00**

Stakeholder List

The stakeholders identified for this project is comprised of the following list of groups, entities, and individuals:

- Dairy Industries Jamaica Limited (Sponsor & Owner)
  - General Manager
  - Board of Directors

- New Product Development (NPD) Committee / Project Team
  - Project Manager (Business Development Manager)
  - Assistant Project Manager
  - Senior Technical Officer
  - Operations Manager
  - Marketing Manager

- Quality Assurance Manager
- Plant Engineer
- Purchasing Manager

➢ Internal Service Providers

- Warehouse Manager
- Office Administrator
- Product Development Officer
- Microbiologist
- Purchasing Officer
- Quality Officer
- Marketing Coordinator
- Maintenance Technician
- Product Development Specialist

➢ Regulators

- Ministry of Health and Wellness
- Bureau of Standards Jamaica

➢ General Consumers

Project Approval Requirements

The project will be considered approved when a cream cheese product is formulated that satisfies the intended customers and is delivered by December 23, 2022.

Project Manager Assigned and Authority Level

The project manager assigned to this project is Karis-Ann Rhoden Gordon who is the manager for the Business Development Department. She is also a senior manager and has the authority to make final decisions regarding the scope, schedule, and budget of the project alongside the General Manager and the Finance Manager. In her absence, Ms. Terri-Lee Patterson will act on her behalf.

Authorization

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

Project Management Plan

The second process in the Project Integration Management Knowledge Area was the development of a Project Management Plan which is a compilation of ten (10) subsidiary plans developed over the duration of the Final Graduation Project. Like the Project Charter, templates from the PMI database and other internet sources were used as a guide in the development of the Project Management Plan. In addition to the Integration Management Plan, the Project Management Plan consists of the Scope Management Plan, Schedule Management Plan, Schedule Management Plan, Cost Management Plan, Quality Management Plan, Resource Management Plan, Communications Management Plan, Risk Management Plan, Procurement Management Plan, and Stakeholder Management Plan. The subsidiary management plans were gradually updated as each new plan was written to ensure project integration.

The Project Management Plan covers the activities of different departments and department heads at DIJL which are guided by their individual policies and procedures. This Project Integration Management Plan identifies, harmonizes, and coordinates the alternate arrangements specific to the project to develop the cream cheese product to meet the various stakeholders' requirements.

Direct and Manage Project Work

A project management team is assigned and is led by the Project Manager Karis-Ann Rhoden-Gordon. The roles and responsibilities of the key

stakeholders are defined in each subsidiary plan. **Chart 17** decomposes the involvement of the various stakeholders to the activity/work package level. Additionally, the RACI Chart (**Chart 28**) highlights the linkage between project team members and project tasks. The Project Team is mainly responsible for the completion of their project tasks which should be done according to schedule and the approved budget.

Any challenges or contradictions amongst the Project Team is managed by the Project Manager who will apply the appropriate soft skills to resolve the issues and maintain a professional and productive project environment.

Manage Project Knowledge

Over the course of the project, the progress of the project might be accelerated/enhanced or impeded by circumstances which did not go according to plan for which remediation will be required. Newly acquired knowledge and experiences will be recorded as lessons learned to guide the project team with this and future projects.

Monitor and Control Project Work

The quality of the project will be monitored and controlled as the project progresses to ensure that project specifications and quality requirements are consistently met, and established schedule and budget limits are not exceeded. The Project Manager will collect status updates including those on risks from the project team members and collated the findings into reports for

discussion at scheduled team meetings and communicate same to the Project Sponsor according to the Communications Management Plan.

Perform Integrated Change Control

There might arise the need for change in planned project activities at some point within the projected. This is controlled by a change control program that requires changes to be requested and justified in writing to the Project Manager who will classify them as valid or invalid. Valid changes are escalated to the Project Sponsor for approval. Each subsidiary plan details the steps to be take for change which follow the aforementioned general procedure.

A change in one aspect of the project may have an impact in another and therefore due diligence must be taken to take an integrated approach manage the change. Associated subsidiary plans will be updated as required and additional change requests made to cover all bases. Changes are to be identified and implemented in a timely fashion to avoid delays and baseline overruns. Both approved and rejected change requests will be filed for future reference.

Close Project or Phase

The project is divided into six phases which move the project activities from initiation to closure. Each phase will be evaluated according to their respective criteria and closed. Phase evaluation and closure will be recording in meeting minutes as directed by the Project Manager. When the product

development is finalized, the cream cheese product is evaluated against the defined product quality specifications. The project processes will also be evaluated at the end of each phase and at the end of the project. At the end of the project all project activities will be terminated, and the project deliverables handed over to the relevant operational departments for their ownership. Formal closure will be stated in the final project team meeting and approval signed off by the Project Manager and Project Sponsor.

4.2. Project Scope Management Plan

A template obtained from an online source was used to guide the preparation of the Project Scope Management Plan (SMP). The planning of the SMP was created after the elaboration of the Stakeholder Management Plan. As stated in its definition, the Plan Scop Management process yielded a SMP that documents how the project and product scope will be defined validated and controlled (PMI, 2017, p. 129).

The project team using inputs from the sponsor was able to collect requirements, define the scope, create a work breakdown structure (WBS), create a WBS dictionary, validate the scope and control the scope in the context of cream cheese project. The New Product Development (NPD) committee presentations and meeting minutes were reviewed and provide a wealth of information to create the SMP. Additionally, the project charter, and DIJL's policies and procedures (organizational process assets – OPA) were sources of information in the development of the SMP as well as the Requirements Management Plan.

SCOPE MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Work Breakdown Structure (WBS)

WBS Dictionary

Scope Verification

Scope Control

Sponsor Acceptance

Introduction

The SMP determines the scope framework for this project. In this plan the scope management approach, roles and responsibilities, scope definition, scope verification, scope control measures, scope change control, and the work breakdown structure (WBS) for the project is detailed. Communication related to this aspect of the project must be in keeping with protocols described in this plan.

DIJL's project to extend its line of offerings involve the execution of the new product development process for the creation of their version of cream cheese. This product will bring renewed attention to the DIJL brand and confirm its position as the only local producer of cheese and other novelty dairy products.

Scope Management Approach

The Project Manager (PM) will have the ultimate responsibility in this project for scope management. Supporting the PM is the Assistant Project Manager

who will amongst other things provide supervision and deputization in the scope management processes. Definition of the scope will be done through a project scope statement, WBS, and a WBS Dictionary. Documentation for the measuring of project scope which includes work performance measurements and deliverable quality checklists will be established and approved by the Sponsor, Stakeholders, and the Project Manager.

Changes regarding the project scope can be initiated by any member of the Project Team as well as the PM, Sponsor and Stakeholders as necessary. These potential changes are managed through the change control process that involves the completion and submission of change orders to the PM who in turn will assess the requisitioned change. The PM at that point will grant or deny approval of the request. The approved change request is also shared with the Sponsor for their approval. Technical changes to the scope are approved by the PM and approval of changes which will affect the budget and schedule is the responsibility of the Project Sponsor. After the approval of the change to scope is granted the associated project documents and communication of same to all the stakeholders will be done by the PM via a change directive and/or a change control meeting.

Roles and Responsibilities

The Project Stakeholders are required to be aware of the roles and responsibilities of all the key players involved in the management of the project scope to ensure that the work defined in the scope is indeed

executed. The chart below captures the roles and responsibilities within the context of the SMP.

Chart 8: Roles and Responsibilities of Project Stakeholders in the Scope Management Plan (Source: T. Patterson, The Author, October 2021)

Name	Role	Responsibility
Radcliffe Walker & Board of Directors	Project Sponsor	i. Evaluate the need for scope change requests ii. Grant or refuse scope change requests as appropriate iii. Grant or refuse request related to the budget that impacts the scope iv. Accept project deliverables
Karis-Ann Rhoden-Gordon	Project Manager	i. Manage the Project Team's work as per the defined project scope ii. Coordinate the scope change control process iii. Act as a liaison between the Project Sponsor and the Project Team regarding the approval of change requests

Chart 8: Roles and Responsibilities of Project Stakeholders in the Scope Management Plan (Source: T. Patterson, The Author, October 2021) Cont'd

Name	Role	Responsibility
Karis-Ann Rhoden-Gordon	Project Manager	iv. Measure and verify project scope v. Update all project documents related to the approval of scope change requests vi. Schedule and chair change control meetings vii. Communicate the outcomes of scope change requests
Assistant Project Manager & NPD Committee	Project Team	i. Suggest change requests with solutions to Project Manager ii. Complete change order forms iii. Contribute to the evaluation and resolution of change requests
Internal Service Providers	Executing Stakeholders	i. Suggest change requests with solutions to Project Manager

		ii. Execute the resolutions of the change request(s) as directed by the Project Manager

Scope Definition

For this project the scope was defined by implementing a robust collection method for project requirements. Sources of information included interviews with the sponsor regarding the project deliverables, meeting minutes from past NPD Committee meetings which discussed previous NPD projects, and literature review. The Requirements Management Plan which includes the Requirement Traceability Matrix and other requirements documentation was also defined using the aforementioned information.

The expert judgement project management tool was utilized in the definition of the project deliverables. Specifically, the Project deliverables were developed through by consulting with local regulators and industry experts (e.g., Thermal Process Authority, and research and development consultants). Their combined knowledge allowed for the timely collection of details pertinent to the development of tasty cream cheese product that meets the industry definition of a cream cheese and regulatory requirements as well as gains the approval of the target market.

Project Scope Statement

According to PMBOK®, the Project Scope Statement describes in detail the project scope, product scope, major deliverables, assumptions, and

constraints. These elements enhance the planning process, guides project work and provides a baseline for the evaluation of the suitability of requests made to make changes or additional work that may arise over the duration of the project to ensure that work is with the scope of the project (PMI, 2017, p. 154).

Project Scope Description

This project includes the new product development of a cream cheese product intended as a line extension of the existing product offering by Dairy Industries Jamaica Limited (DIJL). The project scope will be divided into two sections: project scope deliverables and product scope deliverables.

The project scope deliverables relate to the set of documents, plans and processes developed by the project team to ensure that the project is executed on time and within the allotted budget. Product scope deliverables refer to the required characteristics which ensure the chemical/physical development and packaging of the final cream cheese product. The requirements for each category of deliverables will be collected as per the method outlined above.

The Project Sponsor will be responsible for accepting the plan outlining the definition and creation of to the deliverables of the project. These deliverables will go through the acceptance criteria process summarized below before being accepted by the Sponsor. The creation, approval and review of the document(s) will be completed according to the project schedule and the

project team will aim for the acceptance of the document upon first review to avoid delays that revision would bring.

Product related deliverables will need to be procured, delivered, and stored at the project site (DIJL food processing facility). The timeline for procurement and delivery of the requisite materials will be critical as no additional lead has been accommodated in the project schedule. Delivery and storage of the materials will be reported to the Project Manager and Project Sponsor on a biweekly basis to ensure that the most current information is available for decision making and acceptance process. Both groupings of scope deliverables will be monitored, validated, and controlled according to the processing outlined in the section titled Scope Control below.

Acceptance Criteria

A. Project deliverable acceptance criteria

a. Each step of the project development will be delivered to the Sponsor according to the project schedule.
b. Each step of the project development will be signed off by the author, and Project Manager prior to submission to the Project Sponsor for acceptance according to the defined Scope Control process in this plan.
c. Each step of the project development will be approved and signed off by the Project Sponsor according to the WBS and defined Scope Control process in this plan.

B. Product deliverable acceptance criteria

a. Biweekly progress reports will be used primarily to track and obtain acceptance of each item listed in the Product Scope Deliverables.
b. Shipment and receipt of each item listed in the Product Scope Deliverables will be monitored against the procurement management plan and progress reported biweekly to the Project Manager and Project Sponsor.
c. Sponsor feedback: Was the product development and launch a success? Did it meet the targeted outcomes?

Project Deliverables

Project Scope Deliverables

The NPD process at DIJL consists of six stages between which there are critical points or phase gates where the Project Sponsor evaluates the project and gives go/no-go decisions. At the phase gates, the Project Sponsor decides whether to continue, to stop, or to review the project. When a “go” decision is made, this signifies a substantial added resource commitment. The six stages of the NPD process are:

Business Strategy

In this phase the market research and feasibility study guide the innovative process for the development of the cream cheese product. The execution of this deliverable is to include the determination and quantification of market size, investigation of legal and regulatory requirements for market, determine packaging requirements, conduct, and present feasibility study to the NPD Committee, develop project charter, conduct business analysis, and approval of project charter.

At the phase gate the two decisions are to be made: (1) type of product to be developed and (2) the viability of the project for the company. To come to these decisions the product concept and feasibility report must first be completed respective to the decisions mentioned previously. The **Figure 18** below summarizes the pathways of activities, outcomes, and decisions to be made in the first phase.

Activities		**OUTCOMES**		***DECISIONS***
Business strategy	→	Product mix strategy	→	New product areas
Change prediction	→	PD possibilities	→	PD plan
Information search	→	PD project identified	→	Project aim
Idea generation	→	Product concepts	→	Product concept selected
Concept engineering	→	Design specifications	→	Technical acceptance
Market analysis	→	Sales/profits prediction	→	Market acceptance

Figure 18: Important pathways of activities, outcomes, and decisions in phase 1. Reprinted from Earle, 2001, Chapter 1, p. 9.

Product and Process Development

This phase should consist of product formulation development, identification of suppliers and sourcing of materials, determination of lead time, bench top trials, preliminary consumer evaluation and design and development verification.

At the phase gate, the decisions to be made by the Project Sponsor are (1) is the cream cheese prototype satisfying consumer wants and needs; and (2) have the raw materials been identified. The **Figure 19** below summarizes the pathways of activities, outcomes, and decisions to be made in the second phase.

Activities		**OUTCOMES**		***DECISIONS***
Product design	→	Prototypes	→	Technical capability
Consumer testing	→	Acceptance	→	Market suitability
Product optimise	→	Final prototype	→	Company compatibility

Figure 19: Important pathways of activities, outcomes, and decisions in phase 2. Reprinted from Earle, 2001, Chapter 1, p. 12.

Product Testing

The third phase is centred around analysis of the developed cream cheese product and finalization of the formulation. The specific requirements for this phase include scale up production trial, consumer panelling, shelf-life and stability study for chilled products, sensory evaluation of shelf-life and stability samples, nutritional analysis, finalization of ingredient listing and specification

development, HACCP process and the review of cost and price targets.

At the phase gate, the decisions to be made by the Project Sponsor are (1) is it safe; (2) is it legal; (3) what are the costs of further development and commercial production and market; and (4) what are the estimated profits and probabilities of success. The **Figure 20** below summarizes the pathways of activities, outcomes, and decisions to be made in the third phase.

Activities		**OUTCOMES**		***DECISIONS***
Process design	→	Process conditions	→	Technical feasibility
Market testing	→	Sales prediction	→	Market success
Costing analysis	→	Costs (capital and operating)	→	Financial success
Marketing testing	→	Buying behaviour	→	Sales predictions
HACCP* process	→	Process control	→	Product safety, quality
Financial analysis	→	Costs, prices, profits, investments	→	Returns on investments, risks

Figure 20: Important pathways of activities, outcomes, and decisions in phase 3. Reprinted from Earle, 2001, Chapter 1, p. 12.

Design Review

In the Design Review phase, the prototype, package, process, & equipment are validated, the labelling requirements are finalized, the artwork for the packaging material is developed and approved, the packaging materials are designed, labels are approved by the

regulator, the artwork is confirmed with the packaging material printers.

At the phase gate, the decisions to be made by the Project Sponsor are (1) will the production of the cream cheese product be accommodated in the present equipment or is new equipment needed; (2) are the raw materials available. The **Figure 21** below summarizes the pathways of activities, outcomes, and decisions to be made in the fourth phase.

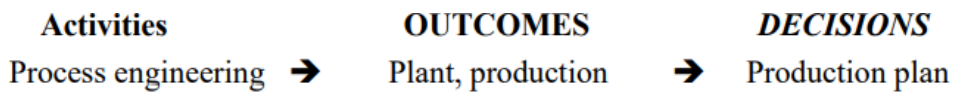

Figure 21: Important pathways of activities, outcomes, and decisions in phase 4. Reprinted from Earle, 2001, Chapter 1, p. 14.

Product Launch Preparation

The fifth deliverable in the NPD process is Product Launch Preparation. Specifications included in this phase are Market/Launch Plan development and coordination, application for ingredient permits, ordering and receipt of raw materials and packaging materials, completion of inventory electronic processes, documentation of work instructions, procedures and forms, training of relevant staff in procedures, work instructions, and forms, and documentation of raw material, product, and packaging specifications.

At the phase gate, the decisions to be made by the Project Sponsor are (1) can the present market channels be used, or new ones needed; (2) will there be additional products added to the product line; and (3) will there be a relaunch with improved product and packaging. The **Figure 22** below summarizes the pathways of activities, outcomes, and decisions to be made in the fifth phase.

Activities		**OUTCOMES**		***DECISIONS***
Marketing organisation	➔	Time, people, costs	➔	Effectiveness
Product, production study	➔	Quality, efficiency	➔	Improvement

Figure 22: Important pathways of activities, outcomes, and decisions in phase 5. Reprinted from Earle, 2001, Chapter 1, p. 16.

Product Launch

The final phase of the NPD process is Product Launch. This deliverable starts with the execution of pre-commercial run followed by the finalization of the process flow, line layout, product yields & labour model; scale-up production; completion of pre-launch checklist, document & training list; presentation of the product to the NPD Committee, Board and DIJL staff; product presentation to the distributors and key consumer groups; documentation handover to the Marketing Department to facilitate communication plan and market plan roll-out, development of marketing campaign artifacts; first commercial run and sale; launch to consumers; and finally product distribution and management of distributors.

At the phase gate, the decisions to be made by the Project Sponsor are (1) will there be a reduction in the price related to increasing efficiency of production; (2) are appropriate distributors available within our distribution system; (3) was the marketing campaign effective. The **Figure 23** below summarizes the pathways of activities, outcomes, and decisions to be made in the final phase.

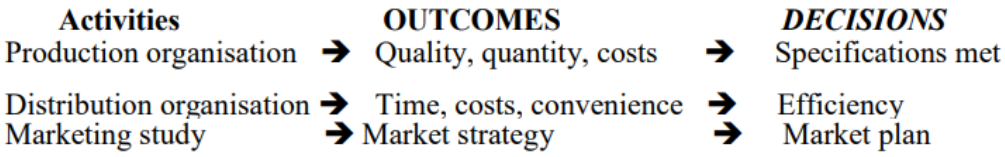

Figure 23: Important pathways of activities, outcomes, and decisions in phase 6. Reprinted from Earle, 2001, Chapter 1, p. 16.

Management Plans and Reports

The definitions of the subsidiary management plans were covered in section 1.6 of the Methodological Framework of the FGP. For simplicity the specific deliverables for the subsidiary project management plans are listed below.

- **Integration Management Plan**
  - Project Charter

- **Scope Management Plan**
  - Scope statement

- WBS
- WBS dictionary
- Scope baseline
- Scope management plan
- Requirements management plan

- **Schedule Management Plan**
  - Schedule baseline
  - Schedule management plan

- **Cost Management Plan**
  - Cost baseline
  - Cost management plan

- **Quality Management Plan**
  - Quality metrics
  - Quality assurance/control logs
  - Quality management plan

- **Resource Management Plan**
  - RACI chart
  - Resource calendars
  - Resource management plan

- **Communications Management Plan**
  - Communications matrix
  - Communications plan
- **Risk Management Plan**
  - Risk breakdown structure
  - Probability and impact matrix
  - Risk register
  - Risk management plan
- **Procurement Management Plan**
  - Selected sellers
  - Make-or-buy decisions
  - Procurement management plan
- **Stakeholder Management Plan**
  - Stakeholder register
  - Stakeholder matrix
  - Stakeholder engagement plan
  - Stakeholder management plan
- **Other Reports**
  - Biweekly Progress Reports
  - Lessons Learnt/Post-launch Summary Report

Product Scope Deliverables

Raw Ingredients

- Skim milk powder– natural cream free flowing skim milk powder with 0.1% fat content and Typically Disc A scorched particles (ADPI) that complies with FDA 21CFR 131.147
- Cream – free flowing cream milk powder, free of lumps with minimum fat content of 40%, 5.0% max moisture content and minimum protein content of 34% that complies with FDA 21CFR 131.149
- Mesophilic bacterial starter culture – freeze dried *Streptococcus lactis* starter culture at a usage level of 0.01% to 2%; that meets FDA GRAS standard
- Sour cream – thick, creamy white, smooth, and semi-heavy body with clean, cultured, and mildly acidic flavour/odour 30-50% fat content that complies with FDA 21CFR131.160 standard
- Salt – granulated, white crystalline sodium chloride (NaCl) that meets the FDA 21CFR100.155 standard for table salt as well as FDA 21CFR133.133 standard.
- Xanthan gum – cream-white powder with US# 80 mesh size particle that complies with FDA 21CFR133.133 and FDA 21CFR172.695 standard
- Annatto – red brown dark liquid produced by extraction of norbixin pigment from the seeds of the annatto and standardized for colour

strength (1.5% to 2.0% colour strength) that complies with FDA 21CFR73.30 standard

- Calcium citrate – white free flowing water dispersible powder with a minimum citrate and calcium content of 97.5% that complies with the FDA 21CFR184.1195 standard
- Butter flavour – a pale yellow free flowing water dispersible powder with taste and aroma characteristic of butter; sieve through US#20 mesh conforming to 88/388/EC, 2003/114/EC, and 95/2/EC directives.
- Sorbitol – clean colourless viscous liquid with a mild sweet taste of 1.285 min at specific gravity with reflective index of 1.455 to 1.465 that complies with the FDA 21CFR184.1835 standard

Packaging Materials

- 300g plastic tub – white polypropylene tub with 139x92x51.5mm dimensions, 12g weight, 400ml volume under lid,
- Lid for 300g plastic tub – white polypropylene lid with 143.5x96.5x10.8mm dimensions, 8.5g weight
- Tamper evident shrink sleeve – clear PVC tamper evident shrink band with 300mm dimension
- Carton box – white carton box with 304x227x97mm dimensions, C flute, and edge crush strength of 150 meeting AS3537-2006 standard requirements.

Project Scope Exclusions

The exclusions to the NPD project of cream cheese are:

- Additional project management services such as extended advertising campaigns, press release, media relations, and distribution) by the Project Management Team after project closeout.
- On-going business or process improvement services (sales and operational support) by the Project Management Team after project closeout.
- Post-launch evaluation/review.

Constraints

The expenses arising from the execution of this project should not exceed three hundred thousand ($300,000.00) USD. The duration of the project should not exceed twenty (20) months. Where seventeen (17) months are dedicated to the research and development of the cream cheese and the remaining three (3) months are dedicated production scale up and launching of the cream cheese.

Assumptions

Finances:

It is assumed that the client possesses the necessary capital to execute the project without disrupting the usual operations operational expenses.

Labour

It is assumed that the requisite competence and quantity of skilled labourers are available in-house for the execution of the project successfully.

Equipment

It is assumed that all equipment required in the development and production of cream cheese is available in-house.

Project Schedule

It is assumed that twenty (20) months are sufficient to complete all project deliverables on time.

Budget

It is assumed that a sum of three hundred thousand ($300,000.00) USD can complete the project and its deliverables.

Project Planning

It is assumed that ingredient/packaging material permits will be approved as per schedule for successful project completion.

Work Breakdown Structure (WBS)

For the effective management of the work to be done by the project management team as defined by the scope, the various deliverables must be

subdivided into individual work packages. This distribution of work is represented by the hierarchical structure known as the WBS. This diagrammatical representation enables the project team to optimize its responsibilities in project planning, project execution, project controlling, project monitoring and project reporting.

The project consists of six (6) phases: business strategy, product & process development, product testing, design review, product launch preparation and product launch that form the second level of the WBS. The business strategy is the initiation phase, and the product launch phase is the closeout phase. Each of the six phases are further subdivided into work packages on the third level of the WBS. Defining the scope to the level of work packages, project manager and project team are better able

Figure 24:WBS for Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited

WBS Dictionary

The work necessary project completion is more clearly defined using a WBS dictionary. Features of the WBS Dictionary includes the WBS level, WBS code, element name, budget, description of activities and required resources.

Chart 9: WBS Dictionary (Source: T. Patterson, The Author, October 2021)

WBS Level	WBS Code	Element Name	Budget (USD)	Description of Activities	Resources
2	**1**	**Business Strategy**	**$10,250.00**	**Works done before the product and process development activities begin**	
3	1.1	Market details	$1,500.00	Perform market research and identify interested customer base	Laptop, internet, questionnaires
3	1.2	Legal and regulatory requirements	$1,500.00	Consult with regulatory bodies concerning the production and sale of food products in Jamaica	Laptop, internet
3	1.3	Packaging requirements	$2,000.00	Conduct meetings with NPD committee as well as seek expert judgement from industry experts.	Laptop, internet
3	1.4	Feasibility study	$1,500.00	Conduct study into the feasibility of executing an NPD project on cream cheese in the Jamaican market	Laptop, internet
3	1.5	Feasibility study presentation	$750.00	Convene a meeting with the NPD Committee and present the findings of the feasibility study	Laptop, internet
3	1.6	Project charter	$750.00	Project manager organizes the project charter for project sponsor approval	Laptop
3	1.7	Business analysis	$1,500.00	Document and execute business analysis	Laptop
3	1.8	Project charter approval	$750.00	Approval of project charter by Project Sponsor	Laptop
2	**2**	**Product and Process Development**	**$28,500.00**	**Create the product and the process**	

Chart 9: WBS Dictionary (Source: T. Patterson, The Author, October 2021)

Cont'd

WBS Level	WBS Code	Element Name	Budget (USD)	Description of Activities	Resources
3	2.1	Formulation	$6,000.00	Research definition of a cream cheese product and prepare usage ratios for the required ingredients	Laptop, literature, food chemistry lab equipment
3	2.2	Material/supplier identification	$1,500.00	Review existing supplier list and determine if the availability of the raw materials and packages. Identify and contact new potential suppliers where necessary.	Laptop, supplier contact list
3	2.3	Benchtop trials	$14,000.00	Obtain product development quantities of materials for bench trials. Conduct experiments to produce cream cheese prototype	Raw materials, food chemistry lab equipment
3	2.4	Preliminary consumer evaluation	$3,000.00	Prototype is tested on focus groups for consumer acceptance	Prototype, market testing contract
3	2.5	Verification	$4,000.00	Test the prototype and process against reference standards	Testing labs (eternal), laptop, food chemistry lab, literature
2	**3**	**Product Testing**	**$45,300.00**	**Inspect the product and assure compliance to standards**	
3	3.1	Scale-up production trial	$21,000.00	Conduct first commercial size run of the latest version of the prototype on production line	Production equipment, raw materials and packing materials
3	3.2	Consumer Panel Exercise	$3,500.00	Test current prototype on focus groups for consumer acceptance/preference	Prototype, market testing contract
3	3.3	Shelf life & stability studies	$6,000.00	Complete shelf life & stability study reports	Food chemistry lab, laptop
3	3.4	Sensory evaluation	$2,300.00	Complete sensory evaluation	Trained sensory personnel
3	3.5	HACCP study	$3,000.00	Complete product description hazard analysis worksheets, and HACCP plan	Laptop, internet, literature

Chart 9: WBS Dictionary (Source: T. Patterson, The Author, October 2021)

Cont'd

WBS Level	WBS Code	Element Name	Budget (USD)	Description of Activities	Resources
3	3.6	Nutritional analysis	$4,000.00	Receive nutritional analysis report from external lab	External testing lab
3	3.7	Material specification	$4,000.00	Document required specifications for each raw material and packaging material	Laptop, internet, literature
3	3.8	Cost and price targets	$1,500.00	Complete cost and price target report	Laptop, and internet
2	**4**	**Design Review**	$**23,500.00**	**Designs marketing**	
3	4.1	Validation	$11,500.00	Perform regulatory checks on prototype, package, and equipment. Compile report	Regulators, laptop, internet, and standards
3	4.2	Ingredient statement, nutritional analysis, and product claim	$2,400.00	Prepare nutritional facts label/panel	Nutritional analysis report
3	4.3	Packaging design	$5,000.00	Create design for packaging materials	Packaging suppliers, laptop, and internet
3	4.4	Artwork development	$2,000.00	Create artwork for packaging materials	Packaging suppliers, laptop, and internet
3	4.5	Artwork approval	$1,300.00	Obtain approval of artwork form regulator, Bureau of Standards Jamaica (BSJ)	Laptop, internet, finalised packaging design
3	4.6	Artwork confirmation	$1,300.00	Give approval for the retention of the approved packaging design	Approved packaging design, packaging supplier
2	**5**	**Product Launch Preparation**	**$68,800.00**	**Product Launch Preparation**	
3	5.1	Marketing/ Launch Plan	$6,000.00	Complete Marketing/ Launch Plan	Laptop and internet
3	5.2	Ingredient permits	$800.00	Complete permit application	Permit application form

Chart 9: WBS Dictionary (Source: T. Patterson, The Author, October 2021)

Cont'd

WBS Level	WBS Code	Element Name	Budget (USD)	Description of Activities	Resources
3	5.3	Packaging and raw material procurement	$52,000.00	Procure and receive packaging and raw material for production run	Laptop, internet, contracts, and budget
3	5.4	Bill of Materials	$2,500.00	Complete Bill of Materials (BOM) for SAP	SAP software
3	5.5	Procedures, work instructions, and forms	$2,500.00	File completed procedures, work instructions, and forms	Specification manuals, and laptop
3	5.6	Training	$2,500.00	Train staff according to established procedures, work instructions, and forms	Training plan, laptop, specifications, procedures, work instructions and forms
3	5.7	Specifications	$2,500.00	File completed specifications for raw material, product, and packaging material	Specification manuals, and laptop
2	**6**	**Product Launch**	**$123,650.00**	**Organise production, and launch**	
3	6.1	Pre-commercial run	$30,000.00	Complete pre-commercial run	Formulation, procedures, raw materials, packaging materials, and processing equipment
3	6.2	Process flow, line layout, product yields and labour model	$5,500.00	Complete process flow, line layout, product yields and labour model	Laptop
3	6.3	Scale-up production	$30,000.00	Complete production of final version of the cream cheese formulation	Formulation, procedures, raw materials, packaging materials, and processing equipment

Chart 9: WBS Dictionary (Source: T. Patterson, The Author, October 2021)

Cont'd

WBS Level	WBS Code	Element Name	Budget (USD)	Description of Activities	Resources
3	6.4	Pre-launch documentation	$1,500.00	Complete pre-launch documentation	Formulation, procedures, raw materials, packaging materials, specifications, approved artwork
3	6.5	Product Presentation 1	$750.00	Product presentation to PD Committee, Board and DIJL staff. Obtain sign-off on finalized product	Laptop, approved charter
3	6.6	Product Presentation 2	$750.00	Product Presentation to Distributors & Key Consumer Groups. Create product brief	Laptop, and internet
3	6.7	Marketing campaign artefacts development	$5,500.00	Create Marketing Plan, Value Proposition, Product Specification to Marketing Dept. to facilitate communication plan and market roll-out	Laptop, internet, company policies
3	6.8	Hand-over	$750.00	Submit marketing campaign artefacts to Marketing Department	Laptop, internet, and marketing campaign artefacts
3	6.9	Commercial run	$30,000.00	Complete first production of final version of the cream cheese formulation for sale	Formulation, procedures, raw materials, packaging materials, and processing equipment
3	6.10	Sale	$1,900.00	Send finished goods to distributer	Finished goods, distribution contract
3	6.11	Media campaign	$10,000.00	Give go ahead to marketing company to distribute approved marketing treatments for media campaign	Marketing artefacts, marketing contract

Chart 9: WBS Dictionary (Source: T. Patterson, The Author, October 2021)

Cont'd

WBS Level	WBS Code	Element Name	Budget (USD)	Description of Activities	Resources
3	6.12	Launch	$7,000.00	Launch to customers. Complete launch report and close project	Finished goods, and approved project charter

Scope Verification

The Project Management Team and Project Manager will be responsible for the verification of the project scope. The interim project deliverables, project results, and completed deliverables will be evaluated against the scope management plan. After scope verification is complete the project manager and Project Sponsor will officially sign off on the deliverables once they are within scope during an acceptance meeting. This process is captured on the project deliverable acceptance document.

Scope Control

To ensure that scope baseline is maintained over the duration of the project, the Project Manager and Project team will monitor the status of the project and project scope for changes. This is done by using the scope baseline, WBS, WBS Dictionary, scope statement as the reference materials from which the project work executed by the project team must deviate to ensure project success.

Changes regarding the project scope can be initiated by any member of the Project Team as well as the PM, Sponsor and Stakeholders as necessary. These potential changes are managed through the change control process that involves the completion and submission of change orders to the PM who in turn will assess the requisitioned change. The PM at that point will grant or deny approval of the request. The approved change request is also shared with the Sponsor for their approval. Technical changes to the scope are approved by the PM and approval of changes which will affect the budget and schedule is the responsibility of the Project Sponsor. After the approval of the change to scope is granted the associated project documents and communication of same to all the stakeholders will be done by the PM via a change directive and/or a change control meeting.

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

REQUIREMENTS MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Version History

The version history will assist the Project Team control and track the development and distribution of the Requirements Plan

Chart 10: Version History (Source: T. Patterson, The Author, October 2021)

Version No.	Implemented By	Revision Date	Approved By	Approval Date	Reason

Overview

The Dairy Industries Jamaica Limited (DIJL) is desirous of diversifying the product offerings at its food processing facility by developing a cream cheese product, acidified by mesophilic lactic acid starter culture, suitable for the Jamaican consumer market, processed on the present Cultured Product line with a minor adaption, of a volume to increase production by 30%.

Purpose

The purpose of this document is to define how the project product requirements will be analysed, documented, and managed according to PMBOK® (PMI, 2017, p.137). The Requirements Management (RM) Plan complements the Scope Management Plan and is considered as a part and an output of the plan scope management process.

The RM plan details the information required to manage the project requirements effectively. Components of the RM plan include listing of project requirements and the parties responsible for executing same, a brief description of the applicability of the RM plan, listing of documents applicable to the development of the RM plan, roles, and responsibilities of personnel within the RM plan, configuration management activities and the traceability structure.

Scope

To avoid duplication of information related to the scope of the project, please consult the SMP for the detailed specifications.

Chart 11: Responsibility Chart (Source: T. Patterson, The Author, October 2021)

Activity	Responsible Party
Project Management	New Product Development (NPD) Team
Permits and Procurement	Purchasing Manager
Sponsor	General Manager & Board of Directors
Product Development, Testing and Technical Requirements	Product Development Department
Supply of Raw Materials and Packaging Materials	Approved Suppliers

Applicability

The NPD Committee will be directly affected by the RM plan since they are responsible for the development and maintenance of related subsidiary plans that are guided by the RM plan. Examples of these plans include the requirements traceability matrix, and the scope management plan.

Applicable Documents

Documents applicable to the definition of the Project Requirements Management Plan are approved project charter, SMP, requirements documentation, requirements traceability matrix, approved product formulation, and the Project Management Plan.

Changes and Revisions

The Project Manager has the responsibility for the change control management related to the RM plan.

Issue(s)

A challenge that may impact the implementation of the RM plan is the rejection of the permit application for the raw materials required for the development of the cream cheese product.

Roles and Responsibilities

Organization Overview

Chart 12: Roles and Organizations (Source: T. Patterson, The Author, October 2021)

Role	Name	Organization
Project Sponsor	General Manager & Board of Directors	Dairy Industry Jamaica Limited (DIJL)
Project Manager	Karis-Ann Rhoden-Gordon	Dairy Industry Jamaica Limited (DIJL)
Project Team	New Product Development (NPD) Committee	Dairy Industry Jamaica Limited (DIJL)
Product Development & Testing	Product Development Team	Dairy Industry Jamaica Limited (DIJL)

Roles and Organization

Role A

The Project Sponsor is responsible for making decisions regarding the scope of the requirements, provide project requirements, reviewing material requirements, and approving the requirements.

Role B

The Project Manager has the responsibility for collecting, reviewing, and developing project requirements. The approval of technical and design related requirements are also within the purview of the Project Manager.

Role C

The Project Team has the responsibility of reviewing requirements to safeguard the accuracy and specificity of the details.

Role D

The Product Development Team has the responsibility to prove technical requirements and front-line consultation for the project.

Requirements Processes

Overview

To identify, develop, maintain, and manage the requirements, the PMBOK® Guide's Project Scope Management processes will be used. Therefore, the following processes will guide requirements management:

Process I

Collect requirements: In this process the stakeholders' needs, industry, and regulatory requirements as it relates to the project objectives are determined and documented.

Process II

Define scope: In this process a detailed description of the project is done in keeping with the stakeholders' needs, regulatory requirements, and industry standards.

Process III

Create WBS: In this process the project deliverables are broken down into smaller work packages that are more manageable.

Process IV

Validate scope: Within this process the project deliverables that were developed and completed using the requirements are accepted.

Process V

Control scope: Within this process the status of the project is closely monitored and the any proposed changes to the scope is managed closely.

Tools

The tools used in the development of the project management plans are as detailed in **Chart 13** below.

Chart 13: Tools used in Developing the plans and documentation (Source: T. Patterson, The Author, October 2021)

Tool	**Version**	**Use**
Stakeholder Management Plan Template (Created in Microsoft Word)	Microsoft 365	Used to create Stakeholder Management Plan
Requirements Documentation Template (Created in Microsoft Word)	Microsoft 365	Used to create Requirements Documentation
WBS (Created in Microsoft Word)	Microsoft 365	Used to manage and create WBS elements
Requirements Traceability Matrix (Created in Microsoft Excel)	Microsoft 365	Used to create the Requirements Traceability Matrix

Requirements Documentation and Organization

Requirements Documentation

Work Breakdown Structure (WBS)

A document which diagrammatical represent the decomposition of the total scope of work required to be carried by the project team in order for successful completion of the project.

Requirements Traceability Matrix

The document which gives insight into how the specified requirements are linked to the business and project objectives

Requirements Document

Provides a description of how each requirement meets the business need for the project to develop a cream cheese product.

Scope Management Plan

Details how the scope will be defined, developed, monitored, controlled, and validated for the duration of the project.

Measures

The Project Manager issues work orders/directives to the project team every Monday before the commencement of project work according to the project schedule.

In preparation for creating work orders for the following week, the Project Manager will compile a progress report daily on project work done and compare it with the schedule.

Requirements Evaluation Checklists

A requirements evaluation checklist will be used to assess the conformance of the requirements to the specification. Conformance is indicated by selected be ticking the “yes” or “no” box. The requirement ID as well as the reason for nonconformance must be specified in the “remarks” field of the checklist.

Chart 14: Evaluation Checklist (Source: T. Patterson, The Author, October 2021)

Evaluation Criteria	**Yes**	**No**	**ID**	**Remarks**
Consumer Needs				
• Convenient packaging				
• Snackable				
• Flavourful/ tasty				
Functional Requirements				
• Spreadable				
• Sturdy Packaging				
• Decent Shelf Life				

Chart 14: Evaluation Checklist (Source: T. Patterson, The Author, October 2021) Cont'd

Technical Requirements				
• The cream cheese must maintain the desired shelf life in storage temperature of 2-4°C				
• The product developed must comply with the standardized definition for a cream cheese product				
• The packaging design must be compliant with regulatory requirements				
• The project processes must follow project management principles outlined in PMBOK®				
• There must exist a market demand which the project must be designed towards. Finished product must be attractive to consumers and project stakeholders.				

Quality Standards

Customer Needs

- Convenient packaging – packaging must be easy to open and provides a complete barrier for the cream cheese from the external environment
- Snackable – the cream cheese must impart a positive experience to the consumer making them choose to pair it with their favourite snack items from crackers to vegetables.
- Flavourful/tasty – the cream cheese must bring the consumer enjoyment when they are eating it. Product must have positive organoleptic qualities.

Functional Requirements

- Texture– the texture of the cream cheese product must be able to allow spreading on foods such as bread, and crackers.
- Sturdy packaging – the plastic tub that contains the cream cheese must be able to maintain its structure during filling, movement, and storage without breaking or falling apart.
- Decent shelf life – the developed product must last for the entire duration before the best before date.

Technical/Regulatory Requirements

- Storage – The cream cheese must maintain the desired shelf life in storage temperature of 2-4°C

- Product definition - The product developed must comply with the standardized definition for a cream cheese product
- Labelling - The packaging design must be compliant with regulatory requirements
- Project design – The project processes must follow project management principles outlined in PMBOK®
- Marketability - There must exist a market demand which the project must be designed towards. Finished product must be attractive to consumers and project stakeholders.

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

Requirements Document (1.0)

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

Document Status: _ Draft _ Proposed _ Validated _ Approved

1.1 Purpose of this document

This document serves as a guide in the development of a cream cheese product. The document will pass through four phases terminating with approval.

- Draft – this is the initial version and is compiled after the requirements have been identified, documented, categorised, and ranked.
- Proposed – the completed draft document is tendered for review as a proposal for the requirements of the project. Feedback is obtained from the reviews/readers and the document is amended accordingly where applicable then continues through the proposal stage until it is approved signalling its transition to the next phase. The readership of this document includes the project sponsor, project manager, assistant project manager, product development team and project team.
- Validated – when the identified stakeholders have agreed upon the defined requirements then the document is validated.
- Approved – after validation the document must be signed off a representative from each of the identified stakeholders indicating its suitability. The Project Manager and product development team will follow the specifications of the Requirements Document to during project implementation and project control.

1.2 How to use this document

We expect that this document will be used by people with different skill sets. This section explains which parts of this document should be reviewed by various types of readers.

Chart 15: Readership and Focal Area (Source: T. Patterson, The Author, October 2021)

Type of Reader	Focal Areas
Project Sponsor	All
Project Manager	All
Assistant Project Manager	All
Product Development Team	2.2, 2.3, 3, 4

1.3 Business Case for the Project

The Dairy Industries Jamaica Limited (DIJL) is desirous of diversifying the product offerings in the Cultured Products Department at its food processing facility to create a greater brand presence. One of the newest products on the horizon for DIJL is cream cheese. DIJL intends to capture a portion of the market share by creating Jamaica's first locally produced cream cheese. By introducing this new product DIJL seeks to spread the existing business risk and ensure business continuity.

2.0 General Description

This section will give the reader an overview of the project, including why it was conceived, what it will do when complete, and the types of people expected to use it. Constraints faced during development are listed, along with assumptions that were made on how to proceed.

The project involves the new product development process of a cream cheese product for the Jamaican market.

2.1 Project Perspective

DIJL is a dairy food manufacturer in Jamaica which is known for its unique dairy products. DIJL has an active Business Development Department which manages and executes the development of new products. One of the new products currently in the pipeline for launch is cream cheese. This product is classically new to the business and will enable the company to tap into new niches within the local market and eventually the regional market.

This dairy product was selected since there is no locally produced variety of soft, mild flavoured cheese that is spreadable and can be used as an ingredient in a variety of meals and desserts for example cheesecake (Phadungath, 2005.)

The primary stakeholder for this project is Dairy Industries Jamaica Limited (DIJL) and is being developed by the New Product Development (NPD)

Committee within the company. The product is being designed for sale to the Jamaican market.

2.2 Product Design

The development of the cream cheese product must ensure

- The formulation of a cream cheese product which complies with the definition of a cream cheese
- The creation of a product formulation that satisfies consumer requirements from a cream cheese product
- The product must me contained in an eye-catching package that stands out from that of competition
- The product package design must be easy to move around and store
- The development of a product aroma that is characteristic of cream cheese

2.3 Intended Consumer

The intended consumer falls in the A/B socio economic group who enjoy easy quick meals, aged 18-40 years and love to socialize.

2.4 General Constraints

The expenses arising from the execution of this project should not exceed three hundred thousand ($300,000.00) USD. The duration of the project should not exceed twenty (20) months. Where seventeen (17) months are

dedicated to the research and development of the cream cheese and the remaining three (3) months are dedicated production scale up and launching of the cream cheese.

3.0 Specific Requirements

This section of the document lists specific requirements for the development of a cream cheese product. Requirements are divided into the following sections:

- Customer Needs - These are requirements written from the point of view of the consumers of the cream cheese product.
- Functional Requirements. These are detailed specifications describing the physical or chemical characteristics important to the cream cheese product.
- Technical/Regulatory Requirements. These are requirements that is critical to meeting regulatory requirements as well as project management requirements in the development of the cream cheese product.

Consumer Needs

- Convenient packaging
- Snackable
- Flavourful/tasty

Functional Requirements

- Texture
- Sturdy packaging
- Decent shelf life

Technical/Regulatory Requirements

- Storage
- Product definition
- Labelling
- Project design
- Marketability

Requirements Traceability Matrix

Chart 16: Requirements Traceability Matrix (Source: T. Patterson, The Author, October 2021)

REQUIREMENT TRACEABILITY MATRIX								
PROJECT NAME:			**Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited**					
COST CENTER:			**New Product Development**					
PROJECT DESCRIPTION			**New Product Development of a Cream Cheese Product**					
ID	**ASSOCIATE ID**	**REQUIREMENT DESCRIPTION**	**BUSINESS NEEDS, OPPORTUNITY, GOALS, OBJECTIVE**	**PROJECT OBJECTIVE**	**WBS DELIVERABLES**	**PROJECT DESIGN**	**PRODUCT DEVELOPMENT**	**TEST CASES**
1	**1.1**	Marketability	Market details					
	1.2	Marketability	Legal and regulatory requirements					
	1.3	Sturdy Packaging	Packaging requirements					
	1.4	Project design	Feasibility study					
	1.5	Project design	Feasibility study presentation					
	1.6	Project design	Project charter					
	1.7	Project design	Business analysis					
	1.8	Project design	Project charter approval					
2	**2.1**	Product definition	Formulation					

Chart 16: Requirements Traceability Matrix (Source: T. Patterson, The Author, October 2021) Cont'd

REQUIREMENT TRACEABILITY MATRIX								
PROJECT NAME:			**Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited**					
COST CENTER:			**New Product Development**					
PROJECT DESCRIPTION			**New Product Development of a Cream Cheese Product**					
ID	**ASSOCIATE ID**	**REQUIREMENT DESCRIPTION**	**BUSINESS NEEDS, OPPORTUNITY, GOALS, OBJECTIVE**	**PROJECT OBJECTIVE**	**WBS DELIVERABLES**	**PROJECT DESIGN**	**PRODUCT DEVELOPMENT**	**TEST CASES**
2	**2.2**	Product definition	Material/supplier identification					
	2.3	Product definition	Benchtop trials					
	2.4	Flavourful/tasty	Preliminary consumer evaluation					
	2.5	Product definition	Verification					
3	**3.1**	Product definition	Scale-up production trial					
	3.2.	Flavourful/tasty	Consumer Panel Exercise					
	3.3	Storage	Shelf life & stability studies					
	3.4	Flavourful/tasty	Sensory evaluation					
	3.5	Storage	HACCP study					
	3.6	Product definition	Nutritional analysis					

Chart 16: Requirements Traceability Matrix (Source: T. Patterson, The Author, October 2021) Cont'd

REQUIREMENT TRACEABILITY MATRIX								
PROJECT NAME:			**Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited**					
COST CENTER:			**New Product Development**					
PROJECT DESCRIPTION			**New Product Development of a Cream Cheese Product**					
ID	**ASSOCIATE ID**	**REQUIREMENT DESCRIPTION**	**BUSINESS NEEDS, OPPORTUNITY, GOALS, OBJECTIVE**	**PROJECT OBJECTIVE**	**WBS DELIVERABLES**	**PROJECT DESIGN**	**PRODUCT DEVELOPMENT**	**TEST CASES**
3	**3.7**	Sturdy packaging	Material specification					
	3.8	Project design	Cost and price targets					
4	**4.1**	Product definition	Validation					
	4.2	Product definition	Ingredient statement, nutritional analysis, and product claim					
	4.3	Labelling	Packaging design					
	4.4	Labelling	Artwork development					
	4.5	Labelling	Artwork approval					
	4.6	Labelling	Artwork confirmation					
5	**5.1**	Marketability	Marketing/ Launch Plan					

Chart 16: Requirements Traceability Matrix (Source: T. Patterson, The Author, October 2021) Cont'd

REQUIREMENT TRACEABILITY MATRIX								
PROJECT NAME:			**Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited**					
COST CENTER:			**New Product Development**					
PROJECT DESCRIPTION			**New Product Development of a Cream Cheese Product**					
ID	**ASSOCIATE ID**	**REQUIREMENT DESCRIPTION**	**BUSINESS NEEDS, OPPORTUNITY, GOALS, OBJECTIVE**	**PROJECT OBJECTIVE**	**WBS DELIVERABLES**	**PROJECT DESIGN**	**PRODUCT DEVELOPMENT**	**TEST CASES**
5	**5.2**	Product definition	Ingredient permits					
	5.3	Product definition	Packaging and raw material procurement					
	5.4	Product definition	Bill of Materials					
	5.5.	Product definition	Procedures, work instructions, and forms					
	5.6	Product definition	Training					
	5.7	Product definition	Specifications					
6	**6.1**	Product definition	Pre-commercial run					
	6.2	Product definition	Process flow, line layout,					

			product yields and labour model					

Chart 16: Requirements Traceability Matrix (Source: T. Patterson, The Author, October 2021) Cont'd

REQUIREMENT TRACEABILITY MATRIX								
PROJECT NAME:			**Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited**					
COST CENTER:			**New Product Development**					
PROJECT DESCRIPTION			**New Product Development of a Cream Cheese Product**					
ID	**ASSOCIATE ID**	**REQUIREMENT DESCRIPTION**	**BUSINESS NEEDS, OPPORTUNITY, GOALS, OBJECTIVE**	**PROJECT OBJECTIVE**	**WBS DELIVERABLES**	**PROJECT DESIGN**	**PRODUCT DEVELOPMENT**	**TEST CASES**
6	**6.3**	Product definition	Scale-up production					
	6.4	Project Design	Pre-launch documentation					
	6.5	Marketability	Product Presentation 1					
	6.6	Marketability	Product Presentation 2					
	6.7	Marketability	Marketing campaign artefacts development					
	6.8	Marketability	Hand-over					
	6.9	Product definition	Commercial run					
	6.10	Marketability	Sale					

Chart 16: Requirements Traceability Matrix (Source: T. Patterson, The Author, October 2021) Cont'd

REQUIREMENT TRACEABILITY MATRIX								
PROJECT NAME:			**Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited**					
COST CENTER:			**New Product Development**					
PROJECT DESCRIPTION			**New Product Development of a Cream Cheese Product**					
ID	**ASSOCIATE ID**	**REQUIREMENT DESCRIPTION**	**BUSINESS NEEDS, OPPORTUNITY, GOALS, OBJECTIVE**	**PROJECT OBJECTIVE**	**WBS DELIVERABLES**	**PROJECT DESIGN**	**PRODUCT DEVELOPMENT**	**TEST CASES**
6	**6.11**	Marketability	Media campaign					
	6.12	Marketability	Launch					

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

4.3. Project Schedule Management Plan

The Project Schedule Management processes are those which are necessary for the timely completion of a project. This project plan has five processes which fall into the project planning process group: Plan Scope Management, Define Activities, Sequence Activities, Estimate Activity Durations, and Develop Schedule.

The output of the Plan Schedule Management is the Schedule Management Plan which will be used as a reference in the development and launch of the cream cheese product. To develop this plan, the project charter and scope management plan had to be considered. Project management tools and techniques were used to develop the contents of this plan. Specifically, expert judgement, analytical techniques and meetings were used for the planning of Schedule Management. Like the Scope Management Plan, DIJL did not have any OPAs that could guide the development of the Schedule Management Plan therefore a template was modified and utilized.

SCHEDULE MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

Table of Contents

Introduction

The Project Schedule details the timeline of the project from initiation to closure. It gives a visual representation to the Project Sponsor and Project

Team of the order or flow of the activities that comprise the project work and are required for successfully completing the project. This document can be used in the monitoring, control, and evaluation of the project as it relates to its schedule.

Schedule Management Approach

The Project Schedule will be developed by using Microsoft Projects 2016. The Define Activities process will be implemented to identify and document the necessary actions that must be performed to produce the established project deliverables. The Project Milestones documented in the Scope Management Plan will be critical to the definition of the activities. Sequencing of the project activities will establish the and record the relationships among project activities. The duration of each activity will be estimated for the determination of quantity of work periods that are required to complete the defined activities.

The analysis of activity sequences, durations, resource requirements and schedule constraints will be done via the Develop Schedule process which creates a schedule model with planned dates by which the project activities are to be completed. The completed schedule will be reviewed by the Project Manager, and Project Team then approved by the Project Sponsor. The result of this process is the creation of a schedule baseline which can only be changed via the formal change control procedure.

Roles and Responsibilities

Project Manager

It is the responsibility of the project manager to coordinate the definition of activities, sequencing of activities, estimation of activity durations and resources. The assistant project manager will develop the Project Schedule using MS Projects 2016 and have the schedule validated by the Project Team. The validated schedule will then be passed to the Project Sponsor for approval after which it is baselined by the Project Manager.

Project Team

The team will review the proposed Project Schedule and provide feedback where applicable. After the schedule is baselined, the team is responsible for implementing the project activities according to the schedule. The team may also suggest change following the change control process.

Project Sponsor

The sponsor will participate in the review of the proposed schedule and the approval of schedule once it is finalized. Once the schedule has been baselined, it is the responsibility of the Project Sponsor to review and approve change requests.

Schedule Control

The status of the project will be monitored against the schedule baseline throughout the course of project with the intention of managing changes.

Typically, the project schedule consists of activity start dates, activity end dates, activity sequence, human resources assigned to each of the activities and their status of completion.

The Project Manager has the responsibility to ensure that the schedule is routinely reviewed, and adjustments made where required with the approval of the sponsor. The Project Manager will also report on the status of the project schedule as per the Project Communication Management Plan.

The Project Team will communicate changes or updates to project schedule during the review meetings to the Project Manager. The Project Sponsor must remain aware of the progress of the project schedule for the entire project duration so they may provide support to any decision-making process.

Schedule Changes and Thresholds

Changes to the project schedule or schedule baseline may be proposed by project team members for the consideration of the Project Manager. If the suggested change is justified and significantly impact the successful completion of the project, then a review meeting will be convened to determine the level of risk posed by not modifying the schedule for the given activity/activities. Additionally, resolutions for the schedule variances resulting from the proposed changes must be established.

In any instance where it is determined that the variance(s) to schedule arising from the change exceeds the thresholds outlined below then a change request is to be completed and submitted to the Project Manager. The Project Manager delivers the completed change request to the Project Sponsor for approval.

Thresholds:

- The proposed change may reduce the duration of a schedule activity by 3% or greater; or increase the duration of a schedule activity by 8% or greater.
- The proposed change may reduce the duration of the entire baseline schedule by 8% or greater, or increase the duration of the entire baseline schedule by 3% or greater

Scope Change

Changes to project scope will affect the accuracy of the schedule baseline. In such an event, the scope changes must be reviewed by the Project Manager and Project Team with the aim of determining the level of impact the change will have on the schedule baseline. Approved scope changes will have to be accounted for in the Project Schedule Management Plan by updating the related sections and in particular the schedule baseline which must repeat approval process to create an updated schedule baseline.

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

Activity Definition

The WBS, project deliverables, constraints and assumptions from the Scope Management Plan were used as inputs in the process of Define Activities. Tools used in this second process of Project Schedule Management were expert judgement and decomposition. The main output of this process is the activity list, which is comprised of the activity ID, task name, task definition and associated human resource for each activity. During the definition of activities, it is possible that new milestones can be added, or the existing ones modified. This was the case in the preparation of the activity list (below) where some activities led to the redefinition of the milestone list documented in the Project Charter and Schedule Management Plan.

To avoid duplication of information an activity attributes list was not documents since all its elements were captured in other subsidiary plans or charts within this FGP. These elements include “the unique activity identifier (ID), WBS ID, and activity label or name. When completed, they may include activity descriptions, predecessor activities, successor activities, logical relationships, leads and lags (Section 6.3.2.3), resource requirements,

imposed dates, constraints, and assumptions" as per PMBOK® (PMI, 2017, p. 186)

Chart 17: Activity List (Source: T. Patterson, The Author, October 2021)

Activity ID	Element Name	Description of Activities	Resource Name
1	**Business Strategy**	**Works done before the product and process development activities begin**	
1.1	Market details	Perform market research and identify interested customer base	Project Manager, Project Sponsor, Marketing Manager, Distributors
1.2	Legal and regulatory requirements	Consult with regulatory bodies concerning the production and sale of food products in Jamaica	Project Manager, Assistant Project Manager, Project Sponsor, Distributors
1.3	Packaging requirements	Conduct meetings with NPD committee as well as seek expert judgement from industry experts.	Project Manager, Assistant Project Manager, Project Team, Consultants, Project Team
1.4	Feasibility study	Conduct study into the feasibility of executing an NPD project on cream cheese in the Jamaican market	Project Manager, Assistant Project Manager, Senior Technical Officer, Project Team
1.5	Feasibility study presentation	Convene a meeting with the NPD Committee and present the findings of the feasibility study	Project Manager, Assistant Project Manager, Project Team, Project Sponsor
1.6	Project charter	Project manager organizes the project charter for project sponsor approval	Project Manager, Project Sponsor, Project Team
1.7	Business analysis	Document and execute business analysis	Project Manager, Assistant Project Manager, Project Team
1.8	Project charter approval	Approval of project charter by Project Sponsor	Project Manager, Project Sponsor
2	**Product and Process Development**	**Create the product and the process**	

Chart 17: Activity List (Source: T. Patterson, The Author, October 2021)

Cont'd

Activity ID	Element Name	Description of Activities	Resource Name
2.1	Formulation	Research definition of a cream cheese product and prepare usage ratios for the required ingredients	Senior Technical Officer, Project Manager
2.2	Material/supplier identification	Review existing supplier list and determine if the availability of the raw materials and packages. Identify and contact new potential suppliers where necessary.	Project Manager, Purchasing Manager, Purchasing Officer, Product Development Specialist
2.3	Benchtop trials	Obtain product development quantities of materials for bench trials. Conduct experiments to produce cream cheese prototype	Senior Technical Officer, Project Development Officer
2.4	Preliminary consumer evaluation	Prototype is tested on focus groups for consumer acceptance	Senior Technical Officer, Project Manager, Marketing Manager
2.5	Verification	Test the prototype and process against reference standards	Senior Technical Officer, Project Manager, Quality Officer, Microbiologist, Project Team
3	**Product Testing**	**Inspect the product and assure compliance to standards**	
3.1	Scale-up production trial	Conduct first commercial size run of the latest version of the prototype on production line	Project Manager, Product Development Officer, Production Manager, Line Coordinator, Line Operators, Warehouse Manager, Quality Officer, Microbiologist, Plant Engineer, Maintenance Technicians, Project Team
3.2	Consumer Panel Exercise	Test current prototype on focus groups for consumer acceptance/preference	Project Manager, Senior Technical Officer, Project Sponsor
3.3	Shelf life & stability studies	Complete shelf life & stability study reports	Quality Officer, Microbiologist, Project Team

Chart 17: Activity List (Source: T. Patterson, The Author, October 2021)

Cont'd

Activity ID	Element Name	Description of Activities	Resource Name
3.4	Sensory evaluation	Complete sensory evaluation	Product Development Officer, Project Team
3.5	HACCP study	Complete product description hazard analysis worksheets, and HACCP plan	Quality Manager, Quality Officer, Microbiologist, Project Team
3.6	Nutritional analysis	Receive nutritional analysis report from external lab	Senior Technical Officer
3.7	Material specification	Document required specifications for each raw material and packaging material	Product Development Officer, Product Development Specialist
3.8	Cost and price targets	Complete cost and price target report	Project Manager, Project Sponsor, Purchasing Manager, Operations Manager, Marketing Manager, Product Development Specialist, Project Team
4	**Design Review**	**Designs marketing**	
4.1	Validation	Perform regulatory checks on prototype, package, and equipment. Compile report	Project Manager, Senior Technical Officer, Quality Manager, Quality Officer, Microbiologist, Marketing Manager, Operations Manager, Plant Engineer
4.2	Ingredient statement, nutritional analysis, and product claim	Prepare nutritional facts label/panel	Senior Technical Officer
4.3	Packaging design	Create design for packaging materials	Senior Technical Officer, Marketing Manager
4.4	Artwork development	Create artwork for packaging materials	Project Manager, Senior Technical Officer
4.5	Artwork approval	Obtain approval of artwork form regulator, Bureau of Standards Jamaica (BSJ)	Project Manager, Assistant Project Manager,
4.6	Artwork confirmation	Give approval for the retention of the approved packaging design	Project Manager, Project Sponsor

Chart 17: Activity List (Source: T. Patterson, The Author, October 2021)

Cont'd

Activity ID	Element Name	Description of Activities	Resource Name
5	**Product Launch Preparation**	**Product Launch Preparation**	
5.1	Marketing/ Launch Plan	Complete Marketing/ Launch Plan	Product Development Officer, Product Development Specialist
5.2	Ingredient permits	Complete permit application	Senior Technical Officer, Ministry of Health and Wellness
5.3	Packaging and raw material procurement	Procure and receive packaging and raw material for production run	Product Development Specialist, Purchasing Manager, Purchasing Officer, Suppliers
5.4	Bill of Materials	Complete Bill of Materials (BOM) for SAP	Product Development Officer
5.5	Procedures, work instructions, and forms	File completed procedures, work instructions, and forms	Quality Manager, Quality Officer
5.6	Training	Train staff according to established procedures, work instructions, and forms	Product Development Officer, Project Team
5.7	Specifications	File completed specifications for raw material, product, and packaging material	Quality Manager, Quality Officer
6	**Product Launch**	**Organise production, and launch**	
6.1	Pre-commercial run	Complete pre-commercial run	Project Manager, Product Development Officer, Production Manager, Line Coordinator, Line Operators, Warehouse Manager, Quality Officer, Microbiologist, Plant Engineer, Maintenance Technicians, Project Team
6.2	Process flow, line layout, product yields and labour model	Complete process flow, line layout, product yields and labour model	Project Manager, Plant Engineer, Maintenance Technicians, Quality Manager, Quality Officer, Microbiologist, Project Team

Chart 17: Activity List (Source: T. Patterson, The Author, October 2021)

Cont'd

Activity ID	Element Name	Description of Activities	Resource Name
6.3	Scale-up production	Complete production of final version of the cream cheese formulation	Project Manager, Product Development Officer, Production Manager, Line Coordinator, Line Operators, Warehouse Manager, Quality Officer, Microbiologist, Plant Engineer, Maintenance Technicians, Project Team
6.4	Pre-launch documentation	Complete pre-launch documentation	Project Manager, Product Development Officer, Quality Manager, Purchasing Manager, Warehouse Manager Microbiologist, Plant Engineer, Project Team
6.5	Product Presentation 1	Product presentation to PD Committee, Board and DIJL staff. Obtain sign-off on finalized product	Project Manager, Assistant Project Manager, Project Sponsor
6.6	Product Presentation 2	Product Presentation to Distributors & Key Consumer Groups. Create product brief	Project Manager, Assistant Project Manager, Marketing Manager, Project Team
6.7	Marketing campaign artefacts development	Create Marketing Plan, Value Proposition, Product Specification to Marketing Dept. to facilitate communication plan and market roll-out	Project Manager, Product Development Officer, Senior Technical Officer, Project Team
6.8	Hand-over	Submit marketing campaign artefacts to Marketing Department	Project Manager, Assistant Project Manager, Project Sponsor, Marketing Manager

Chart 17: Activity List (Source: T. Patterson, The Author, October 2021)

Cont'd

Activity ID	Element Name	Description of Activities	Resource Name
6.9	Commercial run	Complete first production of final version of the cream cheese formulation for sale	Project Manager, Product Development Officer, Production Manager, Line Coordinator, Line Operators, Warehouse Manager, Quality Officer, Microbiologist, Plant Engineer, Maintenance Technicians, Project Team
6.10	Sale	Send finished goods to distributer	Warehouse Manager, Marketing Manager,
6.11	Media campaign	Give go ahead to marketing company to distribute approved marketing treatments for media campaign	Project Manager, Project Sponsor, Marketing Manager
6.12	Launch	Launch to customers. Complete launch report and close project	Project Manager, Project Sponsor, Marketing Manager, Project Team

Sequence Activities

The Sequence Activities process involves the identification and documentation of relationships between project activities and is the third process of the Project Schedule Management Plan (PMI, 2017, p. 187). Inputs for this process were the Schedule Management Plan, scope baseline, activity list, assumption log, and milestone list. A scheduling tool (MS Projects 2016) was used to conduct the precedence diagramming method, dependency determination and integration as well as leads and lags (PMI, 2017, p. 187).

Chart 18: Predecessor List (Source: T. Patterson, The Author, October 2021)

Task ID	Name	Predecessors
1	Determine and quantify market	
2	Investigate legal and regulatory requirements for market	1
3	Determine packaging requirements	1
4	Conduct feasibility study	1
5	Present feasibility study to NPD Committee	1,2,3,4
6	Develop project charter	2,3,5
7	Conduct business analysis	5,6
8	Approval of project charter	6,7
9	Develop formulation	8
10	Identify/contact suppliers and source material	9
11	Conduct benchtop trials	9
12	Preliminary consumer evaluation	10,11
13	Design and Development Verification	12
14	Scale-up production trial	13
15	Consumer Panel Exercise	14
16	Conduct shelf life & stability studies	14
17	Conduct sensory evaluation	14
18	Complete HACCP study	14
19	Complete nutritional analysis	14,16
20	Development of packaging and raw material specification	14
21	Review cost and price targets	14
22	Validate prototype, package, and equipment	15,16,17,18,20,21
23	Finalize ingredient statement, nutritional analysis, and product claim	19,21
24	Packaging design	19,22,23

Chart 18: Predecessor List (Source: T. Patterson, The Author, October 2021)

Cont'd

Task ID	Name	Predecessors
25	Artwork development	24
26	Regulatory approval of artwork	24,25
27	Confirmation of artwork with printers	26
28	Develop Marketing/ Launch Plan	27
29	Apply for ingredient permit	27
30	Procure and receive packaging and raw material for production run	28,29
31	Complete Bill of Materials (BOM) for SAP	29
32	Document all procedures, work instructions, and forms	29
33	Conduct training of relevant staff in procedures, work instructions, and forms	32
34	Document all raw material, product, and packaging specifications	29,32
35	Pre-commercial run	30,31,33,34
36	Finalize process flow, line layout, product yields and labour model	35
37	Scale-up production	36
38	Complete pre-launch documentation	37
39	Product Presentation to PD Committee, Board and DIJL Staff	37,38
40	Product Presentation to Distributors & Key Consumer Groups	37,38,39
41	Develop marketing campaign artefacts	38,40
42	Hand-over marketing campaign artefacts	41
43	First commercial run	42

Chart 18: Predecessor List (Source: T. Patterson, The Author, October 2021)

Cont'd

Task ID	Name	Predecessors
44	Execute first sale to distributor	40,43
45	Execute marketing plan and roll out media campaign	44
46	Launch to customers	40,41,42,43,44,45

Estimate Activity Durations

In this planning process, the number of work periods needed to complete each project activity is estimated based on the decomposition of the project deliverables. The durations are estimated by the Project Management Team during a project scheduling meeting. The meeting minutes from previous New Product Development (NPD) Committee meetings were reviewed to get a sense of how much time related tasks took in previous product launches. Inputs to this planning process included milestone list, activity list, and resource calendar.

Chart 19: Duration Estimates (Source: T. Patterson, The Author, October 2021)

Task ID	Name	Duration	Start	Finish
1	Determine and quantify market	42 days	1-Apr-21	28-May-21
2	Investigate legal and regulatory requirements for market	44 days	31-May-21	29-Jul-21
3	Determine packaging requirements	15 days	31-May-21	18-Jun-21
4	Conduct feasibility study	88 days	31-May-21	29-Sep-21
5	Present feasibility study to NPD Committee	1 day	30-Sep-21	30-Sep-21
6	Develop project charter	6 days	1-Oct-21	8-Oct-21
7	Conduct business analysis	4 days	11-Oct-21	14-Oct-21
8	Approval of project charter	1 day	15-Oct-21	15-Oct-21
9	Develop formulation	40 days	18-Oct-21	10-Dec-21
10	Identify/contact suppliers and source material	25 days	13-Dec-21	14-Jan-22
11	Conduct benchtop trials	30 days	13-Dec-21	21-Jan-22
12	Preliminary consumer evaluation	20 days	24-Jan-22	18-Feb-22
13	Design and Development Verification	5 days	21-Feb-22	25-Feb-22
14	Scale-up production trial	20 days	28-Feb-22	25-Mar-22
15	Consumer Panel Exercise	20 days	28-Mar-22	22-Apr-22
16	Conduct shelf life & stability studies	25 days	28-Mar-22	29-Apr-22
17	Conduct sensory evaluation	20 days	28-Mar-22	22-Apr-22
18	Complete HACCP study	25 days	28-Mar-22	29-Apr-22
19	Complete nutritional analysis	10 days	2-May-22	13-May-22

Chart 19: Duration Estimates (Source: T. Patterson, The Author, October 2021) Cont'd

Task ID	Name	Duration	Start	Finish
20	Development of packaging and raw material specification	10 days	2-May-22	13-May-22
21	Review cost and price targets	10 days	2-May-22	13-May-22
22	Validate prototype, package, and equipment	10 days	16-May-22	27-May-22
23	Finalize ingredient statement, nutritional analysis, and product claim	10 days	16-May-22	27-May-22
24	Packaging design	15 days	30-May-22	17-Jun-22
25	Artwork development	15 days	20-Jun-22	8-Jul-22
26	Regulatory approval of artwork	10 days	11-Jul-22	22-Jul-22
27	Confirmation of artwork with printers	10 days	25-Jul-22	5-Aug-22
28	Develop Marketing/ Launch Plan	10 days	8-Aug-22	19-Aug-22
29	Apply for ingredient permit	10 days	8-Aug-22	19-Aug-22
30	Procure and receive packaging and raw material for production run	25 days	22-Aug-22	23-Sep-22
31	Complete Bill of Materials (BOM) for SAP	10 days	22-Aug-22	2-Sep-22
32	Document all procedures, work instructions, and forms	10 days	12-Sep-22	2-Sep-22
33	Conduct training of relevant staff in procedures, work instructions, and forms	10 days	5-Sep-22	16-Sep-22
34	Document all raw material, product, and packaging specifications	10 days	5-Sep-22	16-Sep-22
35	Pre-commercial run	10 days	26-Sep-22	7-Oct-22
36	Finalize process flow, line layout, product yields and labour model	10 days	10-Oct-22	21-Oct-22

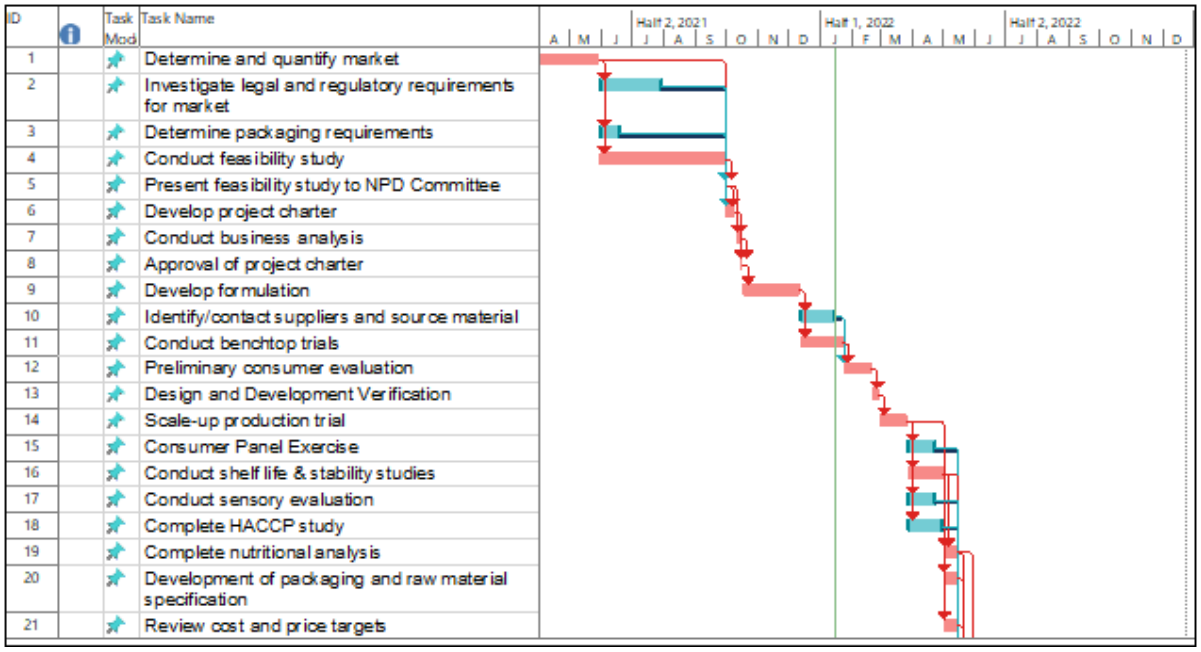
Chart 19: Duration Estimates (Source: T. Patterson, The Author, October 2021) Cont'd

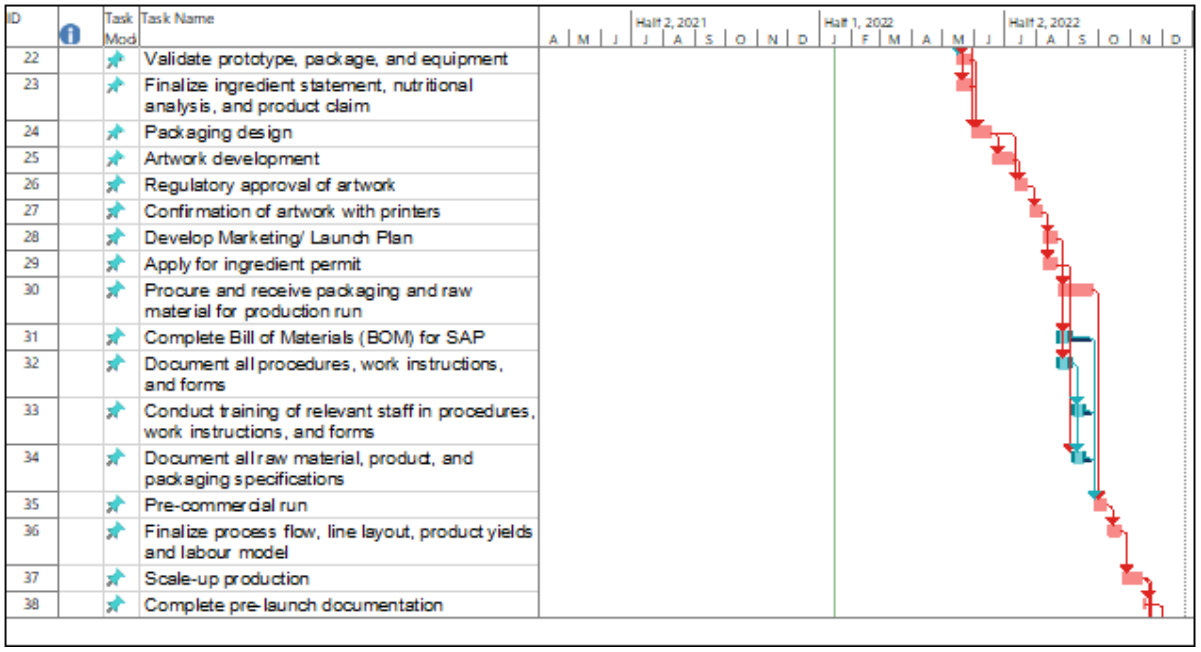
Task ID	Name	Duration	Start	Finish
37	Scale-up production	15 days	24-Oct-22	11-Nov-22
38	Complete pre-launch documentation	1 day	14-Nov-22	14-Nov-22
39	Product Presentation to PD Committee, Board and DIJL Staff	4 days	15-Nov-22	18-Nov-22
40	Product Presentation to Distributors & Key Consumer Groups	9 days	21-Nov-22	1-Dec-22
41	Develop marketing campaign artefacts	5 days	2-Dec-22	8-Dec-22
42	Hand-over marketing campaign artefacts	1 day	9-Dec-22	9-Dec-22
43	First commercial run	2 days	12-Dec-22	13-Dec-22
44	Execute first sale to distributor	2 days	14-Dec-22	15-Dec-22
45	Execute marketing plan and roll out media campaign	5 days	16-Dec-22	22-Dec-22
46	Launch to customers	1 day	23-Dec-22	23-Dec-22

Develop Schedule

The baseline schedule was developed by analysing various project documents related to project schedule management and was created at the same time with the preceding schedule management planning processes. Specifically, the project scope baseline, project schedule management plan, milestone list, duration estimates, resource calendars, activity list, lessons learnt register (NPD Committee meeting minutes), and project schedule network diagrams. The tools used to develop the schedule were the expertise

of the Project Manager Karis-Ann Rhoden-Gordon, the MS Project scheduling tool, leads and lags and schedule network analysis. **Figure 25** below outlines the schedule for the project to develop a new cream cheese product.





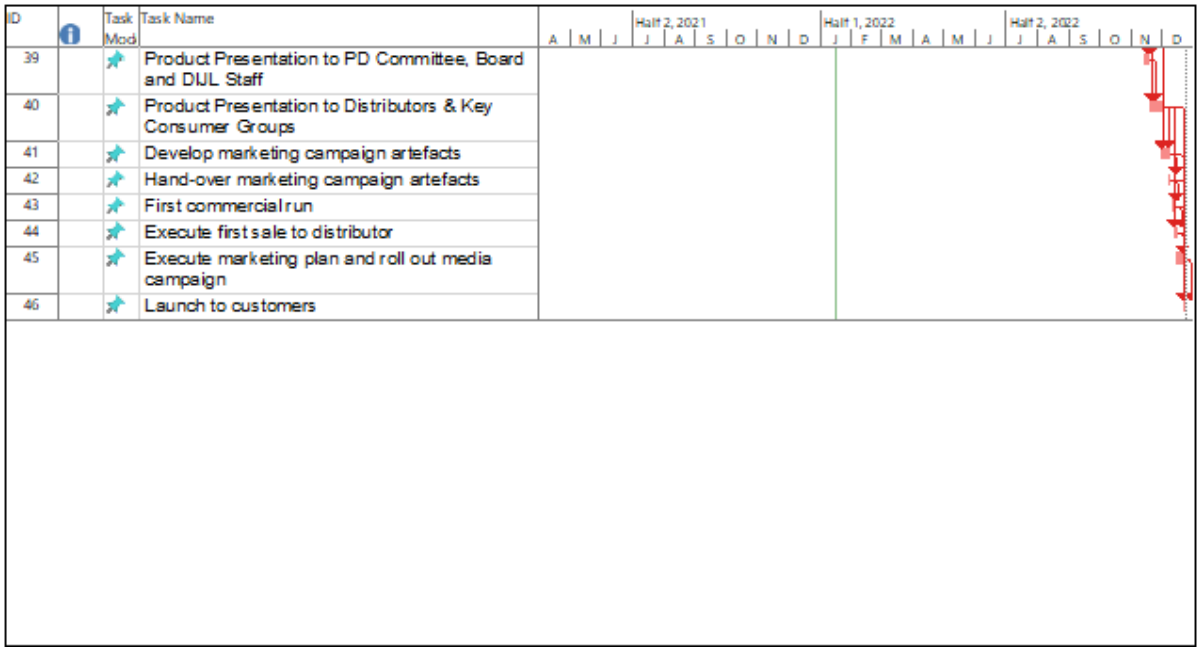


Figure 25: Project Schedule for Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited

Critical Path

The critical path as defined by PMBOK® is “the sequence of activities that represents the longest path through a project, which determines the shortest possible project duration.” (PMI, 2017, p. 210). **Figure 25** highlights the critical path for the project to develop a new cream cheese product at DIJL. The activities that will determine the shortest possible duration for the project are 1, 4, 5, 6, 7, 8, 9, 11, 12-14, 16, 19-30, and 35-46 demarcated on the project schedule by red boxes and lines (**Figure 25**). It means that the project team will have to pay keen attention to the schedule and avoid delays as best as possible.

4.4. Project Cost Management Plan

Project cost management starts off with the development of the cost management plan which details the manner which project costs will be estimated, budgeted, managed, monitored, and controlled (PMI, 2017, p. 231). To prepare the Project Cost Management Plan the project charter, milestones list, Project Risk Management Plan, and schedule baseline were used. Expert judgement, data analysis and meetings were also used to develop the Project Cost Management Plan. Where applicable, the Project Cost Management Plan was used to update the Project Schedule Management Plan, Project Scope Management Plan and Project Charter. As a reference, the PMBOK® Guide was consulted regarding the format of the Project Cost Management Plan.

COST MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Introduction

The focus of the Plan Cost Management process is the provision of details for the estimation, budgeting, management, monitoring and control of project

costs for the execution of the project milestones for the development of a cream cheese product.

Like the Schedule Management Plan, the Project Manager has the responsibility to manage and report on project cost through the lifecycle of the project. The project cost performance will be keenly monitored by the Project Manager through bimonthly meetings with the Operations Manager and Purchasing Manager with the aim to reduce project cost variances. Whenever variances do arise, these instances must go through the cost variance response process and/or cost change control process.

Cost Management Approach

To manage project costs Cost Accounts will be created at the third level of the Work Breakdown Structure (WBS), where each activity will be assigned a labour cost and materials cost. DIJL possesses an Enterprise Resource Planning (ERP) system known as SAP which will be used for generating POs, making payments, monitoring costs and cost controlling. Financial performance of the project will be managed by the Project Manager using earned value management (EVM).

Cost variance thresholds are established to enable the Project Manager to monitor cost performance throughout the project and effect appropriate control measures once these triggers have been exceeded. If the variance in the cost and/or the schedule exceeds the allowable variance of +/- 0.5

(cautionary status), they will be tracked by employing the Cost Performance Index (CPI) and Schedule Performance Index (SPI) respectively. Such variances are monitored, and The Project Manager is to be alerted if a variance exceeds +/- 0.10 (alert status) which will trigger the Cost Variance Response Process.

Project Cost Measurements

The Earned Value Management (EVM) will be used to measure the financial performance of the project. Four EVM metrics will be used – Schedule Variance (SV), Cost Variance (CV), Schedule Performance Index (SPI) and Cost Performance Index (CPI).

In instances where the SPI or CPI falls between 0.05 and 0.10, then reasons for the variance as well as resolutions must be reported by the Assistant Project Manager to the Project Manager and their status changed to yellow. For variances less than 0.9 or greater than 1.1, the Project Manager will be alerted to seek the approval of change requests by Project Sponsor to alleviate the impact of the variances through corrective action. Such variances will be highlighted in red on project status reports.

Chart 20: Variance Thresholds (Source: T. Patterson, The Author, October 2021)

Performance Measurement	Yellow	Red
Schedule Performance Index (SPI)	Between 0.90 and 0.95 or Between 1.05 and 1.1	Less than 0.9 or Greater than 1.1
Cost Performance Index (CPI)	Between 0.90 and 0.95 or Between 1.05 and 1.1	Less than 0.9 or Greater than 1.1

Format for Reporting

To fulfil the cost management reporting function, the Project Manager will disseminate weekly cost reports via email to the Project Sponsor and convene quarterly cost management meetings with the Project Sponsor and Project Team. The quarterly meetings will review the progress of the Cost Management processes with a special focus on schedule/cost variances and their resolutions. All approved changes since the previous quarter will be presented and noted for future reference.

Cost Variance Response Process

If a variance reaches the alert status, the Project Manager has the responsibility to prepare a corrective action report within 5 business days of being notified of same outlining suitable corrective measures to the Project Sponsor for their approval. Once approved, the corrective action(s) are to be implemented withing 3 business days and the related project management

documents updated capturing the change(s) within 10 business days of the correction(s).

Cost Change Control Process

All changes to be made to the Project Cost Management Plan, and budget/cost baseline must be reviewed by the Project Manager and approved by the Project Sponsor.

Project Budget

A summary of the Project Budget is shown below.

Chart 21: Project Budget (Source: T. Patterson, The Author, October 2021)

Items	**Project Cost ($ USD)**
Administration and Project Management Operations	65,000.00
Material Cost	235,000.00
Contingency (4%)	12,000.00
Total	**300,000.00**

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

Project Cost Estimating and Budget Determination

The next cost management planning process is Estimate Costs. To estimate project costs, the Project Cost Management Plan, Quality Management Plan, resources requirements, risk register, project schedule, scope baseline, and historical information were used as inputs. Project Management Tools & Techniques employed were expert judgement, analogous estimating, bottom-up estimating, reserve analysis, decision making, and the SAP ERP software.

Through meeting with Mrs. Rhoden-Gordon (Business Development Manager) who has previously launched new products at DIJL, a strategy for the estimation of projects cost was devised. The bottom up estimating method was selected to estimate the cost of the individual project activities then the detailed cost was rolled up to the milestones for reporting and tracking purposes. Analogous cost estimation was used to support the bottom-up estimation as means to incorporate lessons learnt from previous product launches.

To determine the project budget, the individual activity costs were aggregated thereby creating the cost baseline. According to PMBOK®, the cost baseline "is the approved version of the time-phased project budget that includes contingency reserves, but excludes management reserves" (PMI, 201, p. 248). Then to hedge against project risks, a contingency of 4% was estimated by reserve analysis considering historical information and expert knowledge

and was include in the project budget. The Project Cost Baseline is captured in **Chart 22**.

In creating up the disbursement schedule (**Chart 23**), fund limiting reconciliation tool was used to compare the planned expenditure of the project funds against the capital commitment made by the Project Sponsor. Monies required for the completion of project activities will be dispersed on a quarterly basis ahead of the commencement of each activity. **Figure 26** gives a graphical representation of the percentage cumulative disbursement of funds over the course of the project.

Project Cost Baseline

Chart 22: Project Cost Baseline (Source: T. Patterson, The Author, October 2021)

WBS Code	Element Name	Budget/ Total Cost	Materials Cost	Labour Cost
0	**Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited**	**$ 300,000.00**	**$ 235,000.00**	**$ 65,000.00**
1	**Business Strategy**	**$ 10,250.00**	**$ 7,500.00**	**$ 2,750.00**
1.1	Determine and quantify market	$ 1,500.00	$ 1,000.00	$ 500.00
1.2	Investigate legal and regulatory requirements for market	$ 1,500.00	$ 1,000.00	$ 500.00
1.3	Determine packaging requirements	$ 2,000.00	$ 2,000.00	
1.4	Conduct feasibility study	$ 1,500.00	$ 1,000.00	$ 500.00
1.5	Present feasibility study to NPD Committee	$ 750.00	$ 500.00	$ 250.00
1.6	Develop project charter	$ 750.00	$ 500.00	$ 250.00
1.7	Conduct business analysis	$ 1,500.00	$ 1,000.00	$ 500.00
1.8	Approval of project charter	$ 750.00	$ 500.00	$ 250.00

Chart 22: Project Cost Baseline (Source: T. Patterson, The Author, October 2021) Cont'd

WBS Code	Element Name	Budget/ Total Cost	Materials Cost	Labour Cost
2	**Product and Process Development**	**$ 28,500.00**	**$ 21,000.00**	**$ 7,500.00**
2.1	Develop formulation	$ 6,000.00	$ 5,000.00	$ 1,000.00
2.2	Identify/contact suppliers and source material	$ 1,500.00	$ 1,000.00	$ 500.00
2.3	Conduct benchtop trials	$ 14,000.00	$ 10,000.00	$ 4,000.00
2.4	Preliminary consumer evaluation	$ 3,000.00	$ 2,000.00	$ 1,000.00
2.5	Design and Development Verification	$ 4,000.00	$ 3,000.00	$ 1,000.00
3	**Product Testing**	**$ 45,300.00**	**$ 31,000.00**	**$ 14,300.00**
3.1	Scale-up production trial	$ 21,000.00	$ 15,000.00	$ 6,000.00
3.2	Consumer Panel Exercise	$ 3,500.00	$ 2,000.00	$ 1,500.00
3.3	Conduct shelf life & stability studies	$ 6,000.00	$ 4,000.00	$ 2,000.00
3.4	Conduct sensory evaluation	$ 2,300.00	$ 1,500.00	$ 800.00
3.5	Complete HACCP study	$ 3,000.00	$ 2,000.00	$ 1,000.00
3.6	Complete nutritional analysis	$ 4,000.00	$ 2,500.00	$ 1,500.00
3.7	Development of packaging and raw material specification	$ 4,000.00	$ 3,000.00	$ 1,000.00
3.8	Review cost and price targets	$ 1,500.00	$ 1,000.00	$ 500.00
4	**Design Review**	**$ 23,500.00**	**$ 18,300.00**	**$ 5,200.00**
4.1	Validate prototype, package, and equipment	$ 11,500.00	$ 9,000.00	$ 2,500.00
4.2	Finalize ingredient statement, nutritional analysis, and product claim	$ 2,400.00	$ 1,800.00	$ 600.00
4.3	Packaging design	$ 5,000.00	$ 4,000.00	$ 1,000.00
4.4	Artwork development	$ 2,000.00	$ 1,500.00	$ 500.00
4.5	Regulatory approval of artwork	$ 1,300.00	$ 1,000.00	$ 300.00
4.6	Confirmation of artwork with printers	$ 1,300.00	$ 1,000.00	$ 300.00
5	**Product Launch Preparation**	**$ 68,800.00**	**$ 60,500.00**	**$ 8,300.00**
5.1	Develop Marketing/ Launch Plan	$ 6,000.00	$ 2,000.00	$ 4,000.00
5.2	Apply for ingredient permit	$ 800.00	$ 500.00	$ 300.00
5.3	Procure and receive packaging and raw material for production run	$ 52,000.00	$ 50,000.00	$ 2,000.00
5.4	Complete Bill of Materials (BOM) for SAP	$ 2,500.00	$ 2,000.00	$ 500.00
5.5	Document all procedures, work instructions, and forms	$ 2,500.00	$ 2,000.00	$ 500.00

Chart 22: Project Cost Baseline (Source: T. Patterson, The Author, October 2021) Cont'd

WBS Code	Element Name	Budget/ Total Cost	Materials Cost	Labour Cost
5.6	Conduct training of relevant staff in procedures, work instructions, and forms	$ 2,500.00	$ 2,000.00	$ 500.00
5.7	Document all raw material, product, and packaging specifications	$ 2,500.00	$ 2,000.00	$ 500.00
6	**Product Launch**	**$ 123,650.00**	**$ 96,700.00**	**$ 26,950.00**
6.1	Pre-commercial run	$ 30,000.00	$ 25,000.00	$ 5,000.00
6.2	Finalize process flow, line layout, product yields and labour model	$ 5,500.00	$ 4,000.00	$ 1,500.00
6.3	Scale-up production	$ 30,000.00	$ 25,000.00	$ 5,000.00
6.4	Complete pre-launch documentation	$ 1,500.00	$ 1,000.00	$ 500.00
6.5	Product Presentation to PD Committee, Board and DIJL Staff	$ 750.00	$ 500.00	$ 250.00
6.6	Product Presentation to Distributors & Key Consumer Groups	$ 750.00	$ 500.00	$ 250.00
6.7	Develop marketing campaign artefacts	$ 5,500.00	$ 4,000.00	$ 1,500.00
6.8	Hand-over marketing campaign artefacts	$ 750.00	$ 500.00	$ 250.00
6.9	First commercial run	$ 30,000.00	$ 25,000.00	$ 5,000.00
6.1	Execute first sale to distributor	$ 1,900.00	$ 1,200.00	$ 700.00
6.11	Execute marketing plan and roll out media campaign	$ 10,000.00	$ 5,000.00	$ 5,000.00
6.12	Launch to customers	$ 7,000.00	$ 5,000.00	$ 2,000.00

Disbursement Schedule

Chart 23: Disbursement Schedule (Source: T. Patterson, The Author, October 2021)

Description of Cost Account	Apr-21	Jul-21	Oct-21	Jan-22	Apr-22	Jul-22	Oct-22	Activity Totals
Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited								
Business Strategy								
Determine and quantify market	$500.00	$500.00	$500.00					**$1,500.00**
Investigate legal and regulatory requirements for market	$750.00	$750.00						**$1,500.00**
Determine packaging requirements	$2,000.00							**$2,000.00**
Conduct feasibility study	$750.00	$750.00						**$1,500.00**
Present feasibility study to NPD Committee			$750.00					**$750.00**
Develop project charter			$750.00					**$750.00**
Conduct business analysis			$1,500.00					**$1,500.00**
Approval of project charter			$750.00					**$750.00**
Product and Process Development								
Develop formulation			$6,000.00					**$6,000.00**
Identify/contact suppliers and source material			$750.00	$750.00				**$1,500.00**
Conduct benchtop trials			$7,000.00	$7,000.00				**$14,000.00**
Preliminary consumer evaluation				$3,000.00				**$3,000.00**

Chart 23: Disbursement Schedule (Source: T. Patterson, The Author, October 2021) Cont'd

Description of Cost Account	Apr-21	Jul-21	Oct-21	Jan-22	Apr-22	Jul-22	Oct-22	Activity Totals
Design and Development Verification				$4,000.00				**$4,000.00**
Product Testing								
Scale-up production trial					$21,000.00			**$21,000.00**
Consumer Panel Exercise					$3,500.00			**$3,500.00**
Conduct shelf life & stability studies					$6,000.00			**$6,000.00**
Conduct sensory evaluation					$2,300.00			**$2,300.00**
Complete HACCP study					$3,000.00			**$3,000.00**
Complete nutritional analysis					$4,000.00			**$4,000.00**
Development of packaging and raw material specification					$4,000.00			**$4,000.00**
Review cost and price targets					$1,500.00			**$1,500.00**
Design Review								
Validate prototype, package, and equipment					$11,500.00			**$11,500.00**
Finalize ingredient statement, nutritional analysis, and product claim					$2,400.00			**$2,400.00**
Packaging design					$2,500.00	$2,500.00		**$5,000.00**
Artwork development						$2,000.00		**$2,000.00**
Regulatory approval of artwork						$1,300.00		**$1,300.00**
Confirmation of artwork with printers						$1,300.00		**$1,300.00**
Product Launch Preparation								
Develop Marketing/ Launch Plan						$6,000.00		**$6,000.00**
Apply for ingredient permit						$800.00		**$800.00**

Chart 23: Disbursement Schedule (Source: T. Patterson, The Author, October 2021) Cont'd

Description of Cost Account	Apr-21	Jul-21	Oct-21	Jan-22	Apr-22	Jul-22	Oct-22	Activity Totals
Procure and receive packaging and raw material for production run					$26,000.00	$26,000.00		**$52,000.00**
Complete Bill of Materials (BOM) for SAP						$2,500.00		**$2,500.00**
Document all procedures, work instructions, and forms						$2,500.00		**$2,500.00**
Conduct training of relevant staff in procedures, work instructions, and forms					$1,250.00	$1,250.00		**$2,500.00**
Document all raw material, product, and packaging specifications					$1,250.00	$1,250.00		**$2,500.00**
Product Launch								
Pre-commercial run							$30,000.00	**$30,000.00**
Finalize process flow, line layout, product yields and labour model							$5,500.00	**$5,500.00**
Scale-up production							$30,000.00	**$30,000.00**
Complete pre-launch documentation							$1,500.00	**$1,500.00**
Product Presentation to PD Committee, Board and DIJL Staff							$750.00	**$750.00**
Product Presentation to Distributors & Key Consumer Groups							$750.00	**$750.00**
Develop marketing campaign artefacts							$5,500.00	**$5,500.00**
Hand-over marketing campaign artefacts							$750.00	**$750.00**

Chart 23: Disbursement Schedule (Source: T. Patterson, The Author, October 2021) Cont'd

Description of Cost Account	Apr-21	Jul-21	Oct-21	Jan-22	Apr-22	Jul-22	Oct-22	Activity Totals
First commercial run							$30,000.00	**$30,000.00**
Execute first sale to distributor							$1,900.00	**$1,900.00**
Execute marketing plan and roll out media campaign							$10,000.00	**$10,000.00**
Launch to customers							$7,000.00	**$7,000.00**
Totals	**$4,000.00**	**$2,000.00**	**$18,000.00**	**$14,750.00**	**$90,200.00**	**$47,400.00**	**$123,650.00**	**$300,000.00**
Cumulative Totals	**$4,000.00**	**$6,000.00**	**$24,000.00**	**$38,750.00**	**$128,950.00**	**$176,350.00**	**$300,000.00**	**-**
Cumulative Disbursement (%)	**1.33%**	**2.00%**	**8.00%**	**12.92%**	**42.98%**	**58.78%**	**100.00%**	**-**

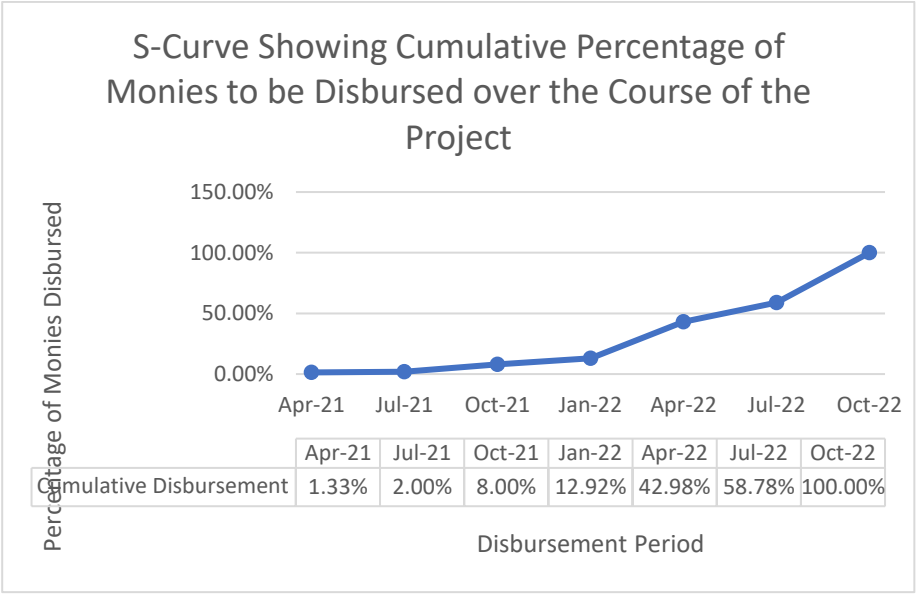

Figure 26: S-Curve Showing Cumulative Percentages of Monies to be Disbursed over the Course of the Project.

4.5. Project Quality Management Plan

Project Quality Management as the name suggests, is aimed at managing project and product quality across all aspects of the project. To develop the project's Quality Management Plan, the Plan Quality Management process was implemented using the project charter, requirements management plan, stakeholder engagement plan, risk management plan and scope baseline as inputs. The project management tools and selected to assist in the creation of the plan were expert judgement, brainstorming, interviews, benchmarking, and meetings. Being the only planning process in the Project Quality Management Knowledge Area in the PMBOK® Guide, only the Plan Quality Management process was used in the elaboration of this FGP.

The Dairy Industries Jamaica Limited food manufacturing facility is no stranger to the concept of quality management. Quality management in ingrained throughout all policies, procedures, processes, and job functions established at DIJL. Both quality assurance and quality control are practiced and is enforced by the Quality Department. The company stakeholders are fully aware of the implications of not meeting quality requirements and as such have placed significant effort into maintaining the established quality and food safety standards.

As relates to this project, the Quality Management Plan contained herein will guide the quality management process for developing a cream cheese

product. This plan will guide the development of the product and processes involved in this project.

QUALITY MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Introduction

The Quality Management Plan for the development of a cream cheese product will direct the quality of the work that is required to complete the project. The quality management approach, roles and responsibilities of defined stakeholders, quality requirements/standards, and quality control measures are outlined in this plan are documented in this plan to demonstrate DIJL's compliance with quality requirements/standards in executing this project.

Quality Management Approach

An integrated quality approach will be taken to define quality standards, measure quality, and to implement continuous improvement. In this integrated approach both the product and project processes will be subjected to meeting the quality requirements/standards defined in this plan.

Product quality for the development of the cream cheese product is guided by the regulatory requirements, internal quality standards and industry best practice. The quality of the ingredients, packaging materials and food processing services/equipment may all have an impact on the quality of the final product. Therefore, the Project Manager and Project Team will ensure that the quality requirements are observed as they complete project work assigned.

Process quality will be guided by the internal quality policies and procedures contained in DIJL's Food Safety Implementation Procedural Manual, Food Safety Management System Manual, Finance Manual, Maintenance Manual, Food Processing Manual and Warehouse Manual. These documents are privileged to both internal and external audits for quality.

The Project Manager, Project Sponsor and Quality Manager will be responsible for the defining the Quality Management Plan and the associated documents. The product, deliverables and certain services utilized throughout the project will be inspected for conformance to the established standard to meet the goal for the product's performance and reliability as per PMBOK® (PMI, 2017, p. 285).

Roles and Responsibilities

Chart 24: Roles and Responsibilities or Key Personnel within the context of the Quality Management Plan (Source: T. Patterson, The Author, October 2021)

Name	Role	Responsibilities
Radcliffe Walker & Board of Directors	Project Sponsor	i. Determine high level project quality requirements ii. Review quality audits/reports to be aware of quality of the project and product throughout the project lifecycle.
Karis-Ann Rhoden-Gordon	Project Manager	i. Spearhead the documentation of the Quality Management Plan. ii. Participate in the identification, reporting, and analysis of the quality of project deliverables. iii. Make reports to Project Sponsor regarding quality issues and nonconformances iv. Coordinate quality audit and reviews v. Develop and monitor project quality metrics.
Terri-Lee Patterson	Assistant Project Manager	i. Participate in the development, documentation, and maintenance of the Quality Management Plan. ii. Conduct quality audits and report findings to the Project Manager and Project Team. iii. Collect progress information on the status of project activities in relation to quality compliance and quality issues on a regular basis. iv. Escalate any project quality issues to Project Manager.
Quality Manager	Project Team	i. Provide guidance to the Project Team on the established policies and procedures in effect at DIJL that will impact the execution of project work. ii. Participate in the development, documentation, and maintenance of the Quality Management Plan. iii. Implement QA and QC tools and techniques to maintain the quality of project deliverables. iv. Escalate any project quality issues to Project Manager.

Chart 24: Roles and Responsibilities or Key Personnel within the context of the Quality Management Plan (Source: T. Patterson, The Author, October 2021) Cont'd

Name	Role	Responsibilities
Product Development Officer	Internal Service Provider	i. Collate a list/log of issues that may impact project quality during the bench top trials and production runs. ii. Escalate any project quality issues to Project Manager.
Purchasing Manager	Project Team	i. Identify and recommend suitable suppliers who can provide materials at the quality and quantities required for the project. ii. Purchase only goods that comply with requirements of the Project Quality Management Plan
Suppliers	Resource Provider	i. Provide materials that are compliant with DIJL's specification and industry best practice.

Quality Requirements/Standards

Product Quality

The raw materials, packaging materials, and processing equipment to be used in the development of the cream cheese product need to be compliant with local regulatory requirements for food processing facilities and food prepared for commercial sale such as the Standards Act, Processed Food Act and the Public Heath (Food Handling) Regulations, 1998. They must also conform to the internal quality specifications which were developed to comply with the international FSSC22000 Food Safety Standard.

The Project Manager with the support of the Quality Manager will ensure that the relevant standards are identified, available, and communicated to the Project Team and Project Sponsor.

Process Quality

DIJL has a robust quality management system which has been documented and implemented from its inception. The quality management program was observed at all levels of the organization and across the various departmental processes. Evidence of this program can be found in the various internal policies and procedures described in the Quality Management Approach above. This Quality Management Plan will therefore only will contain information specific to this project that is not sufficiently captured otherwise and will supersede conflicting information presented in other organizational process assets.

The Project Manager will outline and communicate the pertinent policies and procedures to the Project Team to ensure that all persons are performing their tasks to the degree of quality as required by this project.

Quality Assurance

Quality assurance will be built into the project by ensuring that the quality of the physical inputs such as raw materials and packaging materials and the hygienic condition of the processing environment which includes the processing equipment are compliant with the established internal standards

which prescribes that they should be free from contaminants and are fit for purpose. Verification checks will be performed on raw materials, packaging materials, and the processing environment will be conducted by the Quality Officer and Microbiologist. These tests will be performed at defined intervals over the course of the project. Chart

Chart 25: Quality Assurance Tests to be Performed Throughout the Project to Develop a Cream Cheese Product. (Source: T. Patterson, The Author, October 2021)

Test	Frequency	Ingredient/ Material	Specifications	Rationale
Fat content	Once per lot	• Skim milk • cream • sour cream	• 0.1% fat • Min. 40% fat • 30—50% fat	Ingredients must contain a certain level of fat to ensure proper homogenization and to achieve the desired fat content in the finished product
Moisture	Once per lot	Skim milk, cream	5.0% max	Moisture content higher than 5% will lead to clumping of the powders and proliferation of microbes during normal storage
Protein	Once per lot	Skim milk, cream	34% min.	Protein content of raw materials must be high enough so that the desired protein content in the finished product can be achieved.
Acidity	Once per lot	Sour cream	40 °SH max	If the sour cream is too acidic then the finished product may not be formed according to the expected characteristics. Cream cheese would be too acidic for consumption.
pH	Once per lot	Sour cream	4.4 to 4.6	If the pH of the sour cream is too low, then the finished product will be too acidic. A pH greater than 4.6 will make the product unsafe for consumption.

Chart 25: Quality Assurance Tests to be Performed Throughout the Project to Develop a Cream Cheese Product. (Source: T. Patterson, The Author, October 2021) Cont'd

Test	Frequency	Ingredient/ Material	Specifications	Rationale
Contaminants	Once per lot	Salt, xanthan	Free from heavy metals	Heavy metal contamination of food materials is injurious to health therefore it should be ensured that they are not contained in the raw materials
Total Aerobic Plate Count	Once per lot	All raw materials	100 CFU/g max	Aerobic bacteria cause food spoilage therefore their presence must be maintained to below 100 CFU/g
Coliform	Once per lot	All raw materials	Negative	Coliforms are harmful bacteria and must be absent from raw materials.
Yeast and Mold	Once per lot	All raw materials	100CFU/g max	Yeast and mould cause food spoilage therefore their presence must be maintained to below 100 CFU/g
Environmental swabs	Once per week per surface	Food contact surfaces in the production area	Negative	Pathogenic (harmful) bacteria will contaminate food and can be fatal to humans. They should not be present in the processing area.
Package dimensions	Once per lot	• Tub • lid • tamper-evident seal • carton box	• plastic tub – 139x92x51.5 mm • plastic lid - 143.5x96.5x 10.8mm • tamper band – 300mm • carton box - 304x227x97 mm	Packaging must have uniform dimensions so that they can fit into the existing packaging machines as well as contain the finished products according to specification
Edge crush test	Once per lot	Carton box	150 lb/in	The carton boxes should be able to withstand stacking during storage and transportation

Deviations from the quality standards are observed/recorded during these tests must be communicated to the Project Manager who will then inform the Project Team. Measures are to be taken to ensure only materials and processing environment of good quality are used in the execution of this project. If a raw or packaging material consistently fails the pre-selection verification checks even after adjustments by the initial supplier, then an alternate supply must be identified of the required quality must be identified and procured. The alternate supply will be subjected to the same verification checks and will only be approved once the requirements are met. The findings will be discussed and approval for the change will be sought from the Project Sponsor.

Another set of quality assurance tools that will be used in the assessment/evaluation of quality within the project are documentation audits and process audits. Audits will be conducted every two months by the Assistant Project Manager examining product and process quality according to the Quality Management Plan. The results will be compiled into a report and a summary of nonconformances included if necessary. The report and findings will be presented at the soonest project team meeting along with resolutions which will be sought from process owners within 5 days of the audit where applicable. The Project Manager will ensure that suitable corrective actions are implemented, and the Project Sponsor is briefed in a timely fashion.

Quality Control

Quality control will be performed on prototypes, scale up production samples, pre-commercial run samples and finished products of the commercial runs. Metrics for quality control include product sensory checks, temperature checks, weight checks, acidity checks, pH checks, moisture assessments, and microbiology testing; these tests will be conducted according to internal procedures. The quality control program will also be subjected to the quality assurance audits as well as review in quarterly Project Team meetings.

Quality Assurance/ Quality Control Measurements

Quality Assurance Log

A quality assurance (QA) log will be maintained to document the QA activities performed and to track conformity to the prescribed standards.

Chart 26: Quality Assurance Log. (Source: T. Patterson, The Author, October 2021)

Date	Test/ Inspection Name	Result	Standard/ Specification Requirement	Compliant? (Y/N)	Corrective Action	Verified By	Date Resolved

Quality Control Log

Quality control checks conducted on finished products and processes will be evaluated and recorded in the log presented in **Chart 27** below in accordance with the established specifications.

Chart 27: Quality Control Log. (Source: T. Patterson, The Author, October 2021)

Date	Test/ Inspection Name	Result	Standard/ Specification Requirement	Compliant? (Y/N)	Corrective Action	Verified By	Date Resolved

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

4.6. Project Resource Management Plan

The Project Resource Management Plan was developed after the elaboration of the Project Communication Management Plan. This plan focusses on the sourcing and management of the right resources to complete the project successfully. In the planning process group, the Plan Resource Management and Estimate Activity Resources will be considered in the preparation of the Project Resource Management Plan.

The inputs for the Project Resource Management Plan include project charter, scope baseline, requirements documentation, risk register, stakeholder register, project schedule, resource requirements documented in the WBS Dictionary and OPAs. Meeting and expert judgement were the tools used to assist in the creation of the Project Resource Management Plan.

RESOURCE MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Introduction

The Resource Management Plan plays a pivotal role in the Project Management Plan. This plan plays a master role in the management of the project by articulately assigning human resources throughout the project based on capabilities and for the clear-cut execution of the project. The Resource Management Plan will include roles and responsibilities, RACI chart, and staff management.

Roles and Responsibilities

To successfully develop a cream cheese product, it is imperative that the Project Team execute their roles and responsibilities as seamless as possible. The Project Team is made up of highly skilled and educated experts who will successfully develop the deliverables associated with the project. The following roles and responsibilities will be established as part of the development of the cream cheese product.

Project Manager (Business Development Manager): Responsibilities include ensuring that the adequate quality assurance and documentation requirements are met by analysing risk pertaining to both project and personal safety, cooperation with the supply chain department, handling critical suppliers and manufacturing systems according to deadlines, quality, and budget. The PM will also be responsible for overseeing budgeting, orders, invoices, payments and KPI reports while ensuring sufficient communication between the client and stakeholders bother orally and in writing. She will also guarantee that all tasks are planned appropriately, prioritized and coordinate schedules, deadlines and milestones are achieved.

Assistant Project Manager (APM), (1 Position): Responsible for corresponding with the stakeholders in relations to the project details and deliverables and set up meetings. She will also assist with the planning and execution of the project, coordinate, and manage various project tasks and

deliverables and analyse data as required. Her portfolio will also include the monitoring and reporting of the project process, drafting invoices and ad hoc to any other duties designated too her by the Project Manager.

Senior Technical Officer (STO), (1 Position): Responsible for the conversion of technical data into controllable and useful information, and the development and designing of new product ideas along with the process flow for production. Her role will also include the maintenance of the food safety and set product guidelines in relations to quality while demonstrating knowledge and creativity in the practical use of various ingredients. The STO will also review previous products along with their packaging and processes to meet the needs of consumers and gain plant efficiency

Operations Manager (OM), (1 Position): Responsible for all operational roles of the plant which inclusive of scheduling and cost and most importantly, ensuring plant safety through adhering of safety standards implemented by internal safety committees. While maintaining plant efficiency, the OM is responsible for guaranteeing compliance for product quality, food safety, regulatory compliance, and food defences as per requirements of the quality control department. He is required to enhance, follow, and be held accountable to all pertinent KPIs, managing of all materials, packaging to ensure their availability to meet scheduling and time requirements. As part of his role, he is to initiate preventative initiatives for the occurrence of any

nonconformities relating to product, process, or the quality system and recommend or provide solutions to correct any deficiencies.

Marketing Manager (MM), (1 Position): Responsible for the overall development of the marketing strategies pertaining to new products which includes the organizing and coordination of promotional events and day-of deliveries. The MM also leads the marketing team as well as review present market campaigns for possible feebleness and creation of solutions within budget constraints. As part of her responsibilities, the Marketing Manager will identify new potentials markets with effective and efficient ways of penetrating the market while partnering with product developments.

Quality Assurance Manager (QAM), (1 Position): Responsible for the provision of guidance in the development, training, execution, and verification/validation of all quality systems and the development, training and maintenance of the plant quality and food safety (QFS) programs. The QAM will ensure full compliance to all regulatory, customer, and corporate programs while guiding and participating in regulatory, customer, and internal audits. To maintain safe and wholesome product supplies, the QAM will develop and monitor plant sanitation and product safety programs and acts as the main point of contact for both internal and external customers in order to investigate customer complaints via written communication.

Plant Engineer (PE), (1 Position): Responsible for ensuring that plant equipment and procedures conform to Good Manufacturing Practices, food processing regulations and the company's quality and safety procedures. The PE also ensures that the plant layout is designed or modified to accommodate new processes and products while ensuring that sufficient spares to improve factory reliability and keep infrastructure in good condition.

Purchasing Manager (PMA), (1 Position): Responsible for the development and executing of purchasing strategies, maintaining of fruitful relationships with suppliers, handling of daily purchasing activities, supervising the purchase team and allocating task. The PMA is also responsible for the negotiation of contracts, prices and procurement of goods/ services while coordinating with inventory control to regulate onsite inventory. She will also ensure that all procured items meet the required quality standard specifications necessary for production, prepare cost estimates and manage budgets.

Project Organizational Charts – RACI Chart

The RACI chart below shows the linkage between project team members and project tasks. Changes regarding roles and responsibilities within the project must be approved by the Project Manager and are subject to the established change control procedures.

Chart 28: RACI Chart. (Source: T. Patterson, The Author, October 2021)

RACI Chart	Team members/project stakeholders							
Activity	Project Sponsor/ Project Manager	Assistant Project Manager	Senior Technical Officer	Operations Manager	Marketing Manager	Quality Assurance Manager	Plant Engineer	Purchasing Manager
Determine and quantify market	A			I	R			
Investigate legal and regulatory requirements for market	A	R		I				
Determine packaging requirements	A				R			
Conduct feasibility study	I	A	R					
Present feasibility study to NPD Committee	I	A	C			R		R
Develop project charter	A	R	I					
Conduct business analysis	A	R	I					
Approval of project charter	R	A						
Develop formulation	A		R					
Identify/contact suppliers and source material	A			C	C	I		R
Conduct benchtop trials		A	R					
Preliminary consumer evaluation		I	A					R
Design and Development Verification		A		R	I	I		
Scale-up production trial	I	C		A	I	R	R	R
Consumer Panel Exercise	I	A	R			C		
Conduct shelf life & stability studies	I	A		R				
Conduct sensory evaluation		A			R			
Complete HACCP study		I	A	R				

Chart 28: RACI Chart. (Source: T. Patterson, The Author, October 2021)

Cont'd

RACI Chart	Team members/project stakeholders							
Activity	Project Sponsor/ Project Manager	Assistant Project Manager	Senior Technical Officer	Operations Manager	Marketing Manager	Quality Assurance Manager	Plant Engineer	Purchasing Manager
Complete nutritional analysis			R	A				
Development of packaging and raw material specification				C		A	R	
Review cost and price targets			C	A	R	I		R
Validate prototype, package, and equipment		I	C	A	I		R	
Finalize ingredient statement, nutritional analysis, and product claim			R	A				
Packaging design			R	I	A		C	
Artwork development	A		R		R			
Regulatory approval of artwork	I	A			R			
Confirmation of artwork with printers	I	A			R			
Develop Marketing/ Launch Plan			A	R	I			
Apply for ingredient permit	R		A					
Procure and receive packaging and raw material for production run	R			A		I		
Complete Bill of Materials (BOM) for SAP						I	A	R
Document all procedures, work instructions, and forms				A	I	R	C	
Conduct training of relevant staff in procedures, work instructions, and forms	I	C		A	R			

Chart 28: RACI Chart. (Source: T. Patterson, The Author, October 2021)

Cont'd

RACI Chart	Team members/project stakeholders							
Activity	Project Sponsor/ Project Manager	Assistant Project Manager	Senior Technical Officer	Operations Manager	Marketing Manager	Quality Assurance Manager	Plant Engineer	Purchasing Manager
Document all raw material, product, and packaging specifications	I	C		A	R			
Pre-commercial run								
Finalize process flow, line layout, product yields and labour model	A	I	I		R	R	R	
Scale-up production	A	I	I	R	R	C	I	I
Complete pre-launch documentation	R		A			C	R	
Product Presentation to PD Committee, Board and DIJL Staff	A	R						
Product Presentation to Distributors & Key Consumer Groups	A	R		I				
Develop marketing campaign artefacts	R		A		I			
Hand-over marketing campaign artefacts	I	A			R			
First commercial run		I	I	C	R	R	A	
Execute first sale to distributor	I	A			R			
Execute marketing plan and roll out media campaign	A		I		R			
Launch to customers	A		I		R			

Key:
R – Responsible for completing the work
A – Accountable for ensuring task completion/sign off
C – Consulted before any decisions are made
I – Informed of when an action/decision has been made

Staffing Management

Staff Acquisition

The Human Resources aspect of this project will include mostly members of the Dairy Industries Jamaica Limited. At DIJL, there is a blend of both permanent and contract staff members; the administrative staff as well as the members of the project team are permanently employed with DIJL, while the contractual staff are from an employment agency and are managed/paid by their agency. It is mandatory that all employees must possess a Food Handler's Permit as issued by the Ministry of Health and Wellness before they can be hired. In addition to this, once hired individuals will be trained in Food Safety and Good Manufacturing Practices (GMPs) by the QAM. The supervisors will be responsible for delivering job specific training to the team members. As part of the process, the Project Manager will negotiate with functional and department managers to identify and assign resources in accordance with the project organizational structure.

Resource Calendars

The development of the cream cheese product will take DIJL approximately 80 weeks to complete in its entirety. To effectively initiate the development of the cream cheese product, all human resources are required before the project can be started with permanent workings working a 40-hour week and contractual workers on 20 – 30-hour weeks until the completion of the 68th week. During the last 12 weeks of the product development the workers dedicated to the development of the cream cheese product will be scaled

back with permanent staff being dedicated to the production scale up and launching of the cream cheese. **Figure 27** below represents the Human Resource Calendar.

Figure 27: Human Resource Calendar (Source: T. Patterson, The Author, October 2021)

Training

Once hired, all individuals will be trained in Food Safety and Good Manufacturing Practices (GMPs) by the QAM seeing that persons are to be adequately trained for creating the cream cheese product. In addition to training by the QAM, if anyone requires specialized training then trainers will be brought onsite, or training done offsite or via videoconferencing.

Performance Reviews

The overall review of the team members' performance based on their assigned works and activities will be carried out by the Project Manager. Members will be appraised and evaluated throughout the project and how they effectively carry out the tasked bestowed upon them. The appraisal process is based on quantitative objectives that are set by the functional

manager and the team members with a six-month and twelve-month appraisal measuring the team members against the set quantitative objectives.

Recognition and Rewards

DIJL takes pride in recognizing and rewarding good work performance. To incentivize team members, gift vouchers and financial awards are bestowed to top personnel for their performance on a monthly basis.

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

4.7. Project Communications Management Plan

The discipline of Project Management is heavily reliant on communication between the Project Manager and the identified stakeholders both internal and external. Information needs to be shared with the relevant parties on a timely basis to ensure awareness of project details and changes over the course of the project. The PMBOK® Guide suggests the documentation of the project communication strategy in the Communications Management Plan.

Plan Communications Management process defines the “collection, creation, dissemination, storage, retrieval, management, tracking, and disposition of these communications artifacts” (PMI, 2017, p. 362). This is the only communications process which falls into the planning process group. The Project Manager will aim to prevent misunderstandings and miscommunication by carefully selecting methods, messages, and messengers by carefully documenting the Communications Management Plan.

The project charter, Resource Management Plan, stakeholder engagement plan, requirements documentation, stakeholder register, and organizational process assets (OPAs) were used as inputs for the Plan Communications Management process. The Assistant Project Manager interviewed the Project Manager to determine communication strategy used in past product development projects and to identify if any new methodologies would be required specifically for this project or as an improvement.

COMMUNICATIONS MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Communications Standards

Sponsor Acceptance

Introduction

This Communications Management Plan provides details on the communication strategies used in in the dissemination information to the various stakeholders involved in the development of the cream cheese product. This plan identifies the individuals and/or entities which the plans involve and applies to, the communication delivery methods and technologies, communications matrix, and communication standards.

Target Audience

The following stakeholders are the intended audience for communications within the project and will have messages specially coded according to their level of involvement:

- Project Sponsor (General Manager and Board of Directors at DIJL)
- Project Manager
- Assistant Project Manager
- Project Team (NPD Committee)
- Internal Service Providers
- Regulators

Communications Delivery Methods and Technologies

A mixed media approach will be used to delivery messages to the target audience of the Communications Management Plan. Telephone conversations, emails, video conference meetings (Microsoft Teams and Zoom), and face-to-face meetings will used primarily to reach project stakeholders. Reports, request forms, oral presentations, and PowerPoint presentations will be used to support the reporting function within the project.

Communications Matrix

Communication requirements analysis was conducted on the information gathered by the Assistant Project Manager for the Project Manager and the output compiled into a communications matrix as outlined in **Chart 29** below. The matrix details the communication type, deliverable, delivery method, frequency, communication purpose, owner, and audience.

Chart 29: Communications Matrix. (Source: T. Patterson, The Author, October 2021)

Communication Type	Deliverable	Delivery Method	Frequency	Communication Purpose	Owner	Audience
Project Sponsor Briefing	Progress report	Emails and video conferencing	Quarterly	Gives details on project activities and progress. Includes reports from Project Manager	Project Manager	Project Sponsor, Regulators
Project Updates	Project update	Telephone calls, video conferencing, emails, written change request form, and face-to-face conversations	Biweekly for procurement updated; Weekly for all other updates	Reviews progress, delays, challenges, risk updates, requests for change	Project Manager	Project Sponsor, Project Team, Internal Service Providers, and Suppliers
Project Team Briefing	Team Briefing	Video conferencing, face-to-face conversations, and written work orders	Weekly	Recollection of previous week's activities, share work order for upcoming week, and staff recognition and rewards	Project Manager	Project Team and Internal Service Providers
Project Review	Milestone update	Presentations, emails, and video conferencing	Monthly	Review of milestones, deliverables, delays, and resolutions for unachieved deliverables	Project Manager	Project Team, Internal Service Providers, and Suppliers

Chart 29: Communications Matrix. (Source: T. Patterson, The Author, October 2021) Cont'd

Communication Type	Deliverable	Delivery Method	Frequency	Communication Purpose	Owner	Audience
Quality Review	Quality status	Presentations, emails, and video conferencing	Quarterly	Review quality compliance for the previous quarter, discuss resolutions for noncompliances and establish closeout timelines.	Project Manager, and QAM	Project Team, Internal Service Providers, and Suppliers
Cost Management Review	Cost status	Presentations, emails, and video conferencing	Weekly with Project Sponsor; Bimonthly (with OM and Purchasing Manager); Quarterly (with Project Team)	In-depth review of the project's financial standing, procurement challenges, and financial analysis.	Project Manager, and Purchasing Manager	Project Sponsor

Communications Standards

DIJL possesses a communications procedure which requires that minutes of meetings must be recorded and stored for future reference and evidence of commitments and action plans made therein.

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

4.8. Project Risk Management Plan

The Project Risk Management Plan provides information on potential risks, the impacts that they may have on the project, and the strategies that will be used to treat the risks. The Risk Management Plan is vital through the entirety of the project and is concerned with all sections of the Project Management Plan. The monitoring and control of the Risk Management Plan runs throughout the entire project lifecycle since risks may arise at any given point in the project.

The Plan Risk Management process is the only in the Project Risk Management Plan Knowledge Area in PMBOK® and therefore will be the only focus of this section. According to PMBOK® Plan Risk Management is “the process of defining how to conduct risk management activities for a project” (PMI, 2017, p. 395). The Project Charter, all components of the Project Management Plan, stakeholder register, and OPAs were used as the inputs in the development of this plan. Expert judgement, data analysis, and meetings were used to support the planning process for risk management.

RISK MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Introduction

Risks are commonly involved in the execution of any project. The presence of risks in a project must be anticipated by the Project Manager and measures must be put in place to identify, mitigate, manage, and control the impacts of them. The purpose of this Risk Management Plan is to define and document these measures as well as to serve as reference record for similar projects in the future that will be executed by DIJL.

This Risk Management Plan includes the risk management approach, roles and responsibilities of the team members contributing to the risk management process, risk breakdown structure, definition of probability and impact of risks in the project, probability and impact matrix and the risk register.

Risk Management Approach

A methodical process approach will be taken in the management of risks in the cream cheese product development project. The project team lead by the Project Manager will identify, score, and rank the various risks associated

with new product development. The information gathered will be compiled into a risk register which will be maintained by the Project Manager and will be a principal topic in all progress update and review meetings. New risks with unacceptable consequences to the project will be reviewed and added to the risk management plan as they appear if there were no control measures that could have managed them in the original version of the plan.

While it is important to track all risks, special focus will be placed on those with the highest impact to ensure that established mitigation responses are made at the slated time during the project. Risks will be assigned to project team members who will become risk managers to assure that the required attention is given to each risk. It will be the responsibility of the assigned risk manager to give status updates on their assigned risks on a weekly basis during project team update meetings during the risk's planned time timeframe.

At project closeout the Project Manager will analyse each risk and review the risk management process with the aim to identify any improvements that can be applied to future projects. This will be captured in a lessons learned document.

Roles and Responsibilities

Project Team members will take an active role in the documentation and management of the Risk Management Plan. **Chart 30** below defines the roles

and responsibilities of the identified stakeholders in cream cheese product development project. In this project, the Project Manager serves as the Risk Manager.

Chart 30: Roles and Responsibilities for the Risk Management activities.

(Source: T. Patterson, The Author, October 2021)

Role	**Responsibilities**
Project Sponsor	• Approve changes to risk management plan. • Be aware of the details of the Risk Management Plan • Make decisions that have financial or legal consequence because of significant unidentified risks.
Project Manager	• Chairs risk assessment meetings • Identifies risk interdependencies across projects and verifies if the risk is internal or external to the project • Assigns risk classification and tracking number • Determines the impact and priority of the risk • Monitors project for potential risks throughout the project lifecycle. • Analyses any newly identified risks and adds them to the risk register. • Prepares risk statements • Reviews and updates the risk register bimonthly. • Escalates issues to Project Sponsor
Risk Owners	• Determines the mitigation strategies and contingency plans required for their assigned risks • Monitors, controls, and status updates of risks throughout the project lifecycle. • Assist in the development of risk response and risk trigger. • Executes the risk response when required • Participates in the review meetings where the probability and impact for each risk is re-evaluated and modified as required. • Escalates significant issues to Project Manager
Other Key Stakeholders	• Participate in the identification of risks and their consequence, impact, and priority.

Risk Identification and Risk Breakdown Structure

Expert interviews were held with the Project Manager Mrs. Rhoden-Gordon and members of the Project Team. These interviews yielded in the risks captured in **Chart 31** below which depicts the hierarchical breakdown of the risks within the project. Historical information from similar projects was also reviewed during data gathering for **Chart 31**. A more fulsome definition of the identified risks will be captured in the Risk Register **(Chart 34)**.

Chart 31: Risk Breakdown Structure. (Source: T. Patterson, The Author, October 2021)

RBS Level 0	RBS Level 1	RBS Level 2
0. Project Risk	1.0 Financial	1.1 Price increase of raw materials
		1.2 Underestimated project costs
	2.0 Health	2.1 Covid-19 infection of staff members
	3.0 Regulatory	3.1 Regulatory refusal of raw material import permit
	4.0 Scheduling	4.1 Pandemic related shipping delays
	5.0 Quality	5.1 Inferior raw materials (ingredients)
		5.2 Short shelf life
		5.3 Inferior packaging design/materials
	6.0 Stakeholder	6.1 Consumer rejection of product

Definition of Probability and Impact

The probability and impact of each risk is to be assessed according to the project context and will reflect the risk appetite and thresholds of DIJL and key stakeholders (PMI, 2017, p. 407). A five-level risk approach will be

utilized to define the probability and impact of each risk against the project objectives of time, cost, and quality.

Chart 32: Definition of Probability and Impact in the Cream Cheese Development Project. (Source: T. Patterson, The Author, October 2021)

Scale	Probability	+/- Impact on Project Objectives		
		Time	Cost	Quality
Very High	>80%	>6 months	>$5000.00	Very significant impact in overall project quality
High	50-80%	3-6 months	$3001.00 - $5000.00	Significant impact in project quality
Medium	25-50%	1-3 months	$1001.00 - $3000.00	Could represent some impact on overall project quality
Low	10-25%	1-4 weeks	$501.00 - $1000.00	Minor impact on overall functionality
Very Low	1-10%	1 week	<$500.00	Minor impact in secondary functions
Nil	<1%	No change	No change	No change

Probability and Impact Matrix

The Project Manager will prioritize the risk avoidance and risk mitigation strategy by ranking the risks according to the probability and impact matrix shown in **Chart 33**. Risks that are more likely to happen and pose a significant impact on the project will be classified as the highest priority risks while those which are more unlikely to happen or pose a low impact on the project will be classified as a much lower priority. In the interest of prioritizing threats and negative impacts, opportunities and positive impacts will not be considered by this plan.

Chart 33: Probability and Impact Matrix for the Cream Cheese Development Project. (Source: T. Patterson, The Author, October 2021)

Probability		Threats				
Very High	0.90	0.05	0.09	0.18	0.36	0.72
High	0.70	0.04	0.07	0.14	0.28	0.56
Medium	0.50	0.03	0.05	0.10	0.20	0.40
Low	0.30	0.02	0.03	0.06	0.12	0.24
Very Low	0.10	0.01	0.01	0.02	0.04	0.08
Impact		0.05	0.10	0.20	0.40	0.80
		Very Low	**Low**	**Moderate**	**High**	**Very High**

High Risk	X>0.20
Medium Risk	0.05<X<=0.20
Low Risk	X<=0.05

Risk Register

The Risk Register was created in the early planning phase of the project and was developed after the project risks were identified during the examination of all subsidiary Project Management Plans by the Project Team. Qualitative analysis was performed on the identified risks followed by the planning of risk responses. Qualitative analysis was chosen over quantitative risk analysis since tools such as simulation software were not available.

The Risk Register consists of a list of identified risks, risk owner, cause, trigger, consequence, probability, and impact (calculated from DIJL's risk

definition), risk level (calculated from the risk's probability and impact), and risk response strategy.

Chart 34: Risk Register. (Source: T. Patterson, The Author, October 2021)

RBS Code	Risk	Cause	Consequence	Probability	Impact	Risk Level (PxI)	Trigger	Risk Owner	Risk Response Strategy
1.1	Price increase of raw materials	Increase in the cost of raw materials and packaging materials after the finalization of product costing	The cost to purchase the goods at a higher than planned price will lead to budget overrun. Funds may not be readily available to complete project withing the planned time or at the expected quality due to cutbacks.	Medium (0.50)	Very high (0.80)	High (0.40)	Receipt of quotations higher than the estimated costs after the finalization of product costing	Project Manager & Purchasing Manager	Inform Project Sponsor about price increase and possible budget overrun. Evaluate which activities can receive budget cuts without compromising the quality or schedule of the project.
1.2	Underestimated project costs	Establishment of unrealistic cost estimates based on dissimilar project	Underestimated costs will lead to budget overrun.	High (0.70)	Very high (0.80)	High (0.56)	Payments at the end of each disbursement period exceeds budgeted cost.	Project Manager & Purchasing Manager	All budgeted costs will be derived from quotations from suppliers as well as contracts signed before the budget is approved.

2.1	Covid-19 infection of staff members	Exposure of key employees involved in the project to a Covid-19 positive individual	Infected employee(s) may require extended absence from work or hospitalization for recovery.	Very high (0.90)	Very high (0.80)	High (0.72)	Key team members become ill with covid-19 and are hospitalized at any point of the project	Project Manager	All team members will be given covid-19 awareness training at the beginning of the project and will be mandated to observe the established covid-19 protocols.
3.1	Regulatory refusal of raw material import permit	Raw material is unknown by regulator, or the material contains an unapproved component for the Jamaican market.	Project schedule may experience delays due to delayed approval or refusal of permit.	Medium (0.50)	Moderate (0.20)	Medium (0.10)	Permit is refused before the purchase of raw/ packaging material.	Project Manager & Purchasing Manager	Only ingredients and materials approved by the Jamaican and do not require permits will be selected.
4.1	Pandemic related shipping delays	Covid-19 pandemic has slowed major industries including the shipping industry to a halt. Quarantines and lockdowns	Delays in the arrival of project supplies will cause schedule overruns and prevent the project from being	High (0.70)	Very high (0.80)	High (0.56)	A confirmed time of arrival cannot be provided by the supplier before	Purchasing Manager	Materials will be purchased only form suppliers who can provide an unwavering time of arrival for procured materials.

		have reduced the availability of manpower.	completed on time.				shipping of the goods.		
5.1	Inferior raw materials (ingredients)	Suppliers provide materials at a quality lesser than promised or required for the development of the product.	Product may become contaminated or not perform as expected.	Low (0.30)	High (0.40)	Medium (0.12)	Two lots from each raw material or packaging material do not meet the quality standards specified in the Quality Management Plan.	Purchasing Manager and Quality Manager	Samples of the requested material will be obtained and tested before ordering of the complete shipments of goods. All materials are to be accompanied by a certificate of analysis.
5.2	Short shelf life	Natural ingredients and/or product design flaws.	The use of natural ingredients and/or product formulation/ design flaws will lessen the shelf life of the cream cheese in comparison to that of the competition.	Medium (0.50)	Moderate (0.20)	Medium (0.10)	Finished product fails shelf life and stability study in at least one set of replicate samples during testing.	Project Manager & Senior Technical Officer	Product formulation will be vetted by industry experts who have specialized knowledge in the creation of a cream cheese product before commercialization.
5.3	Inferior packaging	Packaging material/ container was	The product will become contaminated	Low (0.30)	High (0.40)	Medium (0.12)	Packaging material is identified	Project Manager &	Packaging materials will be vetted by

	design/materials	not designed to match the exact specification of the product.	or spoil before the end of the anticipated shelf life. Consumers will lose trust in the product.				as the source of reduced shelf life during the shelf life and stability study.	Senior Technical Officer	industry experts who have specialized knowledge in the creation of a cream cheese product before commercialization.
6.1	Consumer rejection of product	Consumers do not like the taste or mouthfeel of the developed cream cheese product.	Consumers will refuse to make repeat purchases and the company will receive bad publicity and lose revenue.	Very Low (0.10)	Very High (0.80)	Medium (0.08)	Sixty percent of consumer sensory panellist indicate disapproval of product during the Consumer Panelling project activity.	Project Manager	Extensive market research will be conducted at the beginning of the project to identify customer needs and preferences.

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

4.9. Project Procurement Management Plan

The Project Procurement Management Plan is developed to serve a guide for the purchase/acquisition of project materials or services as required both internal and external to the DIJL. The Plan Procurement Management process was used to develop the plan with inputs from the project charter, Scope Management Plan, Requirements Management Plan, Quality Management Plan, Resource Management Plan, stakeholder register, and risk register. Expert judgement was the primary tool used in the development of the Project Procurement Management Plan.

PROCUREMENT MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Introduction

The purpose of the Procurement Management Plan is to define the procurement requirements for the development of a cream cheese product by DIJL. The plan also defines how the project procurement requirements are to be managed from the development of procurement documentation to contract closure. This plan shall be used in conjunction with DIJLs Purchasing Procedure which governs how procurement is already performed within the organization.

The plan will be organized into the following sections: procurement management approach, make, buy, or rent decisions, procurement definition, contract type, procurement risk and mitigation strategies, cost determination, standardized procurement documentation, procurement constraints, contract approval process, evaluation and qualification criteria, vendor management, and performance metrics for procurement activities.

Procurement Management Approach

The management of the procurement process and related activities will be the responsibility of the Project Manager. The Senior Technical Officer in conjunction with the Project Manager will review the project deliverables and milestone list to generate a listing of all materials required the successful execution of the project. The Purchasing Manager will review the list and indicate whether existing suppliers can provide the desired items and if permits are required. The procurement list and plan will be presented to the Project Sponsor and Project Management Team in a meeting for their review

after which these documents will be approved to initiate the procurement process.

Make, Buy or Rent Decision

Based on the nature of the product and operation, required resources will bought from suppliers who can provide materials complying with DIJL's quality, and procurement requirements. It was determined that no additional processing equipment or devices will need to be procured since all needs can be met internally with pre-existing production floor layout.

Procurement Definition

Items to be procured have been defined by the Project Manager and Senior Technical Officer and vetted by the Project Team. These items which will be acquired externally are described **Chart 35** below are to meet the quality standards and delivery dates specified therein.

Chart 35: Items to be Procured. (Source: T. Patterson, The Author, October 2021)

Item	Justification	Quality Standard	Delivery Date
Skim milk powder	Needed to make cream cheese base mixture.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Cream	Needed to make cream cheese base mixture.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022

Chart 35: Items to be Procured. (Source: T. Patterson, The Author, October 2021) Cont'd

Item	Justification	Quality Standard	Delivery Date
Mesophilic bacterial starter culture	Needed for the coagulation of milk and cream by means of lactic acid formation and fermentation.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Sour cream	Needed for fat standardization and flavour development.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Salt	Needed to add flavour.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Xanthan gum	Needed to thicken fermented cream cheese mixture.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Annatto	Needed to impart colour to the cream cheese product	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Calcium citrate	Needed for calcium fortification of the cream cheese product.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Butter flavour	Needed for flavour development.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Sorbitol	Needed for flavour development.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
300g plastic tub	Needed for containing the finished product.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022

Chart 35: Items to be Procured. (Source: T. Patterson, The Author, October 2021) Cont'd

Item	Justification	Quality Standard	Delivery Date

Lid for 300g plastic tub	Needed for containing the finished product.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Tamper evident shrink sleeve	Needed to assure customer of product safety.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022
Carton box	Needed for containing the packaged finished product.	Specified in the Scope Management Plan and Quality Management Plan	7-Oct-2022

Type of Contract to be Used

For the development of DIJL's cream cheese product, the Unit Price Contract will be used for the procurement of all the defined raw materials and packaging materials specified in **Chart 35** above. This type of contract sees the suppliers being paid per quantity of material delivered to DIJL. The Project Team will determine the quantities of each item required and share them with the Purchasing Department so they can be procured.

Procurement Risks and Mitigation Strategies

DIJL acknowledges the possibility for the presence of risk in the project procurement activities. According to **Chart 34** that captures the risk register, risks 1.1, 1.2, 3.1, 4.1, and 5.1 all are related to the procurement process and will have to be monitored and controlled ultimately by the Project Manager who is also the Risk Manager. **Chart 34** also defines the mitigation strategies for the identified risks. Any newly identified risk that arise during the implementation of the Procurement Management Plan must be duly examined and added to the risk register.

Cost Determination

The cost of materials will be directly based on the unit cost price declared on the quotations provided by the suppliers/vendors. The Purchasing Team will send Request for Quotations (RFQs) to the pool of identified suppliers who can provided the desired materials. The quotes are reviewed by the project team and potential suppliers are narrowed down.

Requests for Information (RFIs) are sent to the supplier short-list to gather more detailed information about the materials such as allergen statement, processing plant certification, product specifications, certificate of analysis (COAs), production capacity, and lead times. The RFQs are re-evaluated alongside the RFIs and vendors meeting the DIJL's specifications are then selected.

Standardized Procurement Documentation

DIJL has procurement related documentation within its OPAs. These documents must be used whenever a purchase of a good or service is to be made. These documents are sent to the vendors by the Purchasing Team and must be completed and returned to DIJL before the decision to make the purchase is vetted by the Project Team then approved by the Project Sponsor. DIJL's standardized procurement documentation are:

- Allergen survey
- Supplier information data sheet

- Vendor financial information form
- Request for quotation (RFQ)
- Request for information (RFI)
- Supplier evaluation form
- Supplier contract
- Non-disclosure agreement

Procurement Constraints

The procurement process is constrained by the project schedule, project budget and project quality specifications. These constraints must be considered in the vendor selection process.

Schedule – the project schedule is inflexible, therefore delays in the procurement process will invariably have a negative impact on the slated project completion date.

Cost – the project budget is defined by the individual costs associated with each project activity. Although a contingency of 4% contingency was factored into the budget, there exists a finite limit to the Project Sponsor's financial commitment. In this regard, the selected vendors must offer their goods in keeping with the established budget.

Quality – the product quality desired limits the standard or specification of materials that can be used in this project. Vendors must provide goods of the defined quality exactly otherwise they will not be selected.

Contract Approval Process

Contract approval is performed once the goods required have been documented, potential suppliers identified, RFQs/RFIs and other documents are received, and a finalized list of suppliers is prepared. The standardized procurement documents for all potential vendors are reviewed by the Project Team and compared to the established project specifications. Vendors are then selected according to their compliance with the project specifications. Final quotations that do not exceed $4000.00 USD are approved by the Project Manager. Quotations that exceed the sum of $4000.00 USD must be approved by the Project Sponsor.

Evaluation and Qualification Criteria

The criteria for the selection and award of procurement contracts within this project shall be based on the proceeding criteria:

- Proper completion of standardized procurement documents issued to them
- Possession of international food safety certification at their processing facility

- Ability to provide certificates of analysis and product specification
- Past performance
- Confirmation of lead times before shipping
- Quality of goods
- Cost of goods

Vendors who successfully meet these criteria will be awarded to contract to supply DIJL.

Vendor Management

The Project Manager has overall responsibility for the vendor management process. The Purchasing Manager will maintain communication with the various suppliers via email on a weekly basis to keep abreast with any changes regarding cost, quality, and delivery times. In the event of any deviation outside of the project constraints, the Purchasing Manager will alert the Project Manager and a mitigation strategy is applied according to the Project Management Plan. These communications must be captured in written format for ease of review. The frequency of the communication with the vendors will lead to the establishment of a good business relationship and the delivery of timely updates or corrections.

Performance Metrics for Procurement Activities

Vendor performance will be measured at each delivery and recorded. This will be done using the log presented in **Chart 36** below. A three-point scale is used to rate each vendor, where “1” is “Unsatisfactory”, “2” is “Acceptable”, and “3” is “Exceptional”.

The Project Manager, Purchasing Manager and Quality Assurance Manager will be responsible for the inspection of the goods upon receipt to confirm quantity and quality of the goods. Goods of sound quality will be accepted, while goods of poor quality will be rejected, and recourse sought from the supplier.

Chart 36: Supplier Evaluation Form. (Source: T. Patterson, The Author, October 2021)

Vendor	Product Quality	On Time Delivery	Documentation Quality	Development Costs	Development Time	Cost Per Unit	Transactional Efficienc
Vendor #1							
Vendor #2							

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

4.10. Project Stakeholder Management Plan

Stakeholders are integral to the successful execution of a project. A Project Stakeholder Management Plan is necessary to guide the process of handling project stakeholders throughout the project lifecycle. The Project Stakeholder

Management Knowledge Area has one process that falls into the initiating process group (Identify Stakeholders) and one process that falls in the planning process group (Plan Stakeholder Engagement). These two processes were used to develop the Stakeholder Management Plan for this FGP.

Inputs into the development of the Project Stakeholder Management Plan include project charter, Communications Management Plan, requirements documentation, Risk Management Plan, Resource Management Plan, risk register, and OPAs. To support the development of this plan, expert judgement, brainstorming, and meetings were used for data collection.

STAKEHOLDER MANAGEMENT PLAN

PRODUCT DEVELOPMENT PROJECT OF CREAM CHEESE AT DAIRY INDUSTRIES JAMAICA LIMITED

DAIRY INDUSTRIES JAMAICA LIMTED (DIJL)

KINGSTON

JAMAICA

October 2021

Project Manager: Karis-Ann Rhoden-Gordon

Project Objective: To develop a cream cheese product

Project Sponsor: Dairy Industries Jamaica Limited (DIJL)

Prepared By: Terri-Lee Patterson (Assistant Project Manager)

Submitted to: Project Sponsor (DIJL)

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Introduction

This Stakeholder Management Plan documents the method by DIJL identifies their stakeholders and how they plan to involve these stakeholders in the

various project activities “based on their needs, expectation, interests, and potential impact on the project” (PMI, 2017, p. 503). The identification of project stakeholders takes a more fulsome approach than just listing who the stakeholders are but also detailing the interests the hold in the project, their level of involvement in the project as well as the influence and potential impact they have on the successful execution of the project.

The plan is divided into the following sections: stakeholder management approach, stakeholder register, stakeholder engagement plan, and stakeholder engagement strategies.

Stakeholder Management Approach

The Project Manager will lead a brainstorming session with the Project Team to generate a list of stakeholders relevant to the development of a cream cheese product for DIJL. The team will then document the stakeholders in the stakeholder register capturing additional information for them such as their role in the project, their classification/stakeholder type, contact information, the method to be used to communicate with them, and information regarding their interest, influence, and classification.

The Project Team inclusive of the Project Team will then develop a matrix to indicate the level of stakeholder support desired. As a next step, the stakeholders will be placed on an Influence/Interest Matrix and then analysed

based on their where they assigned on the matrix. Finally, the team will determine how the stakeholders will be managed and monitored.

Stakeholder Register

This project-related document includes all the information of the project stakeholders that have an interest in the project as identified by the Project Team.

Chart 37: DIJL's Stakeholder Register. (Source: T. Patterson, The Author, October 2021)

Name	Role	Stakeholder Type	Contact Information	Communication Type	Expectation	Interest	Influence	Classification
Mr. Radcliffe Walker	Project Sponsor	Internal (Owner)	gm@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	High	High	Important
Mrs. Karis-Ann Rhoden-Gordon	Project Manager	Internal	bdm@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important
Ms. Terri-Lee Patterson	Assistant Project Manager	Internal	apm@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important
Senior Technical Officer	Project Team	Internal	sto@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important

Chart 37: DIJL's Stakeholder Register. (Source: T. Patterson, The Author, October 2021) Cont'd

Name	Role	Stakeholder Type	Contact Information	Communication Type	Expectation	Interest	Influence	Classification
Operations Manager	Project Team	Internal	om@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important
Marketing Manager	Project Team	Internal	mm@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important
Quality Assurance Manager	Project Team	Internal	qam@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important
Plant Engineer	Project Team	Internal	pe@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important
Purchasing Manager	Project Team	Internal	pmg@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	High project involvement	High	High	Important

Chart 37: DIJL's Stakeholder Register. (Source: T. Patterson, The Author, October 2021) Cont'd

Name	Role	Stakeholder Type	Contact Information	Communication Type	Expectation	Interest	Influence	Classification
Warehouse Manager	Internal Service Provider	Internal	wm@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	Medium	Semi-important
Office Administrator	Internal Service Provider	Internal	oa@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Low project involvement	Low	Low	Not important
Product Development Officer	Internal Service Provider	Internal	pdo@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	High	Important
Product Development Specialist	Internal Service Provider	Internal	pds@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	Medium	Semi-important
Microbiologist	Internal Service Provider	Internal	mcb@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	Medium	Semi-important

Chart 37: DIJL's Stakeholder Register. (Source: T. Patterson, The Author, October 2021) Cont'd

Name	Role	Stakeholder Type	Contact Information	Communication Type	Expectation	Interest	Influence	Classification
Purchasing Officer	Internal Service Provider	Internal	pgo@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	Medium	Semi-important
Quality Officer	Internal Service Provider	Internal	qyo@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	Medium	Semi-important
Marketing Coordinator	Internal Service Provider	Internal	mc@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	Medium	Semi-important
Maintenance Technician	Internal Service Provider	Internal	mt@dijl.com	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Medium	Medium	Semi-important
Suppliers	Vendor	External	To be identified	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	Low	Medium	Semi-important

Chart 37: DIJL's Stakeholder Register. (Source: T. Patterson, The Author, October 2021) Cont'd

Name	Role	Stakeholder Type	Contact Information	Communication Type	Expectation	Interest	Influence	Classification
Ministry of Health and Wellness	Regulator	External	reg@phi.gov.jm	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	High	High	Important
Bureau of Standards	Regulator	External	strd@bsj.gov.jm	E-Mail, Telephone, Face to Face & Video Conferencing	Moderate project involvement	High	High	Important
Consumers	Intended User	External	Local media houses	Print, Internet, and Radio Advertisement/ Publications	Low project involvement	High	Medium	Important

Stakeholder Engagement Plan

The Plan Stakeholder Management process further develops the information gathered on the project stakeholders. The Project Team reviews the resource management plan, the project charter, the Communications Management Plan, risk register, and the stakeholder register to produce a stakeholder engagement assessment matrix. According to PMBOK®, “a stakeholder engagement assessment matrix supports comparison between the current engagement levels of stakeholders and the desired engagement levels required for successful project delivery” (PMI, 2017, p. 521). To execute this activity, the Project Team met via videoconference and assessed the documentation and plans.

The stakeholder engagement matrix presents the data in a tabular format and clearly highlights the categorization of the project stakeholders into five classifications and the current (C) and desired (D) levels of engagement. **Chart 38** below capture the stakeholder engagement matrix. For ease of review, the stakeholders were grouped according to their roles.

Chart 38: DIJL's Stakeholder Engagement Assessment Matrix. (Source: T. Patterson, The Author, October 2021)

Stakeholder	Unaware	Resistant	Neutral	Supporting	Leading
Project Sponsor					C, D
Project Manager					C, D
Assistant Project Manager					C, D
Project Team				C, D	
Internal Service Providers			C	D	
Suppliers	C			D	
Regulators	C			D	
Consumers	C			D	

The engagement level of the stakeholders was classified as follows:

- "**Unaware**. Unaware of the project and potential impacts.
- **Resistant**. Aware of the project and potential impacts but resistant to any changes that may occur because of the work or outcomes of the project. These stakeholders will be unsupportive of the work or outcomes of the project.
- **Neutral**. Aware of the project, but neither supportive nor unsupportive.

- **Supportive**. Aware of the project and potential impacts and supportive of the work and its outcomes.
- **Leading**. Aware of the project and potential impacts and actively engaged in ensuring that the project is a success" (PMI, 2017, p. 521).

Stakeholder Data Representation

The Influence/Interest matrix is a useful way to represent stakeholders according to their ability to influence project outcomes and their level of concern (interest) about project outcomes. This classification model was used to assist the Project Team in the determination of stakeholder engagement strategies. This matrix classifies the stakeholders' influence/interest on a two-point scale rather than a three-point scale as registered in **Chart 37**, therefore internal stakeholders with "medium" influence/interest will be reclassified as "high" and external stakeholders with "medium" influence/interest will be reclassified as "low:

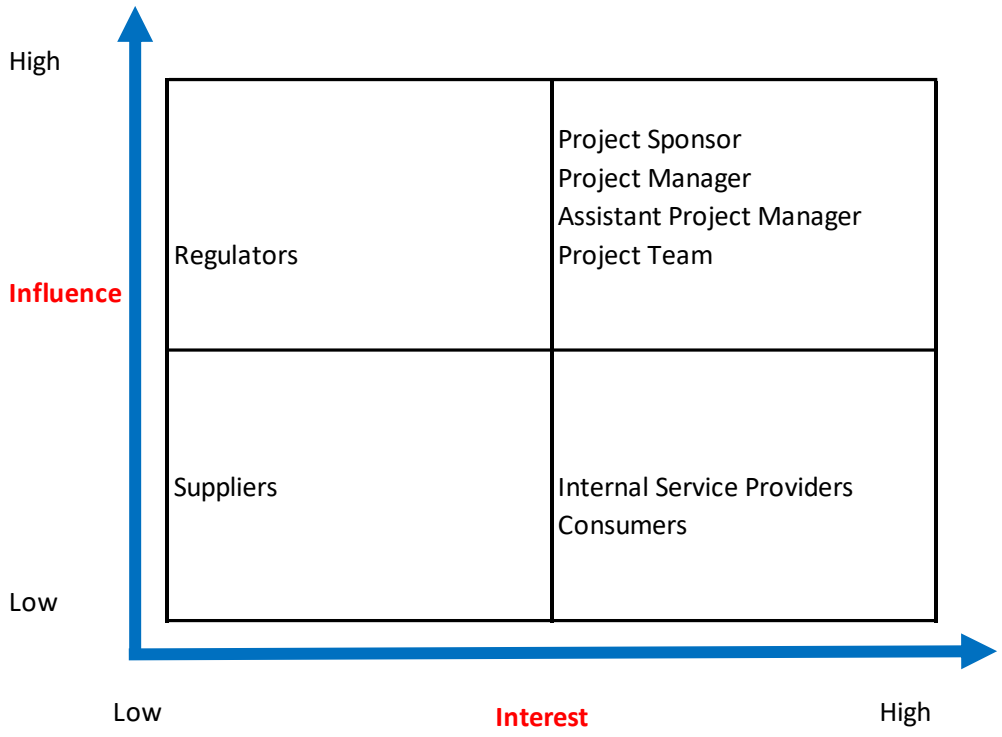

Figure 28: Influence/Interest Matrix (Source: T. Patterson, The Author, October 2021)

Stakeholder Engagement Strategies

From **Figure 28** above, stakeholder groups which are positioned in the High-Influence/High-Interest grid are the key stakeholders that make highly relevant decisions for the success of the project and are to be closely managed by the Stakeholder Management Plan.

The regulators were positioned in the High-Influence/Low-Interest grid. This means that they wield some influence within the project but have low interest in the project outcome. Such stakeholders are to be kept satisfied.

The suppliers were positioned in the Low-Influence/Low-Interest grid. This means that they were deemed to have low influence within the project and have low interest in the project outcome. Such stakeholders are to be monitored since they possess the potential to be elevated to the High-Influence/High-Interest grid thereby affecting the scheduled project flow.

The internal service providers and consumers were classified in the Low-Influence/High-Interest grid. This means that even though they are not able to make projects decisions, they should still be kept informed because of their high level of interest in the project results. Keeping this classification of stakeholders informed of project details will assist in removing doubts that they might have regarding project success.

Manage Stakeholder Engagement

The needs and expectations of stakeholders are to be met via communication, addressing of issues, and fostering of stakeholder involvement. By doing this, the Project manager can increase support and minimize resistance from stakeholders. The Communications Management Plan when implemented will ensure the participation of project stakeholders in the identified methods of engagement.

The Project Manager must have refined communications skills to facilitate smooth and clear stakeholder engagement. Negotiation skills are also required to balance stakeholder needs and project needs.

Monitor Stakeholder Engagement

As a measure to ensure stakeholder engagement with the project, the Project Manager will take the necessary steps to oversee project stakeholder relationships and interdependencies. By specially designing strategies to cater to the exact needs to the stakeholders, the effectiveness and efficiency of stakeholder engagement activities can flourish within the project environment and adapt when required.

By choosing to represent stakeholder engagement via the Stakeholder Engagement Assessment Matrix, the Project Manager can identify engagement gaps, and make adjustments to project documents like the Communications Management Plan to improve stakeholder engagement.

Sponsor Acceptance

Approved By: _____ Date: _____

Representative of the Dairy Industries Jamaica Limited

5 CONCLUSIONS

General objective

The Project Management Plan for the Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited (DIJL) was prepared by observing the Ten Knowledge Areas defined in the sixth edition of the PMBOK® Guide. Analytical and exploratory research were conducted resulting in ten subsidiary Project Management Plans.

Specific objectives

1. The Project Charter was created using meeting minutes, and personal interviews with Project Manager. A Project Charter template was used to guide the documentation of this high-level project document which formally authorised the project and gave brief details on the stakeholders, scope, schedule, and budget of the project.

2. The Scope Management Plan was created ensure that all works necessary for the completion of the project were appropriately captured. Along with this second subsidiary plan, the following scope management related documents were developed using templates and guidance from the PMBOK® Guide: WBS, WBS Dictionary, Requirements Management Plan and Requirements Traceability Matrix. The documents are the result of data collection from personal interviews with the Project Manager and review of meeting minutes.

3. The Schedule Management Plan was created to ensure timely completion of DIJL's project to develop a cream cheese product. Along with this third subsidiary plan, the following schedule management related documents were developed using templates and guidance from the PMBOK® Guide: Activity Duration Schedule, Resource Assignment, Activity List, Predecessor List, and Project Schedule (Gantt Chart). The documents are the result of data collection from personal interviews with the Project Manager and review of meeting minutes.
4. The Cost Management Plan was created to outline the cost of the resources needed to complete project activities within the constraints of the project budget. The bottom up estimating method selected to estimate the costs for the work packages then costs were rolled up into the milestones. Along with this fourth subsidiary plan, the following cost management related documents were developed using templates and guidance from the PMBOK® Guide: Project Cost Baseline, and Disbursement Schedule. The documents are the result of data collection from personal interviews with the Project Manager and review of meeting minutes.

5. The Quality Management Plan was created to provide the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives. This fifth subsidiary plan was developed using templates and guidance from the PMBOK® Guide and included

the quality management approach, roles and responsibilities of key personnel within the context of the Quality Management Plan, quality requirements/ standards, and quality control measures to demonstrate DIJL's compliance with quality requirements/standards in executing this project.

6. The Resource Management Plan was created to identify, acquire, and manage the required resources for the successful completion of the project. Along with this sixth subsidiary plan, the following resource management related documents were developed using templates and guidance from the PMBOK® Guide: roles and responsibilities key personnel within the project, a RACI chart, and details on staff management measures. The documents are the result of data collection from personal interviews with the Project Manager and review of meeting minutes.

7. The Communications Management Plan was created to ensure that the information requirements of the project and associated stakeholders are timely and effectively met. Along with this seventh subsidiary plan, the communications matrix was developed using templates and guidance from the PMBOK® Guide. The documents are the result of data collection from personal interviews with the Project Manager and review of meeting minutes.

8. The Risk Management Plan was created and identified potential risks and provided risk responses to decrease the impact of negative risks in order to optimize the chances of project success. Along with this eighth subsidiary plan, the following risk management related documents were developed using templates and guidance from the PMBOK® Guide: risk breakdown structure (RBS), definition of probability and impact of risks in the project, probability and impact matrix and the Risk Register. The Risk Register highlighted the risks that were identified by the Project Team which required risk responses to minimize their impact on the success of the project.

9. The Project Procurement Management Plan was created to manage the purchase or acquisition of resources outside of the project team and manufacturing facility. Along with this ninth subsidiary plan, the following procurement management related documents were developed using templates and guidance from the PMBOK® Guide: the list of items to be procured and supplier evaluation form. The documents are the result of data collection from personal interviews with the Project Manager and review of meeting minutes.

10. The Stakeholder Management Plan was created to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed. Along with this tenth and final subsidiary plan, the following stakeholder

management related documents were developed using templates and guidance from the PMBOK® Guide: Stakeholder Register, stakeholder engagement assessment matrix, and Influence/Interest Matrix. The documents are the result of data collection from personal interviews with the Project Manager and review of meeting minutes.

The overall project management approach used in the development of this FGP resulted in the interlinking of the Ten Project Management Knowledge Areas in the context of DIJL's project to develop a new cream cheese product. The use of an integrated Project Management Plan such as this will enable DIJL to successfully manage this and future product development projects.

6 RECOMMENDATIONS

Dairy Industries Jamaica Limited (DIJL) has taken steps towards the formalization of their project management processes. With the elaboration of the ten subsidiary management plans, DIJL is on its way to implementing process improvements to secure future project success. During the research and data collection stages of this FGP some areas of weakness/opportunity were identified and should be promptly addressed. Below is a list of recommendations put forward by the author.

1. DIJL should create and execute Project Charters to initiate all future projects. DIJL should adopt this Project Management Plan in its internal processes to improve the project management practices within the organization. DIJL should identify and invest in a project management information system to centralize the storage and retrieval of project documents
2. DIJL should use the Scope Management Plan approach to define the scope of work to be done in each of their ongoing and future new product development projects.
3. DIJL should invest in a project management software that can deliver prompts and reminders to project team members for smooth flow of project activities and deliverables.
4. DIJL should record actual cost for materials and labour in a database which can be referred to in future projects.

5. DIJL should define and develop a continuous improvement procedure to be included in their OPAs.
6. DIJL should develop a training plan for the Business Development Department which has the responsibility innovation and new business creation. This should include PMI PMP certification.
7. DIJL should replace their pre-existing communication and stakeholder engagement strategy with the ones specified within this FGP to ensure that all stakeholders are properly identified and notified at the beginning of their future projects rather than in the middle or at the end of the project lifecycle. This will increase the support from the internal stakeholders who execute project activities at the later stages of the project schedule.
8. DIJL should invest in a risk management tool/software to assist in quantitative risk assessment.
9. DIJL should consider applying for all raw material and packaging material permits earlier in the project to ensure that there is sufficient time to make changes to materials if the application(s) is refused.
10. DIJL should identify all stakeholders at the beginning of the project so that personnel executing project activities are fully aware of project requirements and can efficiently complete the work assigned to them.

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8 APPENDICES

Appendix 1: FGP Charter

PROJECT CHARTER	
Date:	**Project Name:**
10 May 2021	Project Management Plan for the Product Development Project of Cream Cheese at Dairy Industries Jamaica Limited.
Knowledge Areas / PM Processes:	**Application Area (Sector / Activity):**
Knowledge Areas: Project Integration, Project Scope Management, Project Schedule Management, Project Cost Management, Project Quality Management, Project Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management, Project Stakeholder Management **PM Processes:** Initiating and Planning	Product Development/Food Processing
Project Start Date:	**Project Finish date:**
10 May 2021	31 October 2021
Project Objectives (General and Specific):	
General Objective: To create a Project Management Plan, framed within the standards of the Project Management Institute, to manage the product development project of cream cheese. **Specific Objectives:** 1. To create a project charter to formally authorize the project and provide the project manager with the authority to apply organization resources to the project and to produce the project management plan. 2. To create a scope management plan to ensure that all works necessary for the successful completion of the project are appropriately captured. 3. To create a schedule management plan to ensure timely completion of the project.	

4. To create a cost management plan which outlines the cost of the resources needed to complete project activities within the constraints of the project budget.

5. To create a quality management plan that provides the quality requirements of the project and its inputs and outputs in order to meet stakeholders' objectives.

6. To create a project a resource management which identifies acquires and manages the required resources for the successful completion of the project.

7. To create a project communications management plan to ensure that the information requirements of the project and associated stakeholders are timely and effectively met.

8. To create a risk management plan that identifies potential risks and provides risk responses which decrease the impact of negative risks in order to optimize the chances of project success.

9. To create a project procurement management to manage the purchase or acquisition of resources outside of the project team.

10. To create a project stakeholder management plan to effectively identify and manage the persons or entities that will be impacted by the project for which appropriate management strategies can be developed.

Project purpose or justification (merit and expected results):

The purpose of the project is to develop a project management plan for the project to develop the new product (sour cream) to increase the current product offerings at Dairy Industries Jamaica Limited (DIJL). The project management plan will provide the necessary management strategies related to the ten project management knowledge areas that DIJL may apply during the implementation of the project. This management plan will also lead to the improvement of the existing internal project management planning processes within the Product Development Department.

The project management planning processes and their significance are fully understood by the project manager for the successful completion of the project. The project manager has the responsibility to develop all the subsidiary project management plans to be considered in meeting the schedule, cost, and quality constraints in the launching of the new sour cream product at DIJL.

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

This project has one main deliverable which is the project management plan required for the launch of the new cream cheese product which will be developed and spearheaded by the DIJL Product Development Department. The project management plan will include the subsidiary plans according to the ten project management knowledge areas.

Assumptions:

Resources: All project information required to develop the subsidiary management plans will be provided by the project sponsor (DIJL).

Resources: The project can be completed by one (1) person within a three (3) month period.

Constraints:

Time: Project duration of three (3) months)

Resources: Limited human resource - one (1) person (Project Manager)

Preliminary Risks:

1. If the project schedule for the delivery of project milestones is not closely followed, then the project manager might not be able to meet the three (3) month due date.

2. If the project sponsor does not disclose project details in a timely fashion, then this may lead to a negative impact on the project manager's ability to adhere to the project schedule.

Budget:

It is not possible to determine the actual costs associated preparing a printed and bound copy of the Final Graduation Project (FGP) for shipment to the university which is located in Costa Rica.

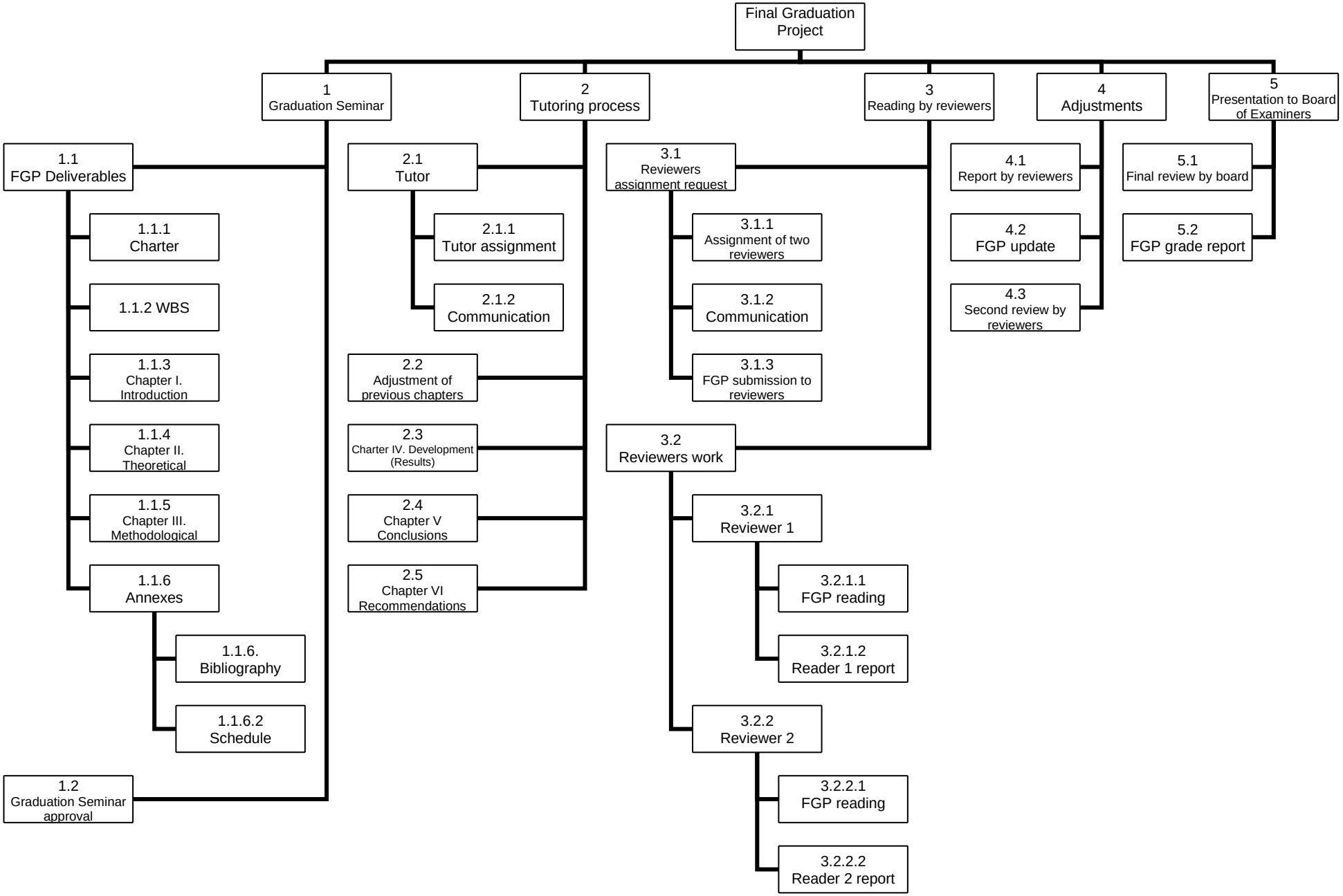
Milestones and dates:

Milestone	**Start date**	**End date**
Project Start	10-May-21	26-Nov-21
FGP Project Charter	10-May-21	16-May-21
FGP WBS	10-May-21	16-May-21
FGP Schedule	17-May-21	23-May-21
Week 1 Corrections	17-May-21	23-May-21
Chapter I: Introduction	17-May-21	23-May-21
Week 2 Corrections	24-May-21	30-May-21
Chapter II: Theoretical Framework	24-May-21	30-May-21
Week 3 Corrections	31-May-21	06-Jun-21
Chapter III: Methodological Framework	31-May-21	06-Jun-21
Abstract/Executive Summary	07-Jun-21	13-Jun-21
Annexes - Bibliography, Indices	07-Jun-21	13-Jun-21
Signed Charter - Approval	07-Jun-21	13-Jun-21
Tutoring	26-Jul-21	24-Oct-21
Previous Chapters Adjustments	26-Jul-21	01-Aug-21
Chapter IV: Results	02-Aug-21	03-Oct-21
Chapter V: Conclusions	04-Oct-21	24-Oct-21
Chapter VI: Recommendations	04-Oct-21	24-Oct-21
Tutor Approval	22-Oct-21	22-Oct-21
FGP Submission to Reviewers	25-Oct-21	25-Oct-21

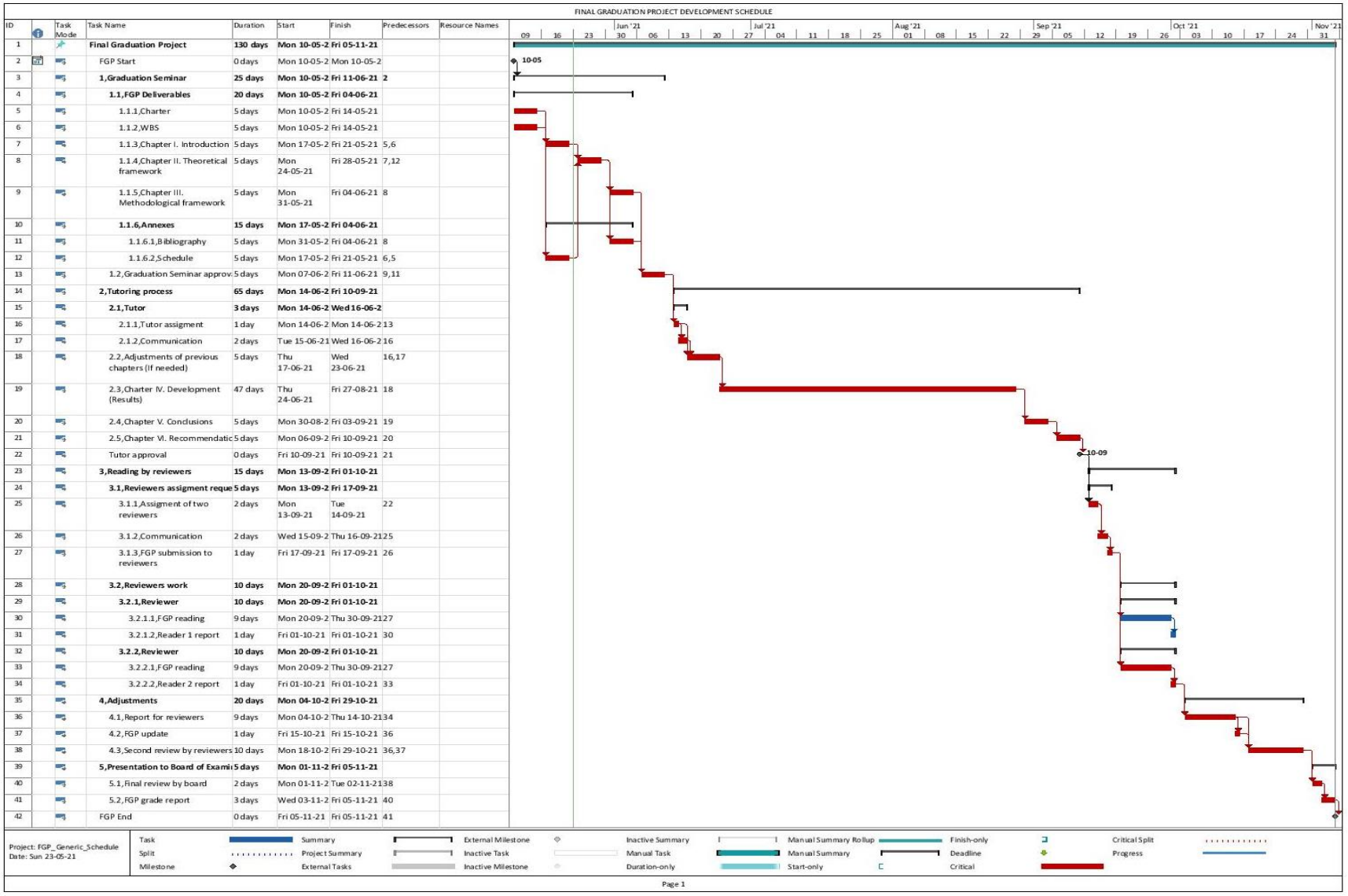
Review	25-Oct-21	05-Nov-21
Adjustments	08-Nov-21	19-Nov-21
Presentation to Board	22-Nov-21	26-Nov-21
Project End	26-Nov-21	26-Nov-21

Relevant historical information:	
Not applicable	
Stakeholders:	
Direct stakeholders: FGP Facilitator - Carlos Brenes Tutor Project Manager - Terri-Lee Patterson Indirect stakeholders: Academic Assistant - Gabriela Zúñiga Calderón Reviewers	
Approval:	
Project Manager: Terri-Lee Romona Patterson	Signature: Patterson
Authorized by:	Signature:

Appendix 2: FGP WBS



Appendix 3: FGP Schedule



ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		**Final Graduation Project**	**130 days**	**Mon 10-05-2**	**Fri 05-11-21**		
2		FGP Start	0 days	Mon 10-05-2	Mon 10-05-2		
3		**1,Graduation Seminar**	**25 days**	**Mon 10-05-2**	**Fri 11-06-21**	2	
4		**1.1,FGP Deliverables**	**20 days**	**Mon 10-05-2**	**Fri 04-06-21**		
5		1.1.1,Charter	5 days	Mon 10-05-2	Fri 14-05-21		
6		1.1.2,WBS	5 days	Mon 10-05-2	Fri 14-05-21		
7		1.1.3,Chapter I. Introduction	5 days	Mon 17-05-2	Fri 21-05-21	5,6	
8		1.1.4,Chapter II. Theoretical framework	5 days	Mon 24-05-21	Fri 28-05-21	7,12	
9		1.1.5,Chapter III. Methodological framework	5 days	Mon 31-05-21	Fri 04-06-21	8	
10		**1.1.6,Annexes**	**15 days**	**Mon 17-05-2**	**Fri 04-06-21**		
11		1.1.6.1,Bibliography	5 days	Mon 31-05-2	Fri 04-06-21	8	
12		1.1.6.2,Schedule	5 days	Mon 17-05-2	Fri 21-05-21	6,5	
13		1.2,Graduation Seminar approv	5 days	Mon 07-06-2	Fri 11-06-21	9,11	
14		**2,Tutoring process**	**65 days**	**Mon 14-06-2**	**Fri 10-09-21**		
15		**2.1,Tutor**	**3 days**	**Mon 14-06-2**	**Wed 16-06-2**		
16		2.1.1,Tutor assigment	1 day	Mon 14-06-2	Mon 14-06-2	13	
17		2.1.2,Communication	2 days	Tue 15-06-21	Wed 16-06-2	16	
18		2.2,Adjustments of previous chapters (If needed)	5 days	Thu 17-06-21	Wed 23-06-21	16,17	
19		2.3,Charter IV. Development (Results)	47 days	Thu 24-06-21	Fri 27-08-21	18	
20		2.4,Chapter V. Conclusions	5 days	Mon 30-08-2	Fri 03-09-21	19	
21		2.5,Chapter VI. Recommendatic	5 days	Mon 06-09-2	Fri 10-09-21	20	
22		Tutor approval	0 days	Fri 10-09-21	Fri 10-09-21	21	
23		**3,Reading by reviewers**	**15 days**	**Mon 13-09-2**	**Fri 01-10-21**		
24		**3.1,Reviewers assigment reque**	**5 days**	**Mon 13-09-2**	**Fri 17-09-21**		
25		3.1.1,Assigment of two reviewers	2 days	Mon 13-09-21	Tue 14-09-21	22	
26		3.1.2,Communication	2 days	Wed 15-09-2	Thu 16-09-21	25	
27		3.1.3,FGP submission to reviewers	1 day	Fri 17-09-21	Fri 17-09-21	26	
28		**3.2,Reviewers work**	**10 days**	**Mon 20-09-2**	**Fri 01-10-21**		
29		**3.2.1,Reviewer**	**10 days**	**Mon 20-09-2**	**Fri 01-10-21**		
30		3.2.1.1,FGP reading	9 days	Mon 20-09-2	Thu 30-09-21	27	
31		3.2.1.2,Reader 1 report	1 day	Fri 01-10-21	Fri 01-10-21	30	
32		**3.2.2,Reviewer**	**10 days**	**Mon 20-09-2**	**Fri 01-10-21**		
33		3.2.2.1,FGP reading	9 days	Mon 20-09-2	Thu 30-09-21	27	
34		3.2.2.2,Reader 2 report	1 day	Fri 01-10-21	Fri 01-10-21	33	
35		**4,Adjustments**	**20 days**	**Mon 04-10-2**	**Fri 29-10-21**		
36		4.1,Report for reviewers	9 days	Mon 04-10-2	Thu 14-10-21	34	
37		4.2,FGP update	1 day	Fri 15-10-21	Fri 15-10-21	36	
38		4.3,Second review by reviewers	10 days	Mon 18-10-2	Fri 29-10-21	36,37	
39		**5,Presentation to Board of Exami**	**5 days**	**Mon 01-11-2**	**Fri 05-11-21**		
40		5.1,Final review by board	2 days	Mon 01-11-2	Tue 02-11-21	38	
41		5.2,FGP grade report	3 days	Wed 03-11-2	Fri 05-11-21	40	
42		FGP End	0 days	Fri 05-11-21	Fri 05-11-21	41	

Appendix 4: Dictum and Proof of Philological Corrections

Dairy Penn,
Discovery Bay,
St. Ann,
Jamaica.

November 23, 2021

To Whom It May Concern,

I am a trained teacher who has been instructing students at the Secondary Level since 1997. I received my training in Linguistics (English) from the Joint Board of Teacher Education in the Faculty of Education (University of the West Indies) at the Shortwood Teacher's College in 1997.

This letter serves to certify that I have reviewed the Final Graduation Project prepared by Ms. Terri-Lee Patterson to be submitted in partial fulfilment of the requirements for the MPM degree. Recommendations were made to reduce lengthy sentences, correct grammatical and typographical errors. I have full confidence that with these changes Ms. Patterson's Final Graduation Project will be suitable for final assessment by the UCI readership.

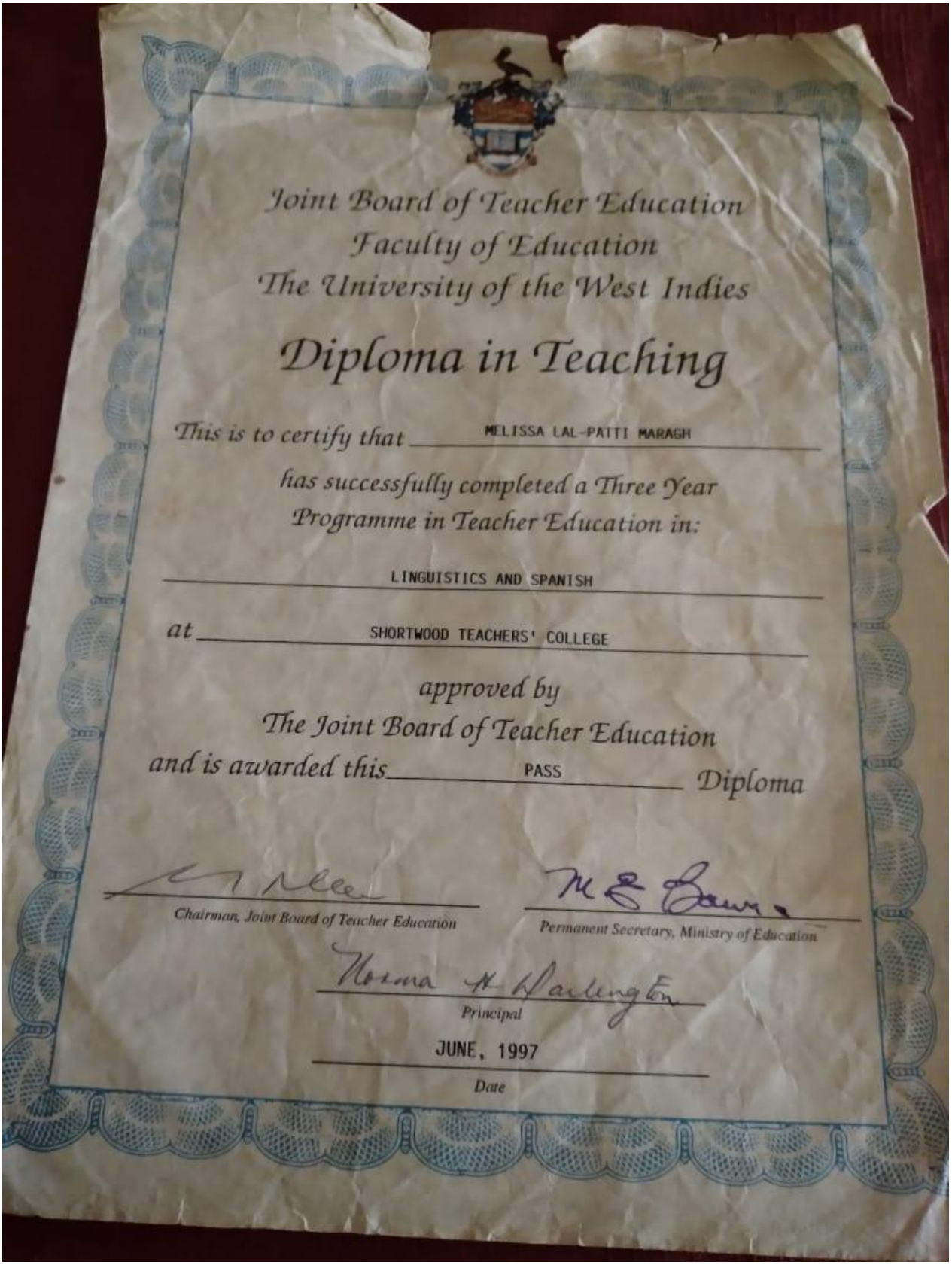
Enclosed is a copy of my Diploma for your record.

Warm Regards,

M. Maragh-Palmer

Melissa Maragh-Palmer

lalrupatti@yahoo.com



Joint Board of Teacher Education
Faculty of Education
The University of the West Indies

Diploma in Teaching

This is to certify that MELISSA LAL-PATTI MARAGH

has successfully completed a Three Year Programme in Teacher Education in:

LINGUISTICS AND SPANISH

at SHORTWOOD TEACHERS' COLLEGE

approved by
The Joint Board of Teacher Education
and is awarded this PASS Diploma

Chairman, Joint Board of Teacher Education

Permanent Secretary, Ministry of Education

Norma A Harlington
Principal

JUNE, 1997
Date