UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
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Project Management Office (PMO) Proposal for a Construction Company in Belize

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DEDICATION

This thesis is dedicated to my beautiful little family.

Mom – Thank you for instilling in me at a very young age that education is one of the most powerful weapons. I remember the struggles you went through to be able to financially support my sister and me. I would not be where I am today if it weren't for all the sacrifices you made for us. This is a testament that all your hard work was not in vain.

Sister – I have always admired your intelligence. You excelled and continue to excel in everything you do. As any younger sister would, I would always want to follow in my older sister's footsteps. I was always so dedicated to doing well in school because I saw that from you. I am super grateful to have had such a positive role model in my life.

Baby Sister – You are my biggest surprise and blessing. As a younger sibling myself, I know the innate desire to mimic your older sibling, so I try to be the best version of myself each day for you. I want you to know that you can do anything you set your mind to.

I love you all too much.

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ABSTRACT

The objective of this document is to present a proposal for establishing a Project Management Office (PMO) to address the need for structured project management practices within A & E Construction, a company in Belize, in order to reduce inconsistencies and implement a standardized approach for executing projects. The construction sector in Belize is expanding rapidly, leading to increasingly complex projects and a demand for better management processes.

The tasks undertaken in this study involve conducting interviews, surveys, and document analysis to assess the current project management practices and identify areas for improvement. The methodology is a mixed-methods approach, combining qualitative insights from stakeholder interviews with quantitative data collected through maturity assessments and surveys. Other research methods in this document include observational, statistical, and analytical research.

The proposed PMO framework addresses issues such as inconsistencies and resource mismanagement by standardizing processes, clarifying roles, and improving communication strategies. Additionally, the PMO aligns with regenerative development principles, promoting environmentally and socially responsible practices that contribute to long-term sustainability. This project emphasizes the importance of a PMO in Belize's growing construction industry.

Keywords: Project Management Office, Construction Industry, Project Management Maturity, Implementation Plan, Belize, Sustainability, Process Improvement

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ABBREVIATIONS AND ACRONYMS

- FGP Final Graduation Project
- PM Project Management
- PMBOK Project Management Body of Knowledge
- PMI Project Management Institute
- PMO Project Management Office
- UCI Universidad Para La Cooperacion Internacional
- WBS Work Breakdown Structure

EXECUTIVE SUMMARY

A & E Construction, a pseudonym for a construction firm in Belize, has been a leading force in delivering a wide range of construction projects, from residential buildings to large-scale infrastructure. Established in the early 2000s, the company has grown significantly, driven by a construction boom in Belize. However, this expansion has increased the complexity of managing multiple, concurrent projects, making it challenging to ensure consistency in project performance and on-time delivery within budget constraints.

The current project management practices within the company lack a structured framework which leads to inefficiencies such as mismanagement of resources and communication breakdowns. To address these issues, a Project Management Office (PMO) was proposed to provide a structured and standardized approach to project management. This proposal aligns with the company's strategic goals and the increasing complexity of construction projects, necessitating a more formalized project management structure to ensure successful project outcomes.

A & E Construction currently operates without a formal Project Management Office and instead relies on an individual project manager and ad-hoc processes. This lack of structure has resulted in inconsistencies and inefficiencies which is negatively impacting project performance and delivery. The absence of a PMO contributes to the challenges in project management, including undefined roles and responsibilities, insufficient processes, and inadequate communication strategies. These challenges highlight the need for a PMO that can centralize project management activities, standardize processes, and provide the necessary tools and methodologies to improve project outcomes.

The purpose of this Final Graduation Project (FGP) was to propose the establishment of a PMO within A & E Construction that is aimed at improving the company’s project management practices. The PMO was intended to address the identified inefficiencies by providing a structured framework for managing projects. The proposed PMO aimed to enhance collaboration across teams, improve resource management, and facilitate better tracking and reporting of projects, ultimately contributing to the long-term growth and sustainability of A & E Construction.

The general objective of this FGP was to establish a proposal for the creation of a PMO within A & E Construction that provides a structured approach to project management. The specific objectives were to evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs, to define what a Directive PMO is, as it is the recommended PMO type for A & E Construction, to define the roles and responsibilities within the PMO framework to ensure role clarification and accountability, to assess the project management processes of the construction firm and pinpoint any deficiencies or opportunities for improvement, and to develop an implementation plan for the PMO

that focuses on addressing potential challenges and facilitates a smooth integration into the operations of the construction company.

The methodology used in this FGP included quantitative, qualitative, mixed, observational, analytical, and statistical research methods. The evaluation of A & E Construction's project management maturity involved conducting surveys and interviews with key stakeholders within the company. These methods were used to gather data on current project management practices and to identify areas needing improvement. Additionally, observations and process documentation reviews were conducted to assess the existing project management processes and to develop a framework incorporating best practices from existing PMO models. The development of the implementation plan for the PMO involved strategy sessions with the project management team and senior management to identify potential challenges and to ensure alignment with the company's strategic goals.

The maturity assessment for A & E Construction reveals a moderate project management capability with distinct strengths and areas requiring improvement. The findings indicate a PM maturity level of 2.76, with higher proficiency in Schedule and Communications Management. While Scope, Risk, and Stakeholder Management need enhancement. These evaluations which derived from the 3PM Maturity Model were supported by insights from interviews with key project staff. The interviews highlighted the absence of formalized processes across multiple project management areas.

Establishing a Directive Project Management Office (PMO) is proposed as a strategic measure to elevate project maturity and align A & E Construction's practices with industry standards. A Directive PMO would provide centralized authority over project methodologies which fosters uniformity in project execution and facilitates real-time monitoring of performance. Survey responses among A & E Construction staff indicated a general lack of familiarity with the Directive PMO but a strong interest in its potential benefits, such as clearer guidelines and resource allocation. Implementing a Directive PMO would address current deficiencies, reduce inefficiencies, and improve collaboration; thus, positioning A & E Construction for more predictable and efficient project outcomes.

Recommendations include implementing an Agile Training Initiative to enhance responsiveness in construction projects and emphasize cross-functional collaboration as well as iterative planning. A centralized Knowledge Management Repository should be developed to store lessons learned and best practices. Monthly Cross-Departmental Collaboration Sessions with representatives from key departments can also improve alignment on project timelines, resource needs, and interdepartmental dependencies. Additionally, a PMO-Led Mentorship Program is recommended to support junior team members in skill development and navigating project complexities.

1 INTRODUCTION

1.1. Background

A & E Construction is a pseudonym for a construction firm in Belize which, as part of this thesis, desires to remain anonymous. This construction company has been at the forefront in delivering various construction projects, directly from residential buildings all the way through to large-scale infrastructure. The company was established in the early 2000s; it has expanded under the impetus of an industry boom in construction within Belize. This growth has also increased the complexity of managing multiple, concurrent projects, hence making it even more demanding to ensure consistency in project performance and on-time delivery within budget constraints.

The construction industry in Belize, at the pace at which it is increases, requires companies to adopt structured project management practices. Therefore, A & E Construction can enhance its market leadership through bringing in a robust PMO proposal in the pursuit of its excellence. In terms of ensuring enhanced project performance, streamlined processes, and continuous improvement culture, the setup of a PMO is viewed as one of the strategic imperatives by the Project Management Institute (2021).

Historically, A & E Construction has managed its projects using decentralized methods that draw heavily upon individual the project manager's expertise. Such a system worked well when the company was relatively small but turned out to be quite ineffective in large and complex projects. The problems have been role confusion,

process inconsistency, and fragmented communication, all affecting the overall project performance. These challenges require a centralized PMO that can systematize the approach toward project management; this way, it helps guarantee consistency in applying organizational goals and industry best practices. According to Aubry, Hobbs, and Thuillier (2017), a PMO is expected to be very instrumental in overcoming such challenges.

1.2. Statement of the problem

A & E Construction does not have a Project Management Office at the moment. This deficiency is very critical as the company has a growing portfolio, and the projects are becoming more complex in nature. Without a PMO, A & E Construction faces several challenges that impede its project performance and overall efficiency.

Primarily, the present approach of project management has resulted in a non-uniform process for projects and associated practices. The project team works without a standardized framework. This variability in executing projects often leads to undefined roles and responsibilities, poor communication, and fragmented processes. These issues lead to delays, cost overruns, and less-than-desired project outcomes.

Another unfavourable consequence of the absence of a standardized set of project management practices is that the organization does not apply any type of risk management effectively. Risks are not identified, estimated, and reduced uniformly at all cases; therefore, there are more vulnerabilities in projects and possibly project

failures. Not having a structured framework to perform risk management is the significant challenge to attaining objectives and reliability of a delivered project.

Furthermore, A & E Construction is suffering from a problem of poor resource management due to a lack of a centralized PMO managing resources. The company mentioned above fails to allocate its resources like people, equipment, materials, etc., in the right amount and at the right time. This inefficiency leads to resource wastage and increasing project cost with elongated periods. Effective resource management is one of the prime factors for the completion of any construction project and the current approach is insufficient to meet the growing demands of the industry.

Moreover, the company has no fully developed reporting and monitoring system. There is no consistent tracking or reporting of project performance metrics, budget utilization, or achievements in relation to milestones. This has seriously constrained the company's ability to make informed decisions, identify areas for improvement, and ensure accountability.

The absence of a PMO also impacts the ability of a firm to have a culture built for improvement and learning. Without a structured approach to project management, best practices are not consistently documented or disseminated across the organization. This gap prevents the company from leveraging lessons learned from past projects to enhance future project performance and organizational growth. Establishing a PMO tailored to A & E Construction’s specific needs will help to work out all these challenges of A & E Construction.

1.3. Purpose

The purpose of this paper is to fully develop the proposal for a PMO at A & E Construction. This research aims to analyze the critical components required for establishing a PMO and evaluate the expected benefits and improvements in project performance that such an implementation could bring. The study will delve into the intricacies of project management within the construction industry, with a focus on how a structured PMO can address the specific challenges faced by A & E Construction.

Industry observations indicate that 80% of construction project delays stem from poor planning, inadequate project management, scope changes, and productivity barriers (Tallbox, n.d.). Projects lacking PMO oversight often encounter significant problems, such as lack of transparency, unclear ownership, and failure to meet business goals. As Mr. Kämi from Wärtsilä, a company that has successfully implemented a PMO since 2007, points out, projects without PMO guidance are often started without real ownership or a clear business case, leading to a lack of visibility into project performance and outcomes (Greengard, 2013).

A project management maturity assessment can be pivotal for deciding whether or not to start a PMO, as it allows organizations to compare their internal metrics and key performance indicators with industry averages or other departments within the company (Greengard, 2013). The structure and placement of the PMO within the organizational hierarchy are crucial, as PMOs that report directly to the CEO are nearly twice as likely to complete 80% of projects on time, within budget, and meet original business goals, according to PMI's Pulse of the ProfessionTM In-Depth Report: The Impact of PMOs on Strategy Implementation.

This study aims to identify and define the elements that are required in order to ensure the successful establishment and operation of a PMO within A & E Construction. This involves the definition of roles and responsibilities for the PMO, detailing guidelines on its operations, and integrating efficient project management processes (Aubry, Hobbs, & Thuillier, 2017). Furthermore, the research will evaluate the current project management maturity level of A & E Construction, highlighting the strengths, areas needing improvement, and specific needs that the firm requires. Based on the proposed PMO, the study will devise a detailed implementation plan. This plan will focus on addressing potential challenges and ensuring a smooth integration of the PMO into the company's operations.

The primary motivation for proposing this study is the growing complexity of construction projects and the need for A & E Construction to adopt structured project management practices to remain competitive. As the construction industry in Belize continues to develop, the demand for sophisticated project execution increases. Implementing a PMO is seen as a strategic initiative to streamline processes, enhance project management capabilities, and foster a culture of continuous improvement (Project Management Institute, 2021).

The potential benefits expected, if a PMO is established in A & E Construction, are very high. Key benefits include enhanced collaboration between teams, better control of resources, more complete and accurate project tracking and reporting, risk mitigation, increment in profitability as well as potentially favourable market reputation for increased construction ventures (Müller, Glückler, & Aubry, 2019).

In summary, this study aims to provide a comprehensive proposal for the creation of a PMO within A & E Construction. By investigating the necessary components, current practices, implementation strategies, and expected benefits, the research will offer valuable insights into how a PMO can significantly improve project performance and contribute to the long-term growth and sustainability of the organization.

1.4. General objective

To establish a proposal for the creation of a PMO within A & E Construction that provides a structured approach to project management.

1.5. Specific objectives

1. To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.
2. To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.
3. To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.
4. To assess the project management processes of the construction firm as well as pinpoint any deficiencies or opportunities for improvement.
5. To develop an implementation plan for the PMO that focuses on addressing potential challenges and facilitates a smooth integration into the operations of the construction company.

2 THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

A & E Construction is a Belizean and family-owned business that is known for its traditional construction methods and creativity. The company started business on June 15, 2005. The company consists of a dedicated team of qualified and experienced engineers, supervisors, technicians and administrative staff. The company's values are as follows: “A & E Construction values our business relationship with our partners and the culture of transparency within the company. They both set the benchmark for clear communication, superior performance, and professional integrity” (A & E Construction, personal communication, July 25, 2024).

The construction services provided by the company include construction of residential and commercial spaces, electrical plumbing installation, landfilling, landscaping, interior and exterior finishing, air conditioning installation, road construction and fencing. Consulting services are also provided at A & E Construction. A & E Construction coordinates and unifies architects, engineers, contractors and sub-contractors from pre-design to completion and provides its customer with a reasonable price. By thoroughly analyzing quantities, scheduling, costs, and 4D interactions before the project begins, the company contends that they provide clear visualization and business metrics.

2.1.2 Mission and vision statements

The Mission Statement is “To be a leading Construction Company committed to total customer satisfaction by enhancing value through innovative designs, superlative quality of material, cutting-edge technology, timely completion within budget and by demonstrating the highest standards of workmanship” (A & E Construction, personal communication, July 25, 2024).

Vision Statement for A & E Construction is "To transform the construction industry in Belize by setting the benchmark for excellence in innovation, quality, and efficiency. We envision a future where every project we undertake not only meets but exceeds client expectations, fostering sustainable development and creating lasting value for our communities" (A & E Construction, personal communication, July 25, 2024).

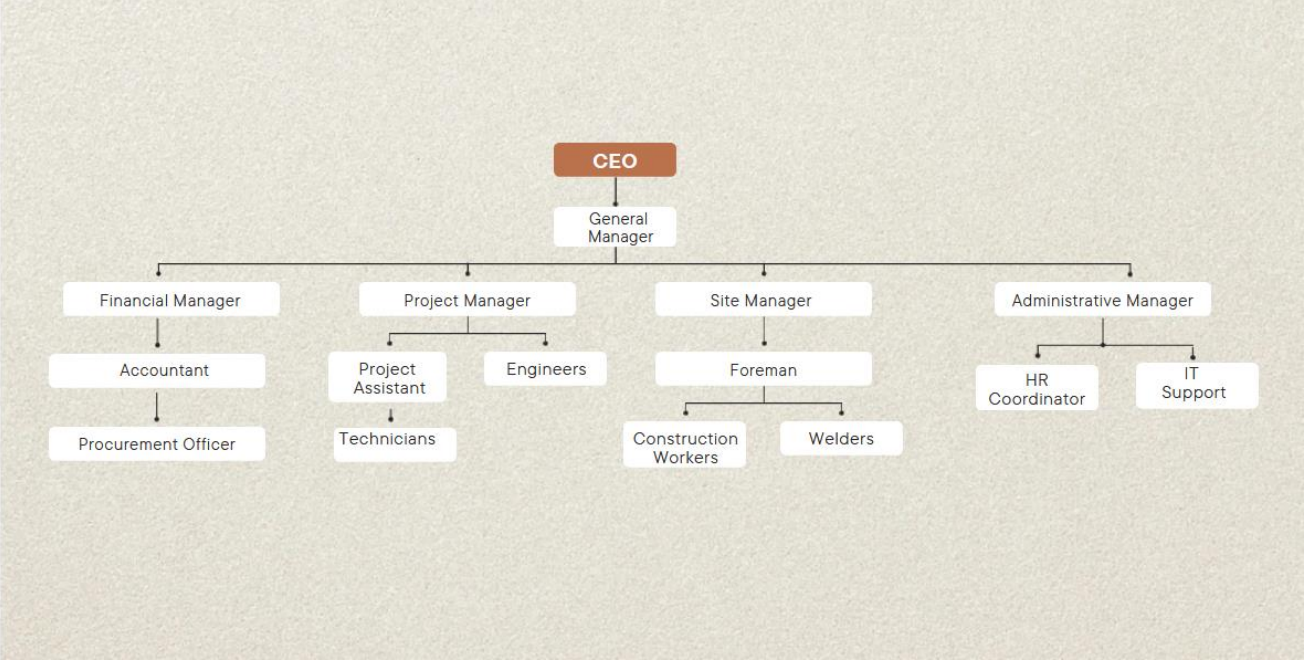
2.1.3 Organizational structure

The organization structure of A & E Construction consists of several key roles, as depicted in Figure 1. The organizational structure provides a clear hierarchy and division of responsibilities to ensure that all functions within the construction company are managed.

The CEO provides overall strategic direction and decision-making for the company, while the General Manager oversees the daily operations. The Project Manager plans, executes, and closes projects and gets support by the Project Assistant who handles administrative tasks. Engineers design and supervise projects, and Technicians maintain equipment and perform technical tasks. The Site Manager ensures smooth on-site operations, with Foremen supervising construction workers and ensuring productivity. Construction Workers execute

physical labour tasks and the Safety Officer enforces safety standards. The Financial Manager oversees financial activities, assisted by the Accountant who handles the bookkeeping and transactions. The Procurement Officer manages material and equipment purchases. Meanwhile, the Administrative Manager oversees office functions. The HR Coordinator handles recruitment and employee relations; while IT Support, maintains technological systems.

Figure 1 Organizational chart from A & E construction



Note: Organizational Chart from A & E Construction. Own creation.

2.1.4 Products offered

A & E Construction specializes in building residential properties, including single-family homes, townhouses, and apartments. Implementing a PMO will provide a structured

approach to managing these projects by defining roles and responsibilities and identifying strengths and areas for improvement, which aligns with the general and specific objectives of the FGP.

The company also undertakes commercial construction projects such as office buildings, retail stores, and warehouses. A PMO can support the coordination of these projects by evaluating the maturity of current processes, clarifying roles, and pinpointing deficiency.

Additionally, A & E Construction offers renovation and remodeling services for both residential and commercial properties. The PMO can help standardize processes and project timelines by assessing current project management practices and defining clear roles and responsibilities, fulfilling the FGP's specific objectives.

The company engages in infrastructure projects like roads, bridges, and utilities. A PMO will provide a structured approach to these projects by focusing on process improvement, role clarification, and addressing specific needs identified during maturity evaluation. This supports both the general and specific objectives of the FGP.

A & E Construction offers consulting services in areas such as construction management, cost estimation, and feasibility studies. The PMO will streamline these services by assessing current practices, defining roles, and identifying opportunities for improvement, directly supporting the FGP's objectives of creating a structured approach and improving project management processes.

2.2 Project Management concepts

2.2.1 Project management principles

As the Project Management Institute (2021) mentions in the PMBOK Gude 7th edition, there are twelve principles of project management. By incorporating the project management principles in the PMBOK Guide, the proposal of a PMO at A & E Construction will be aligned with best practices and ensure a structured and effective approach to improving project performance.

1. Be a Diligent, Respectful, and Caring Steward

To ensure proposing an effective PMO, it is essential to prioritize managing resources responsibly and ethically. This involves respecting the time and contributions of all team members, maintaining a focus on the long-term success of A & E Construction, and promoting a culture of care and respect. Operationally, this principle will be upheld by maintaining transparent communication, fair resource allocation, and ethical decision-making throughout the project.

2. Create a Collaborative Project Team Environment

A collaborative environment is key to the success of the PMO. This principle will be used by fostering teamwork, open communication, and mutual support among all project team members. Regular team meetings, collaborative planning sessions, and team-building activities will help to create a strong, cohesive team.

3. Effectively Engage with Stakeholders

Engaging stakeholders effectively ensures that their needs and expectations are met. This principle will be applied by actively involving key stakeholders from A & E Construction in the planning and implementation phases of the PMO. Regular updates, stakeholder meetings, and feedback mechanisms will be established to maintain continuous engagement.

4. Focus On Value

Focusing on value ensures that the PMO contributes positively to the company's objectives. This will be operationalized by identifying and prioritizing high-value activities and outcomes. The PMO will be designed to enhance project performance, reduce inefficiencies, and deliver projects on time and within budget, thereby adding significant value to A & E Construction.

5. Recognize, Evaluate, and Respond to System Interactions

Understanding the interactions within the construction projects and the broader organizational system is crucial. This principle will be implemented by conducting a thorough evaluation of current processes, identifying interdependencies, and designing the PMO to enhance system-wide efficiency. Regular assessments and adjustments will be made to respond to changing dynamics.

6. Demonstrate Leadership Behaviors

Strong leadership is essential for guiding the PMO's implementation. Leadership behaviors will be demonstrated by setting a clear vision, providing direction, and inspiring the team. Operationalizing this principle involves training for leadership skills, setting examples, and fostering a culture of accountability and continuous improvement.

7. Tailor Based on Context

Tailoring the PMO to fit the specific context of A & E Construction is critical. This will be achieved by assessing the unique needs and characteristics of the company and adapting PMO practices accordingly. Flexibility and customization will ensure that the PMO aligns with the company's goals and operational environment.

8. Build Quality into Processes and Deliverables

Quality is a cornerstone of project management. This principle will be made operational by developing and implementing standardized processes that emphasize quality at every stage. Regular quality checks, adherence to best practices, and continuous improvement initiatives will ensure high-quality outcomes.

9. Navigate Complexity

Construction projects are inherently complex. Navigating this complexity involves recognizing challenges and developing strategies to manage them. This will be operationalized by employing robust project management tools and techniques, fostering a culture of problem-solving, and ensuring that the PMO team is skilled in handling complex situations.

10. Optimize Risk Responses

Effective risk management is crucial for the PMO's success. This principle will be operationalized by identifying potential risks early, evaluating their impact, and developing mitigation strategies. Regular risk assessments and responsive action plans will help minimize the impact of unforeseen events on project performance.

11. Embrace Adaptability and Resilience

Adaptability and resilience are necessary for dealing with changes and uncertainties. This principle will be operationalized by creating flexible processes that can adjust to changes and by building a resilient team capable of overcoming setbacks. Continuous learning and adaptability will be emphasized to ensure long-term success.

12. Enable Change to Achieve the Envisioned Future State

Implementing a PMO represents a significant change for A & E Construction. This principle will be made operational by clearly defining the envisioned future state, communicating the benefits of the change, and managing the transition effectively. Change management strategies, including training and stakeholder engagement, will be employed to facilitate smooth integration and acceptance of the PMO.

2.2.2 Project management domains

As the Project Management Institute (2021) mentions in the PMBOK Gude 7th edition, there are eight project management domains. By addressing these project management performance domains, the FGP will provide a comprehensive proposal for implementing a PMO at A & E Construction.

1. Stakeholders Effective stakeholder engagement is essential for understanding and addressing the needs and expectations of all parties involved. In the context of the FGP, this domain involves identifying key stakeholders at A & E Construction, including executives, the project manager, other employees, and clients. The proposal will outline strategies for engaging these stakeholders, ensuring their support and involvement in the PMO implementation process. This aligns with Specific Objective 1, which involves evaluating the maturity of A & E Construction by understanding its strengths and areas needing improvement through stakeholder feedback.

2. Team Building and maintaining a cohesive and skilled project team is vital for PMO success. The FGP will define roles and responsibilities within the PMO framework, ensuring role clarification and accountability (Specific Objective 3). This includes detailing the composition of the PMO team, required skills, and training programs to enhance team capabilities. The proposal will emphasize fostering a collaborative environment, which supports the overall objective of structured project management.

3. Development Approach and Life Cycle Choosing the appropriate development approach and life cycle ensures that the PMO processes are well-suited to A & E Construction's projects. The FGP will assess current project management processes and recommend a tailored approach that aligns with the company's projects, whether agile, waterfall, or a hybrid model. This assessment is part of Specific Objective 4, which involves pinpointing deficiencies or opportunities for improvement in existing processes.

4. Planning Effective planning is the foundation of successful project management. The FGP will develop a comprehensive implementation plan for the PMO, detailing timelines, resources, and milestones (Specific Objective 4). This plan will address potential challenges and provide a roadmap for the smooth integration of the PMO into A & E Construction's operations, supporting the general objective of establishing a structured project management approach.

5. Project Work Managing project work involves coordinating and executing project activities efficiently. The PMO proposal will include methodologies for overseeing project work, ensuring that all tasks are aligned with A & E Construction's goals and objectives. This involves standardizing processes and guidelines to improve efficiency and effectiveness, directly addressing Specific Objective 4.

6. Delivery Successful project delivery is a key indicator of PMO effectiveness. The FGP will outline strategies for ensuring projects are delivered on time, within scope, and budget.

This includes defining performance metrics and KPIs to monitor project progress and success. The proposal will emphasize enhancing project delivery through improved resource management and communication plans, supporting the hypothesis that a structured PMO will benefit project performance.

7. Measurement Regular measurement and evaluation are crucial for continuous improvement. The FGP will recommend establishing metrics and reporting mechanisms to assess the PMO's impact on project performance. This includes measuring project overruns, cost savings, and stakeholder satisfaction. The data collected will provide insights for ongoing adjustments and improvements, aligning with the goal of continuous improvement and accountability mentioned in the justification.

8. Uncertainty Managing uncertainty involves identifying and mitigating risks that could impact project success. The PMO proposal will include risk management strategies to anticipate and address potential challenges. This involves developing contingency plans and maintaining flexibility to adapt to changing circumstances, directly supporting the need for efficient project management tools and processes as stated in the research hypothesis.

2.2.3 Predictive, adaptative and hybrid projects

To align A & E Construction's diverse portfolio with industry standards, it is essential to understand the distinct features of predictive, adaptive, and hybrid project management methodologies as outlined in the PMBOK Guide 7th edition (PMI, 2021).

Predictive projects, often referred to as traditional or waterfall projects, are characterized by well-defined requirements and a clear project scope established at the outset. These projects proceed through a linear sequence of phases, making them suitable for initiatives where scope, time, and cost are predictable and well understood. Predictive methodologies are ideal for A & E Construction's commercial and residential construction projects, where detailed planning and design precede execution, ensuring adherence to timelines and budgets.

Adaptive projects, commonly known as agile projects, are iterative and incremental, accommodating changes even late in the project lifecycle. This methodology is flexible and responsive to evolving requirements, making it ideal for projects where the end goals are not entirely clear from the beginning or are likely to change. This approach could be beneficial for A & E Construction's renovation and remodelling services, where client needs, and design specifications might evolve during the project.

Hybrid projects blend elements of both predictive and adaptive methodologies, providing a tailored approach that leverages the stability of predictive planning with the flexibility of adaptive execution. Hybrid methodologies are particularly suitable for complex projects that require a combination of upfront planning and iterative progress. A & E Construction's infrastructure projects, such as roads and bridges, could benefit from this approach, as they require rigorous planning but might also need adjustments during implementation due to regulatory changes or unexpected site conditions.

For the PMO proposal, a hybrid approach is recommended. This methodology can effectively cater to the varied nature of A & E Construction's projects, balancing the structured planning required for large-scale construction with the flexibility needed for dynamic renovation projects. By proposing a PMO that leverages a hybrid methodology, A & E Construction can ensure a structured yet adaptable approach to managing its diverse portfolio. The PMO will support the company in assessing current project management practices, defining clear roles and responsibilities, and identifying opportunities for improvement, without implying direct improvements in project efficiency.

In conclusion, the hybrid methodology aligns well with A & E Construction’s project diversity, offering a balanced approach that incorporates the strengths of both predictive and adaptive methodologies. The proposed PMO will provide a structured framework that facilitates this hybrid approach, ensuring that project management practices are tailored to meet the specific needs of each project type, thereby supporting the general and specific objectives of the FGP.

2.2.4 Project management

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. It involves planning, executing, and overseeing projects to ensure they are completed on time, within scope, and within budget. Key elements of project management include defining project objectives, managing resources, monitoring progress, and communicating effectively with stakeholders.

According to the Project Management Institute (2021), project management follows a structured approach that includes phases such as initiation, planning, execution, monitoring and controlling, and closing. Each phase involves specific tasks and processes designed to ensure project success. This structured approach is essential for managing the complexities of construction projects, which often involve numerous stakeholders, tight timelines, and significant financial investments.

Fewings and Henjewele (2019) provide comprehensive insights into construction project management, which align with the objectives of maturity analysis, role definition, process evaluation, and implementation planning. A maturity analysis will be conducted to assess the current project management capabilities of A & E Construction. This involves evaluating the organization's existing processes, practices, and tools against established benchmarks to identify strengths and areas for improvement. This analysis will consider factors such as project delivery success rates, resource allocation efficiency, and stakeholder satisfaction.

Defining clear roles and responsibilities within the PMO is essential to ensure accountability and streamline project management activities. Fewings and Henjewele (2019) emphasize the importance of role clarification in project management. Additionally, the establishment of standardized project management processes is critical for consistency and efficiency. Fewings and Henjewele (2019) provide guidelines on developing and implementing project management procedures.

The implementation plan for the PMO will focus on addressing potential challenges and facilitating smooth integration into the operations of A & E Construction. This plan will include

steps such as stakeholder engagement, training and development, and the adoption of project management tools. According to Fewings and Henjewele (2019), technology plays a significant role in modern project management. The PMO will leverage advanced project management software to improve planning, tracking, and reporting. Additionally, change management strategies will be employed to ensure that the transition to the new PMO structure is well-received and supported by all stakeholders.

By following the insights provided by Fewings and Henjewele (2019) and the Project Management Institute (2021), the proposed PMO will establish a structured approach to project management at A & E Construction. This approach will be tailored to the specific needs and maturity level of the organization.

2.2.4.1 Project Management Office (PMO) Concepts

By incorporating insights from authors such as Aubry, Hobbs, and Müller (2010), and Letavec (2016), the PMO is defined as an organizational structure aimed at standardizing project management processes and promoting the sharing of resources, methodologies, tools, and techniques. These concepts will provide a deeper understanding of the proposal to implement a PMO at A & E Construction.

1. **Standardization and Best Practices**

   According to Letavec (2016), the PMO's primary role is to establish and enforce standardized project management processes, methodologies, and best practices across the organization. This standardization ensures consistency, efficiency, and

quality in project execution. In the context of the FGP, this concept aligns with Specific Objective 3, which involves identifying deficiencies in current processes and project performance. By adopting standardized practices, the PMO can address these deficiencies and improve project outcomes.

2. **Resource Management**

   Aubry et al. (2010) emphasizes the importance of resource management in PMOs, including the allocation of human resources, tools, and technology to support project execution. The PMO serves as a centralized hub for resource coordination, ensuring that projects have access to the necessary resources. This concept aligns with Specific Objective 3, which involves proposing a structured approach to managing projects by defining roles and responsibilities. By optimizing resource allocation, the PMO can enhance project performance and ensure efficient use of resources.

3. **Performance Measurement and Reporting**

   Letavec (2016) highlights the role of PMOs in monitoring and evaluating project performance through key performance indicators (KPIs) and reporting mechanisms. The PMO provides insights into project status, progress, and performance metrics, enabling informed decision-making.

4. **Knowledge Management and Continuous Improvement**

   Aubry et al. (2010) stress the importance of knowledge management and continuous improvement within PMOs. The PMO serves as a repository for lessons learned, best practices, and project documentation, facilitating knowledge sharing and organizational learning.

5. **Stakeholder Engagement and Communication**

   Letavec (2016) emphasizes the role of PMOs in stakeholder engagement and communication. The PMO acts as a liaison between project teams and stakeholders, ensuring effective communication and alignment with project objectives. This concept aligns with Specific Objective 1, which involves evaluating the maturity of A & E Construction by understanding its strengths and areas needing improvement through stakeholder feedback. By enhancing stakeholder engagement, the PMO can build strong relationships and support for project initiatives.

In addition, the incorporation of insights from prior research on the establishment and benefits of a Project Management Office (PMO) can significantly enrich the PMO proposal. For instance, Dovor (2017) emphasizes the importance of conducting a maturity assessment as a foundational step before setting up a PMO. This step ensures that the company's readiness and capacity to adopt PMO structures are thoroughly evaluated, helping to tailor the PMO's framework to address specific organizational needs. Applying this approach to A & E Construction in Belize would provide a data-driven basis for the PMO proposal. By evaluating the maturity of A & E Construction, it would be possible to identify areas that require development, thus ensuring that the PMO implementation is aligned with the company’s current capabilities and future goals. This will strengthen the argument that a well-structured PMO can significantly enhance project performance by addressing the company's specific needs, leading to better resource management, and improved project outcomes.

Furthermore, the research by Alqahtani (2019) on the role of PMOs in promoting Knowledge Management (KM) within construction companies underscores the critical role a PMO can play in managing and leveraging organizational knowledge. The research can help support that the proposed PMO at A & E Construction will not only streamline project management processes but also foster a culture of continuous improvement through effective KM practices. This would involve systematically capturing, sharing, and utilizing project knowledge to avoid past mistakes and enhance future project outcomes. The integration of KM practices within the PMO would ensure that A & E Construction not only improves its project delivery but also builds a repository of best practices and lessons learned, further positioning the company as a leader in the competitive construction industry in Belize.

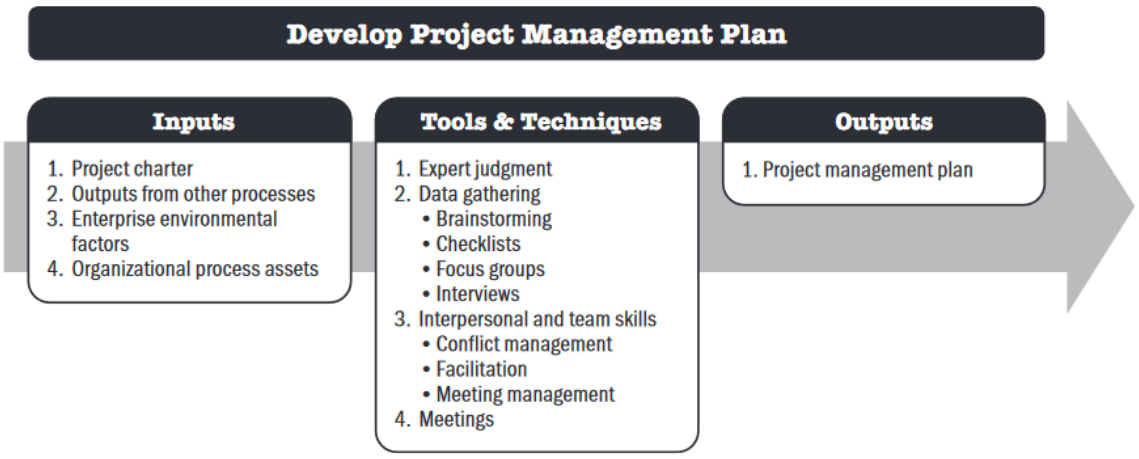
2.2.5 Project management knowledge areas and processes

To effectively propose the implementation of a Project Management Office (PMO) for A & E Construction, it is crucial to align with the project management knowledge areas and process groups as defined in the PMBOK Guide 7th edition (PMI, 2021).

Chapter 5 of the Process Groups: A Practice Guide mentions the processes in the Planning Process Group. The first process group mentioned is to Develop Project Management Plan. As part of the FGP is the Implementation Plan, it is important elaborate on the first process group. This process is critical as it involves defining, preparing, and coordinating all components of the plan into a comprehensive project management plan. The inputs, tools and techniques, and outputs are shown in Figure 4. The plan serves as the foundation for all

project work, outlining how the project will be executed, monitored, controlled, and closed. It ensures consistency with any program or portfolio management plans if applicable and must be baselined to define scope, time, and cost references for performance measurement. The plan is then progressively elaborated through controlled and approved updates, guided by the Perform Integrated Change Control process whenever changes are necessary. This approach supports the structured and agile development of the Implementation Plan as part of the FGP.

Figure 2 Develop Project Management Plan



Note: From “Process Groups: A Practice Guide,” by Project Management Institute, 2022, Project Management Institute, Inc. Copyright 2022 by Project Management Institute, Inc. p 79, Figure 5-1. Permission not sought.

Furthermore, the PMO will support Project Integration Management by ensuring that various project elements are effectively coordinated. This involves consolidating project management practices across residential, commercial, and infrastructure projects, providing a centralized approach to managing project activities and aligning them with the organization's strategic objectives.

In Project Scope Management, the PMO will help define and control what is and is not included in projects. By establishing clear scope management processes, the PMO will assist in ensuring that all project requirements are identified, documented, and managed throughout the project lifecycle, aligning with the specific objectives of the FGP.

For Project Schedule Management, the PMO will standardize the procedures for developing, managing, and controlling project schedules. This will involve creating consistent scheduling practices to ensure that timelines are realistic and adhered to, thus supporting the structured management of construction timelines for residential, commercial, and infrastructure projects.

Project Cost Management will benefit from the PMO’s establishment of uniform cost estimating, budgeting, and control processes. The PMO will aid in the systematic planning, management, and control of project costs, helping to ensure that projects are completed within approved budgets.

The PMO will also enhance Project Quality Management by defining quality standards and implementing processes to ensure that project deliverables meet these standards.

This structured approach to quality will support the FGP's objectives by identifying areas for improvement and ensuring consistent quality across all projects.

In terms of Project Resource Management, the PMO will define processes for planning, acquiring, and managing resources effectively. This will involve coordinating the efforts of the Financial Manager, Accountant, Procurement Officer, HR Coordinator, and IT Support to ensure that resources are utilized efficiently across all projects.

For Project Communications Management, the PMO will establish protocols for effective communication among project stakeholders. This includes defining how information will be disseminated, ensuring that all stakeholders are informed and engaged throughout the project lifecycle, thereby enhancing coordination and collaboration.

Project Risk Management will be strengthened by the PMO through the development of standardized risk management practices. This involves identifying, analyzing, and responding to project risks in a structured manner, supporting the organization's ability to handle uncertainties and potential issues proactively.

In Project Procurement Management, the PMO will standardize procurement processes to ensure that material and equipment purchases are managed consistently. This structured approach will assist the Procurement Officer in aligning procurement activities with project requirements and organizational objectives.

Lastly, the PMO will enhance Project Stakeholder Management by defining processes for identifying and managing stakeholder expectations. This will involve engaging stakeholders appropriately and ensuring their needs and concerns are addressed throughout the project lifecycle.

The PMO will also align its efforts with the five project management process groups. During the Initiating phase, the PMO will assist in defining and authorizing projects. In the Planning phase, it will support the development of project management plans and baselines. Throughout the Executing phase, the PMO will facilitate the implementation of project plans and processes. During the Monitoring and Controlling phase, the PMO will oversee project performance to ensure alignment with plans and objectives. Finally, in the Closing phase, the PMO will support the formal closure of projects, ensuring that all aspects are completed and documented appropriately.

The Project Management Office (PMO) plays a critical role in fostering delivery and outcomes-oriented capabilities by promoting project management skills across the organization (PMI, 2021). It ensures that everyone involved, from employees to contractors, understands and applies a range of project management competencies tailored to each project's unique characteristics. This approach not only focuses on efficiency and quality but also keeps projects aligned with the organization's strategic goals by preventing scope creep and maintaining a "big picture" perspective. By providing continuous guidance and performance evaluations, the PMO aids in decision-making that supports overall organizational success rather than just individual project outcomes.

Furthermore, the PMO contributes to continuous improvement and knowledge transfer within the organization. It regularly shares insights and lessons learned from projects, which helps inform strategic decisions and enhances future project delivery. This culture of learning and adaptation extends to organizational change management, ensuring that the organization remains aligned with updated processes, capabilities, and skills necessary for effective project management (PMI, 2021).

As the business environment becomes increasingly complex and dynamic, the PMO is evolving to better support benefits realization and value creation. By focusing on critical initiatives, the PMO shifts from a traditional oversight role to one that facilitates strategic conversations among senior leaders and project teams. This focus ensures that projects remain aligned with key business objectives. Additionally, the PMO is adopting smarter, streamlined processes that balance necessary governance with efficiency, fostering talent, and nurturing a culture of change that positions the organization to quickly adapt and thrive in a competitive landscape (PMI, 2021).

2.2.6 Project life cycle

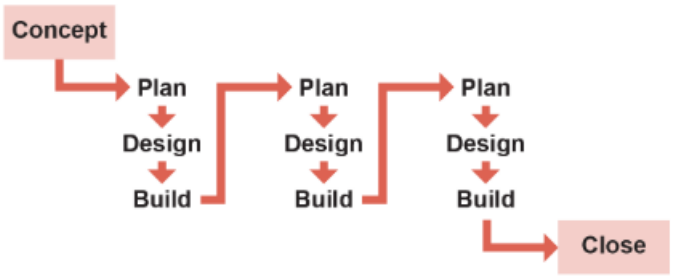
In accordance with the PMBOK Guide 7th edition (PMI, 2021), there are several project life cycles to consider: predictive, iterative, incremental, agile, and hybrid. Each life cycle has distinct characteristics that suit different types of projects, and understanding these can help in proposing an effective PMO for A & E Construction.

Predictive Life Cycle: Also known as the waterfall model, this life cycle is characterized by a sequence of phases where progress flows in one direction — from initiation to closure. Each phase depends on the deliverables of the previous one and is typically completed before the next one begins. This approach is suitable for projects with well-defined requirements, scope, and timelines. For A & E Construction, large-scale residential and commercial construction projects, where detailed planning and design are done before execution, fit well into this life cycle.

Iterative Life Cycle: This life cycle involves developing a project through repeated cycles (iterations) and refining it incrementally. It allows for the project to be reviewed and adjusted throughout its progression. This is beneficial when requirements are expected to evolve or are not completely understood from the start. For A & E Construction, renovation and remodelling services could benefit from an iterative approach due to the need for frequent adjustments based on client feedback.

Incremental Life Cycle: In this approach, the project is divided into smaller segments (increments), with each segment delivering a portion of the project's total functionality. Each increment builds on the previous one, and the project gradually progresses to completion. This method allows for parts of the project to be delivered and used before the entire project is finished, which can be advantageous in fast-paced environments.

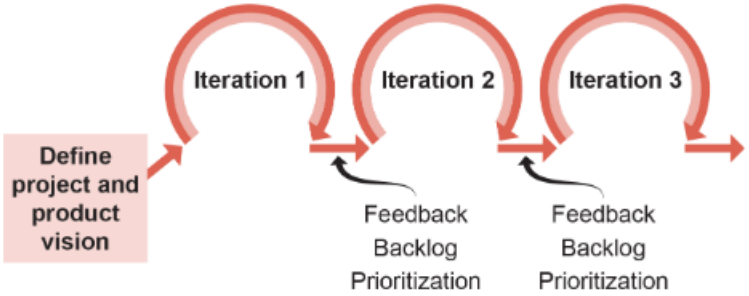
Figure 3 Sample Life Cycle with Incremental Development Approach



Note: From “PMBOK Guide®—Seventh Edition,” by Project Management Institute, 2021, Project Management Institute, Inc. Copyright 2021 by Project Management Institute, Inc. p 44, Figure 2-10. Permission not sought.

Agile Life Cycle: Agile projects are highly flexible and adaptive, characterized by small, self-organizing teams working in short, iterative cycles called sprints. This approach is well-suited for projects with high levels of uncertainty or rapidly changing requirements. While construction projects are typically less suited to pure agile methodologies, elements of agile can be integrated, particularly in areas such as IT support and process improvement initiatives within A & E Construction.

Figure 4 Sample Life Cylcle With Adaptive Development Approach



Note: From “PMBOK Guide®—Seventh Edition,” by Project Management Institute, 2021, Project Management Institute, Inc. p. 45, Figure 2-11. Copyright 2021 by Project Management Institute, Inc. Permission not sought.

Hybrid Life Cycle: A hybrid approach combines elements of both predictive and adaptive (agile) life cycles, allowing for a tailored approach that leverages the strengths of both methodologies. This approach is particularly useful for projects that require both rigorous planning and flexibility. For A & E Construction, a hybrid life cycle would be ideal for infrastructure projects like roads, bridges, and utilities, where the initial planning phase requires a predictive approach, but subsequent phases may benefit from iterative or incremental adjustments.

For the PMO proposal at A & E Construction, a hybrid project life cycle is recommended. This approach will enable the company to balance the structured planning required for large-scale construction projects with the flexibility needed for dynamic and evolving projects like renovations and remodels. By adopting a hybrid life cycle, the PMO can ensure that project management practices are appropriately tailored to the specific needs of each project type within the organization.

2.2.7 Company strategy, portfolios, programs and projects

It is essential to define and discuss the company's strategy, portfolio, program, and projects to understand the context in which a Project Management Office (PMO) would operate

within A & E Construction. Each of these elements plays a crucial role in guiding the company's operations and aligning them with its strategic objectives.

Company Strategy: The company strategy refers to the overarching plan that A & E Construction follows to achieve its long-term goals and maintain a competitive edge in the construction industry. This strategy involves expanding its market share, enhancing customer satisfaction, and improving project delivery standards. The strategy encompasses decisions on which markets to enter, what services to offer, and how to allocate resources effectively. For A & E Construction, the strategy includes diversifying its offerings to include residential, commercial, and infrastructure projects, as well as consulting services.

Portfolio: A portfolio is a collection of projects, programs, and operational activities that are managed and coordinated as a group to achieve strategic objectives. The importance of a portfolio lies in its ability to provide a comprehensive view of all initiatives and investments, ensuring that they align with the company's strategic goals. At A & E Construction, the portfolio includes various types of construction projects (residential, commercial, infrastructure) and consulting services. Managing these projects as a portfolio allows the company to prioritize resources, balance risks, and maximize returns on investment.

Program: A program consists of related projects managed in a coordinated manner to obtain benefits and control not available from managing them individually. Programs are essential for achieving strategic objectives that require multiple projects to be completed in a coordinated fashion. For A & E Construction, an example of a program could be the development of a new residential area, which includes several related projects such as building single-

family homes, townhouses, and infrastructure like roads and utilities. Managing these projects as a program ensures that they are aligned, interdependencies are managed, and overall goals are achieved efficiently.

Project: A project is a temporary endeavour undertaken to create a unique product, service, or result. Projects are the building blocks of programs and portfolios. Each project has a defined beginning and end, with specific objectives that contribute to the broader goals of the program and portfolio. At A & E Construction, projects range from constructing individual residential buildings to large-scale infrastructure projects like bridges and roads. The successful completion of these projects directly impacts the company's ability to achieve its strategic objectives.

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

2.3.1 Current situation of the problem or opportunity in study

The construction industry in Belize is expanding rapidly, with increasing demands for residential, commercial, and infrastructure projects. A & E Construction, a key player in this sector, faces challenges in managing its diverse portfolio of projects efficiently. The complexity of modern construction projects necessitates a structured approach to project management to ensure timely delivery, budget adherence, and quality standards. The current project management practices at A & E Construction lack the structured framework needed to handle these complexities effectively, leading to project overruns, resource mismanagement, and communication breakdowns.

Project management in the construction industry has evolved significantly over the years. Traditional project management practices, often characterized by ad-hoc processes and unstructured methodologies, are no longer sufficient to meet the demands of contemporary construction projects. The increasing complexity, scale, and scope of projects require a more systematic and standardized approach to project management.

Recent research highlights the growing recognition of structured project management methods as a means to enhance organizational performance in the construction industry. According to Oliveira, Tereso, and Fernandes (2017), many organizations have established Project Management Offices (PMOs) to centralize project management activities and improve project delivery outcomes. PMOs serve as a centralized entity that provides governance, standardizes project management processes, and supports project managers with tools and methodologies.

The literature identifies various types and functions of PMOs, tailored to the specific needs of organizations. However, there is often a disconnect between theoretical frameworks and practical implementations. Organizations struggle to determine which PMO functions to adopt and how to integrate them effectively into their existing structures. This challenge is particularly pronounced in engineering and construction firms, where the dynamic nature of projects demands flexibility and adaptability.

Currently, A & E Construction operates without a formal PMO, relying on individual project manager and ad-hoc processes to manage projects. This approach has led to incon-

sistencies in project execution, communication gaps, and inefficiencies in resource allocation. The lack of standardized processes and clear roles and responsibilities exacerbates these issues, hindering the company's ability to deliver projects on time and within budget.

To address these challenges, A & E Construction has made incremental improvements in its project management practices. These efforts include the introduction of project management software tools, occasional training for the project manager, and the establishment of informal communication channels. While these measures have yielded some improvements, they have not been sufficient to overcome the fundamental issues stemming from the absence of a centralized project management framework.

The proposal to implement a PMO at A & E Construction aims to address the root causes of the current project management challenges. A PMO would provide a structured approach to managing projects by defining clear roles and responsibilities, standardizing processes, and enhancing communication. The key elements of the proposed PMO include:

1. Role Clarification: Establishing clear roles and responsibilities within the PMO framework to ensure accountability and reduce overlaps in project management activities.
2. Comprehensible Processes and Guidelines: Developing standardized project management processes and guidelines to ensure consistency and improve project execution.
3. Communication Plans: Implementing robust communication plans to facilitate effective information flow among project stakeholders.
4. Efficient Project Management Tools: Providing project managers with advanced tools and methodologies to enhance project planning, monitoring, and control.

2.3.2 Previous research done for the topic in study

Akel et al. (2011) investigates the application of agile concepts to build a successful PMO using cases from the MENA region. The chapter explores the role of PMO as the proponent for project management and breaks down typical organizational needs around a PMO and tells you how agile methods can help accelerate phases related to establishing a PMO. This paper argues that these may still be a steppingstone for the future agile adaptations in PMO operations and thus, it lays its focus on what are essential processes needed to form a PMO which can effectively integrate with organization operations.

Ershadi et al. (2021) have rightly indicated that construction activities, particularly waste generation, have environmental and ecological effects. Customer demands and regulations for environmental criteria have compelled contractors to embrace more sustainable operations. Sustainable procurement management considers the environmental impacts in procurement decisions with an objective to achieve positive environmental results. In contrast to prior research, which has been focused on the public sector in terms of green procurement, this study is concerned with internal capacities of private businesses as strong management structures—Project Management Offices. This study aims at identifying the requirements of sustainable project procurement and exploring how PMOs can help satisfy them within the private sector. The findings imply that PMOs enhance the quality of collaboration and decision-making over sustainable procurement by defining 17 standards of sustainability and providing their insights on how to adopt sustainable behavior.

Successful and enduring PMOs in today's environment are agile and adjustable. At Fonterra, its PMO went through a good deal of change by reviewing the current state and formulating a comprehensive plan of improvements to attain its vision (Farid, 2021). The key to working through the challenges and defining a clearer approach was strong leadership, support, and engagement. Farid (2021) discusses the need for a PMO roadmap, the critical success factors, the eight steps to generate one, and the rewards and lessons learned along the way. The results help support the thesis by providing hands-on examples of PMO implementation as well as highlighting the need for maturity assessment, role definition, process evaluation, and structured implementation strategy.

The data envelopment analysis (DEA) efficiency study on PMOs by Ko & Kim (2019) provides insights that would be relevant to improve PMO implementation in A & E Construction. It examines elements that influence PMO efficiency, which emphasize the need for project portfolio management maturity (PPMM) and strategic alignment with business objectives. The findings show that enhancing PPMM and strategic alignment can be done; therefore, there is great potential for considerable improvement in PMO efficiency and overall performance.

The literature by Oliveira & Fernandes (2017) identifies that the project management methods are increasingly being recognized to improve organizational performance. Many organizations have created a project management office as an initiative to centralize project management and improve the delivery of projects. A lot of PMO types and functions have been presented, but a business finds it difficult to decide on exactly which functions to apply. Even though some roles are pre-defined in literature, real applications are different. This

paper gives specific functions of a supportive PMO in regard to establishing and implementing project methodology, supportive tools, and enhancing the competencies related to project management in an engineering and construction organization. The findings that are presented help to get a better understanding of how to implement a PMO within a construction firm by guiding roles, processes, and strategies for implementation to achieve improvement in maturity for project management.

The book by Fewings & Henjewele (2019) is consistent with maturity analysis objectives of a construction company, establishment of roles and duties within PMO, procedures for project management evaluation, and an implementation plan. The insights which will be gained on how technology impacts the management of projects will help in avoiding probable issues and ensuring a smooth integration of PMO into A & E Construction.

The bibliographical study by Philbin (2018) investigates how a Project Management Office (PMO) might improve project delivery by standardizing processes and best practices, especially in collaborative research settings. It emphasizes the PMO's responsibility in managing multidisciplinary teams, coordinating with partners, and maximizing project impact. The study presents a case study of a PMO implementation in a higher education institution, providing managerial insights and crucial success elements for integrating a PMO into joint research projects. This study will help to define methods for adopting a PMO in A & E Construction, assisting with objectives like as maturity evaluation, role definition, process assessment, and implementation planning.

2.3.3 Other theory related to the topic in study

Research done by Sani et al. (2018) can help support the PMO proposal for A & E Constructions as it identifies the critical success factors (CSFs) that are critical for the transfer of tacit knowledge in construction companies in lean and agile processes. Critical factors identified include organizational trust, motivation, leadership, and business strategies. It provides new insight into the CSFs of knowledge transfer, which is critical for construction to support strategies in building a Project Management Office within Belizean construction businesses by means of increasing awareness of effective management practices and organizational capabilities.

In addition, the research done by Hopkinson (2010) supports the proposal for establishing a Project Management Office within the construction company by emphasizing the importance of mature risk management practices. It describes support from a formal framework, the Project Risk Maturity Model, that helps in the evaluation and improvement of risk management capability. It points out a strategy for recognizing strengths, places for improvement, and specific requirements within procedures related to project management. It gives relative comparison with the recognized standards and provides the stages through which improvement can be achieved; hence, it is easier to design an effective PMO implementation strategy that enables its integration to match operational needs of the company while maximizing project performance.

3 METHODOLOGICAL FRAMEWORK

3.1 Information sources

The sources of information refer to the variety of materials and references through which the data are gathered, and the arguments or the claims are arranged within academic research, professional reports, or other forms of academic works. These sources include a wide variety of formats, among them scholarly articles, books, conference papers, reports, websites, and primary documents. It therefore calls to understand different sources of information and how to utilize them effectively for detailed research work in content creation with credibility and authority. As emphasized by recent scholars, the selection, evaluation, and integration of appropriate information sources play pivotal roles in shaping the quality, validity, and reliability of scholarly discourse, and contribute significantly to the advancement of knowledge within respective fields of study (Kerzner, 2017; Too & Weaver, 2014; PMI, 2021; Bredillet, 2019).

For this thesis on the proposal of a Project Management Office (PMO) in a construction company in Belize, the specific sources will include recent studies on PMO frameworks and their effectiveness in construction management, industry reports on construction project performance, case studies of PMO implementations in similar contexts, and standards and guidelines from professional project management bodies. The Project Management Institute's PMBOK Guide (PMI, 2021), for example, will provide a comprehensive set of standards and practices regarding PMO implementation. Meanwhile, recent empirical studies by Aubry et al. (2017) and Müller et al. (2019) have both shone new light on the way PMO affects the

performance of projects. Additionally, data and case studies relevant to the construction sector in Belize shall be reviewed from industry-specific reports by organizations like the Construction Industry Institute. All of these sources shall ensure a well-rounded and evidence-based approach towards the research study to provide an in-depth understanding of what would be required to ensure the successful implementation of PMO at A & E Construction. Primary sources

3.1.1 Primary sources

Primary sources are described by Leavy (2017) as original material, or records of events, that are firsthand and upon which there is no room for interpretation or commentary. Primary sources represent the initial presentation of information or original thinking. These sources usually carry ideas which turn out to be the stem of a research. Some examples of primary sources are journal articles, government reports, personal narratives, interviews, and conference proceedings. The primary source for extracting firsthand information about current project management practice and issues will be interviews with key stakeholders at A & E Construction such as Project Manager and Project Assistant. Arguably, the primary sources shall provide complete comprehension of the specific needs and context of A & E Construction that will help in ensuring that the proposed PMO framework is going to customized to address the unique company needs and projects.

3.1.2 Secondary sources

Chart 1 outlines the information sources applied towards the accomplishment of the specific objectives set in the PMO proposal. Differentiation between primary and secondary sources is made, hence providing a complete view of the research methods and materials used to achieve the purpose of gathering information. The primary sources include face-to-face interviews and official documents, while the secondary sources are represented by numerous academic articles, books, and guidelines on project management and PMO implementation.

Chart 1

Information Sources

Objectives	**Information sources**	
	Primary	**Secondary**
To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.	1. Interviews with key staff from A & E Construction (e.g., managers, project leads). 2. Official documents from A & E Construction. 3. Surveys distributed to of A & E Construction Project Manager to gather quantitative	PMBOK Guide, 7th Edition. Akel et al. (2011). Aubry et al. (2017). Backlund et al. (2014). Marzouk et al. (2012). Backlund et al. (2015). Pennypacker & Grant (2002).

	data on maturity levels.	
To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.	1. Case studies of Directive PMO implementations in the construction industry to understand real-world applications and outcomes. 2. Internal meetings and focus groups with A & E Construction's management and project staff to align on the expectations and adaptability of a Directive PMO.	PMBOK Guide, 7th Edition. Saha (2024). Snorradóttir (2014). Philbin (2016). PM Majik (n.d.)
To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.	1. Interviews with project management staff and HR personnel. 2. Company policy documents and role descriptions.	PMBOK Guide, 7th Edition. Kerzner (2017). Bredillet (2019). Müller et al. (2019). Ichsan et al. (2023) Zein (2010). Ershadi et al. (2021).

	3. Case studies of PMO implementation in similar construction companies.	
To assess the project management processes of the construction firm as well as pinpoint any deficiencies or opportunities for improvement.	1. Observations of project management practices. 2. Process documentation and reports. 3. Benchmarking studies comparing A & E Construction's processes with industry standards.	PMBOK Guide, 7th Edition. Oliveira et al. (2017). Farid (2021). Thunberg et al. (2017). Oyewobi et al. (2015).
To develop an implementation plan for the PMO that focuses on addressing potential challenges and facilitates a smooth integration into the operations of the construction company.	1. Interview strategy sessions with Project management team and senior management. 2. Internal surveys to gather input from employees on perceived chal-	Too & Weaver (2014). Saini et al. (2018). Merla (2005). Bhandari (2022). Alqahtani (2019).

	lenges and suggestions for the PMO integration. 3. Interviews with external PMO experts who have successfully implemented PMOs in similar organizations to gather insights and best practices.	

Note: From Author, self-produced

3.2 Research methods

Research methods involve a systematic approach used in data collection, analysis, and interpretation to drive the understanding of a given phenomenon. (Creswell & Creswell, 2018). In this PMO proposal, three of the common methods to be utilized will be qualitative, quantitative, and mixed methods. Qualitative research will involve taking an all-inclusive approach to exploring and describing phenomena through narratives, observation, interpretation, and analysis. Meanwhile, quantitative research will entail numerical data and subsequently the process of using statistical analyses to establish patterns, relationships, and predictions. Mixed methods research combines the elements of qualitative and quantitative approaches to have a comprehensive understanding of the research study since it uses both numerical and narrative data collection and analysis techniques.

3.2.1 Quantitative Method

Quantitative research is a way of collecting and analyzing numerical data in a systematic process that unveils the existent patterns, relationships, and predictions in a phenomenon (Apuke, 2017). Hence, this method relies on the statistical techniques in quantifying observations or elements and coming up with totally objective conclusions. Quantitative research, therefore, brings two important dimensions into evidence-based choices in a number of different disciplines: objectivity and generalizability.

3.2.2 Qualitative Method

Qualitative research is a holistic approach to comprehend phenomena through the exploration of subjective experiences, meanings, and perspectives of concern (Flick, 2018). In contrast to quantitative method, focus is placed on deep exploration, interpretation and description and never on quantification (Merriam & Tisdell, 2016). Qualitative method aims to capture human behavior, social interactions, and cultural phenomena through interviews, observations, and document analyses. Most commonly, findings from qualitative research contribute to theory development, offering better insights.

3.2.3 Mixed Method

Mixed methods research involves the infusion of both qualitative and quantitative methods in one study so that researchers can collect and analyze both numerical and narrative data in order to address research questions (Creswell & Plano Clark, 2018). This is an approach that gives a dimension of holism and, more importantly, it abates the biases that are

likely to emanate from using one method. Researchers can cross-validate and enrich their findings and assure a more robust and comprehensive analysis by combining both methods.

3.2.4 Observation Research

An observational study is a research method that relies on the researcher's observations without interference or manipulation. These studies are typically qualitative and are often used in fields like hard science, medicine, and social sciences due to ethical or practical limitations on experiments. While they can be exploratory or explanatory, the lack of control groups makes it challenging to draw clear inferences, and there is a risk of confounding variables and observer bias affecting the results. There are three main types of observational studies: cohort, case-control, and cross-sectional. Cohort studies follow a group of participants with a shared characteristic over time to observe outcomes. Case-control studies compare two groups—one with a specific attribute and one without—to determine if the attribute is linked to a particular outcome. Cross-sectional studies analyze a population at a specific point in time to assess the prevalence of a condition or characteristic. These methods are commonly used to explore correlations in various fields of research (Scribbr, n.d.).

3.2.5 Analytical Research

Analytical research involves using critical thinking to assess data and information related to a project. It focuses on determining causal relationships between variables and aims to uncover the causes and mechanisms behind specific trends. This type of research is widely used by professionals to gather relevant information, develop new ideas, and support ongoing research. Analytical research can take various forms, including literary analysis, gap analysis,

surveys, clinical trials, and meta-analysis. Its primary importance lies in combining detailed information to develop credible new ideas, validating theories or hypotheses, and identifying the truth behind claims (Satter, n.d.).

3.2.6 Statistical Research

Statistical analysis is a systematic process that involves gathering, analyzing, interpreting, and presenting data to draw conclusions. It uses statistical tools to identify patterns, trends, and relationships within datasets, aiding in informed decision-making. Key aspects include data collection, exploratory data analysis (EDA), inferential statistics, statistical modeling, data visualization, and interpretation.

The process starts with extracting and organizing raw data from various sources, ensuring its quality through rigorous cleaning. Analysts then identify essential data by filtering out irrelevant information, focusing on variables most relevant to the analysis objectives. Innovative data collection strategies, such as surveys, experiments, and data mining, are employed to gather comprehensive data. Collaboration with experts ensures that the analysis aligns with organizational goals, making the insights more relevant and actionable. This collaborative approach helps refine analytical strategies and supports better decision-making based on the data (Timonera, 2024).

Chart 2
Research methods

Objectives	**Research methods**					
	Quantitative Method	Qualitative Method	Mixed Method	Observation	Analytical	Statistical

To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.	Surveys to gather numerical data on current practices and maturity levels.	Interviews with key staff and document analysis to gather in-depth insights.	Combining survey results with interview findings to provide a comprehensive maturity assessment.	Observations of current project management practices.	Analyzing the maturity model results to identify specific areas where the company falls short compared to best practices.	Perform a statistical analysis of survey data collected from employees regarding current project management practices. This involves calculating the mean maturity level to identify factors that most significantly influence maturity.

To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.	Use surveys to quantify the understanding and perception of a Directive PMO among the employees.	Conduct interviews and focus groups with project manager and senior staff to explore their insights into the concept and benefits of a Directive PMO.	Combine survey data on understanding of PMO type with qualitative interviews to get a complete picture of the current knowledge and gaps about a Directive PMO.	Observe current decision-making and project oversight practices to compare with the characteristics of a Directive PMO.	Analyze industry standards and existing literature to clearly outline the attributes and benefits of a Directive PMO.	Use descriptive statistics on survey responses to measure awareness and understanding of Directive PMO characteristics among staff.
To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.	Survey to quantify role clarity and accountability.	Observations, process documentation reviews, and interviews.	Integrating quantitative role assessment results with qualitative interview insights.	Observations of existing role allocations and responsibilities.	Analyzing case studies from other construction companies to identify common	Analyze survey data on role clarity and accountability.

					roles and their impacts on project success.	
To assess the project management processes of the construction firm as well as pinpoint any deficiencies or opportunities for improvement.		Observations, process documentation reviews, and interviews.		Detailed observations of current processes in action.	Mapping out the existing workflows and comparing them to optimized processes.	
To develop an implementation plan for the PMO that focuses on addressing potential challenges and facilitates a smooth integration into the operations	Surveys to gather quantitative data on anticipated challenges and integration readiness.	Qualitative feedback from project management team and senior management.	Combining survey data with qualitative feedback to develop a comprehensive implementation plan.	Observations of the implementation process and potential integration challenges.	Identifying internal and external factors that could affect the success of the PMO, such as	Utilize simple descriptive statistics to summarize the survey data on anticipated

of the construction company.					existing management practices or market conditions, and using these insights to create the implementation plan	challenges. Calculating the percentage of respondents who anticipate specific challenges like resistance to change or resource allocation issues. This will help prioritize areas that need to be addressed in the im-

						plemen-tation plan.

Note: From Author, self-produced

3.3 Tools

Tools are defined as any instrument, method, software, or resource utilized for collection and processing data (Creswell & Creswell, 2018). These tools include an array of tangible and intangible elements such as survey instruments, statistical software, and theoretical frameworks, all set for proper and organized research in various fields. Only the tools relevant to the purpose at hand are chosen for the fulfillment of the specific objectives as outlined in establishing a Project Management Office in at A & E Construction.

Chart 3
Tools

Objectives	**Tools**
To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.	- Project Management Maturity Model (PMMM) - Survey - Structured interviews- Interviews will be conducted with key personnel such as project manager and upper management. The interview questions will be designed around the Project Management Maturity Model (PMMM) framework to assess the organization's maturity level in project management. This will help identify strengths, areas needing improvement, and specific needs.
To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.	-Literature Review: A comprehensive review of existing literature on PMOs, particularly the characteristics and benefits of Directive PMOs, will provide a theoretical foundation and context. -Case Studies: Analysis of case studies where Directive PMOs have been implemented in similar industries or organizations. This can offer practical insights and examples of best practices. -Expert Consultations: Engaging with PMO experts or consultants to gather pro-

	fessional opinions and advice on the suitability and implementation of a Directive PMO in a construction context.
To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.	-Role clarification tools and responsibility assignment matrices (Kerzner, 2017) - Structured interviews with HR and project management staff. The questions will focus on understanding current role perceptions, existing responsibilities, and any overlaps or gaps. The insights gathered will help in designing a clear and well-defined responsibility assignment matrix.
To assess the project management processes of the construction firm as well as pinpoint any deficiencies or opportunities for improvement.	- Observations and process documentation reviews - Structured interviews and feedback sessions. The interview questions will focus on specific process areas such as planning, execution, monitoring, and closing of projects.
To develop an implementation plan for the PMO that focuses on addressing potential challenges and facilitates a smooth integration into the operations of the construction company.	- Surveys to gather quantitative data on anticipated challenges - Qualitative feedback from project management team and senior management - Literature review to provide insight of existing research findings.

3.4 Assumptions and constraints

Assumptions are premises that are accepted as true without verification for the purpose of planning and executing a project (Kerzner, 2017). They give the baseline for planning and

aid in making decisions. Constraints, on the other hand, are the limiting factors that restrict the project team's options in certain aspects such as scope, budget, schedule, resources, and quality requirements (Project Management Institute, 2021).

Chart 4
Assumptions and Constraints

Objectives	Assumptions	Constraints
1. To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.	It is assumed that management and key personnel will provide accurate and comprehensive information during interviews.	Availability and completeness of past project data may be limited.
2. To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.	It is assumed that the literature and case studies reviewed will provide clear and relevant examples of Directive PMOs in similar industries.	There may be limited examples or case studies specifically tailored to the construction industry in Belize, which could impact the relevance and applicability of the Directive PMO model.
3. To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.	Assumed that HR and project management staff will cooperate in defining roles and responsibilities.	Potential resistance to changes in roles and responsibilities within the organization.

Objectives	Assumptions	Constraints
4. To assess the project management processes of the construction firm to identify deficiencies or opportunities for improvement.	It is assumed that current process documentation is up-to-date and accurately reflects actual practices.	Limited access to detailed process documentation and reports may hinder a thorough assessment.
5. To develop an implementation plan for the PMO focusing on addressing potential challenges and facilitating smooth integration.	Assumed that key stakeholders will provide insights and feedback for a comprehensive plan.	The scope of the implementation plan may be compromised by a lack of time and resources for thorough planning.

Note: From Author, self-produced

3.5 Deliverables

Deliverables are unique products, results, or capabilities that a project must produce in order to ensure that work is completed (Project Management Institute, 2021). Deliverables are important to ensure that the project is done perfectly to meet the objectives and to satisfy the stakeholders.

One of the major deliverables for the Final Graduation Project (FGP) is a proposal for the establishment of a PMO at A & E Construction. All deliverables are summarized in Chart 5 below.

Chart 5
Deliverables

Objectives	Deliverables
1. To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.	Project Management Maturity Model: A detailed report that identifies the current project management maturity level.
2. To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.	Detailed Definition and Characteristics highlighting the PMO's key characteristics, functions and how it differs from other PMO types.
3. To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.	An updated organizational chart that displays the PMO's ideal structure
4. To assess the project management processes of the construction firm to identify deficiencies or opportunities for improvement.	A framework that incorporates best practices, lessons from existing PMO models, and all the benefits of the proposed PMO
5. To develop an implementation plan for the PMO focusing on addressing potential challenges and facilitating smooth integration.	An implementation plan for the PMO that outlines the essential processes and actions for setting up the PMO

Note: From Author, self-produced

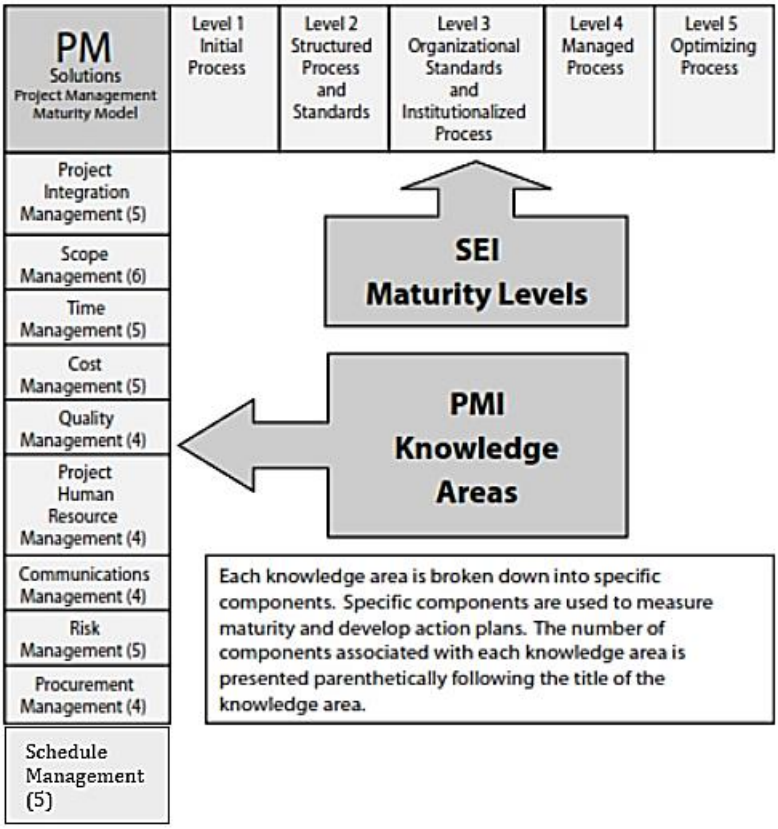
4 RESULTS

4.1. Maturity Level of A & E Construction

To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.

This study aims to better understand how A & E Construction can assess the PM maturity in order to increase PM capabilities, by means of a project management maturity model assessment. A project management maturity model is a tool used to assess an organization's capabilities and identify areas for improvement. The PM Solutions Project Management Maturity Model is a two-dimensional framework based on industry standards which can be observed below in Figure 5. The first-dimension measures maturity, while the second dimension identifies key areas of project management addressed, using PMI's ten knowledge areas. These areas are further decomposed into key components for a more precise determination of project management maturity (Pennypacker, 2002).

Figure 5 Project Management Maturity Model



Note: From Project management maturity: an industry-wide assessment, by Pennypacker, J. S. & Grant, K. P., 2002, Project Management Institute, Inc. Permission not sought.

The PM Solutions Project Management Maturity Model includes five levels of maturity as explained by Pennypacker (2002). The five levels are explained below:

Level 1: Initial Process

The recognition of project management processes is limited due to lack of established practices and standards, and individual project managers are not held accountable. Documentation is loose and ad hoc, and management understands project definitions and accepted processes, but metrics are collected informally.

Level 2: Structured Process and Standards

Many project management processes within an organization are not considered an organizational standard and documentation exists on basic processes. However, there is no consistent understanding, involvement, or organizational mandate for all projects. Functional management is involved in larger and visible projects that are executed systematically. Basic metrics track cost, schedule, and technical performance, but data may be collected manually. Information available for project management is often a mix of summary and detailed level data.

Level 3: Organizational Standards and Institutionalized Process

Project management processes are established as organizational standards, involving clients as integral members of the project team. Management has institutionalized these processes and standards, with formal documentation existing. Management is regularly involved in input and approval of key decisions, documents, and project issues. Project management processes are typically automated, and each project is evaluated and managed in light of other projects.

Level 4: Managed Process

Project management involves considering past performance and future expectations, using efficiency and effectiveness metrics to make decisions and understand impacts on other projects. All projects, changes, and issues are evaluated based on cost estimates, baseline estimates, and earned value. Project information is integrated with other corporate systems for optimized business decisions. Processes and standards are documented to support these metrics. Management understands its role in the project management process and executes it well, differentiating management styles and requirements for different project sizes/complexities. Project management processes and standards are linked into other corporate processes and systems.

Level 5: Optimizing Process

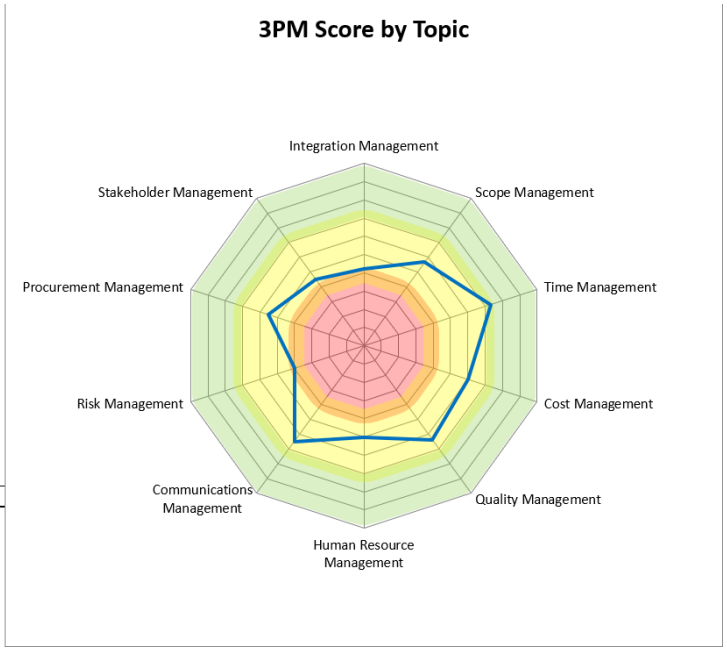
Project management processes are actively improved through regular examination of lessons learned and improvement of processes, standards, and documentation. Management and the organization prioritize continuous improvement and use metrics collected during execution to understand project performance and make future management decisions. This approach ensures effective project management and continuous improvement.

A 3PM Maturity Assessment tool developed by Sean Whitaker from Crystal Consulting was utilized to evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs. This tool stands out from other compli-

cated options by streamlining the process through an easy-to-use set of questions in Microsoft Excel, providing a clear overview of strengths and areas for improvement. Although the tool introduced several additional areas, the focus remained on ten specific knowledge areas, as outlined by the PMBOK 6th Edition (2021). The assessment tool involved having the Project Manager fill out a questionnaire with 52 questions (As seen in Appendix 5) and rate them based on levels one to five. A zero signified that organization does not need the element. Figure 6 below shows the 3PM score based on the ten knowledge areas and how they are utilized in A & E Construction, according to the Project Manager.

Figure 6 3PM Score by Knowledge Area

TOPIC	SCORE
Integration Management	2.11
Scope Management	2.83
Schedule Management	3.67
Cost Management	3.00
Quality Management	3.20
Resource Management	2.50
Communications Management	3.25
Risk Management	2.00
Procurement Management	2.75
Stakeholder Management	2.25
OVERALL SCORE	2.76



Note: From self-assessment tool. Own creation.

In analyzing the scores achieved in each knowledge area of project management, the results reveal the current maturity level of the processes within the organization. These findings are supported by interviews conducted with key staff from A & E Construction, including the project manager, general manager, project assistant, and members of the project team. The insights gained from these interviews further illuminate the organization's current practices and areas for improvement. Below is a breakdown based on the scores and supported by relevant literature.

Scope Management:

The score of 2.83 indicates a moderate level of competency in managing the project scope. According to the project manager, while scope management processes exist, they are not formalized, which aligns with Backlund et al. (2015) findings that formalized processes are critical to success. This knowledge area covers scope planning, requirements gathering, and scope validation; however, a lack of standardized scope management plans limits effectiveness.

To further interpret the responses from the project manager at A & E Construction, it is important to examine the ratings given to individual questions in the questionnaire. For example, the project manager rated the question, "Does your organisation describe how project requirements will be gathered and documented?" with a 3, indicating that while the organization has this process in place, it is not always applied consistently or appropriately. This

inconsistency can lead to challenges in ensuring that project requirements are clearly understood and adhered to throughout the project lifecycle, potentially causing issues such as scope creep or misalignment with client expectations.

Similarly, in response to the question, "Does your organisation describe how project requirements will be checked, monitored, and how changes to them will be assessed?" the project manager also rated it a 3. This signifies that although A & E Construction does have mechanisms for monitoring and assessing changes to project requirements, they are not always utilized effectively. This lack of consistent application could hinder the ability to maintain tight control over project scope, leading to deviations from original project objectives.

Moreover, for the question, "Does your organisation describe how the work breakdown structure will be checked, monitored, and how changes to it will be assessed?" the project manager rated it a 2. This lower score suggests that while there is some awareness of the importance of monitoring the WBS and tracking changes, the process is not implemented consistently. This could result in challenges with scope control and project execution, as a well-managed WBS is crucial for maintaining project structure and ensuring that all project tasks align with the original scope.

Communications Management:

A score of 3.25 suggests that communication practices are solid but there remains room for improvement. During interviews, staff indicated that communication is often ad hoc but generally effective in ensuring information flow between stakeholders (personal communication,

September 23, 2024). Aubry et al. (2017) supports the idea that structured communication can lead to better stakeholder engagement and project outcomes.

The Project Manager at A & E Construction rated the question, “36. Does your organization describe how project communications will be defined and documented?” with a score of 3. This rating indicates that while A & E Construction does have processes in place for defining and documenting project communications, these processes are not always used consistently or appropriately. This suggests room for improvement in ensuring that communication plans are applied more uniformly across different projects.

However, for the question, “39. Does your organisation describe the use of communications management software?” the Project Manager rated it with a 4. This higher rating signifies that A & E Construction has not only adopted communication management software but also uses it competently and consistently. The presence of such software likely aids in centralizing communications, making it easier for the team to track and distribute information. However, there is still some potential for growth, as a score of 5 would reflect exemplary use.

Cost Management:

The score of 3.00 reflects adequate control over cost management. However, the general manager expressed concerns over the lack of real-time financial monitoring, which occasionally leads to budget overruns (personal communication, September 23, 2024). According to Marzouk et al. (2012), formal cost estimation and tracking processes are essential for organizational maturity.

In analyzing the questionnaire responses provided by the Project Manager at A & E Construction, some key insights emerge. For example, when asked, "23. Does your organization describe how the project budget forecast will be checked, monitored and how changes to it will be assessed?", the Project Manager rated this question with a 4. This indicates that A & E Construction does have processes in place to describe how project budgets are managed and consistently uses these processes competently. This is a positive sign of maturity in cost management practices.

However, the response to the question "24. Does your organization require the use of earned value management techniques for monitoring cost and/or time?" was rated with a 3 suggesting that while earned value management techniques are in place, they are not always applied appropriately or consistently across all projects. This highlights an area where improvements could be made to ensure consistent usage of advanced cost monitoring techniques.

Integration Management:

The score of 2.11 suggests that Integration Management is underdeveloped. Interviews with staff revealed that there is no consistent approach to integrating project elements, with project charters and change control processes rarely implemented (personal communication, September 23, 2024). Backlund et al. (2015) emphasizes that consistent integration processes are essential for aligning projects with organizational goals.

The Project Manager at A & E Construction rated the question, “3. Does your organization describe how the project charter is prepared and authorized?” with a 1. This rating signifies

that A & E Construction does not currently have or use a formal process for preparing and authorizing project charters nor is there significant awareness of the importance of this element within the organization.

Additionally, the question “7. Does your organization describe the approved project change control process?” also received a rating of 1. This suggests that the company lacks a structured change control process and is not actively aware of its need, highlighting a critical area where development is required to ensure changes are managed effectively throughout the project lifecycle.

Furthermore, the Project Manager rated the question, “9. Does your organization describe how project configuration management and version control will occur in the project?” with a 2. This means that while the organization recognizes the importance of configuration management and version control, they do not have a consistently applied process, indicating a need to formalize these elements to avoid potential project misalignment.

Quality Management:

The score of 3.20 suggests fairly strong quality control measures. The project team acknowledged that formal quality management plans are not in place, and oversight is mostly reactive (personal communication, September 23, 2024). Akel et al. (2011) emphasizes the importance of continuous improvement and agile quality management, which is currently lacking in organizations. The Project Manager at A & E Construction rated the question “29.

Does your organization describe how quality control will be defined, inspected, and documented on the project?" with a 3, indicating that while the organization does have procedures in place for quality control, they are not always consistently applied. This inconsistency suggests that there may be opportunities for improvement in ensuring that quality control processes are regularly and effectively implemented.

Resource Management:

With a score of 2.50, Resource Management requires improvement. According to interviews, resource allocation is often done informally, leading to delays and inefficiencies in project execution (personal communication, September 23, 2024). This aligns with Backlund et al. (2014) argument that a formal resource management plan is crucial for efficient project delivery.

The Project Manager rated the question "32. Does your organization describe how the numbers and experience of people required to complete the work will be estimated?" with a 3, which suggests that while there is some awareness and use of resource estimation processes, these practices are not always applied consistently or appropriately. Additionally, the Project Manager rated the question "34. Does your organization describe how the project team members will be recruited, developed, and managed?" with a 2, meaning that these processes are recognized but are either underutilized or lack a formalized approach. This reflects the need for a structured resource management plan that ensures both the recruitment and development of team members are handled more systematically to avoid inefficiencies.

Procurement Management:

The score of 2.75 reflects moderate performance in Procurement Management. The general manager stated that procurement decisions are usually made on an as-needed basis, without a formal procurement strategy (personal communication, September 23, 2024). Establishing formal procurement practices, as suggested by Aubry et al. (2017), would enhance efficiency and transparency.

Stakeholder Management:

A score of 2.25 indicates that formal processes for Stakeholder Management are lacking. Interviews revealed that stakeholders are generally identified based on historical information rather than a structured analysis, and no formal engagement plans are in place (personal communication, September 23, 2024). Backlund et al. (2015) recommend formal stakeholder analysis and engagement processes to ensure project success.

When asked, "Does your organization describe the processes and strategies for managing and influencing project stakeholder expectations?" the Project Manager rated it a 2. This rating reflects that while the organization is aware of the need for these processes, they do not consistently implement or fully utilize them. Similarly, the question, "Does your organization describe how the stakeholder register will be monitored and changes to it assessed?" was also rated with a 2, suggesting that while there is an understanding of the importance of monitoring the stakeholder register, there is no consistent process for doing so.

Schedule Management:

The score of 3.67 highlights a relatively mature approach to scheduling. Staff interviews revealed that while schedules are generally well-managed, there are occasional delays due to resource allocation issues (personal communication, September 23, 2024). Backlund et al. (2014) notes that refining schedule management can help maintain project timelines more effectively.

When asked, "Does your organization describe how the project schedule will be checked, monitored, and how changes to it will be assessed?" the Project Manager rated it a 4 indicating that A & E Construction has appropriate processes in place and applies them consistently and competently. However, the question, "Does your organization describe and require the use of scheduling software?" received a rating of 3. This implies that although scheduling software is used, it is not applied as rigorously or consistently as it could be. The difference in these ratings suggests that while scheduling processes are mostly mature, there are still areas where consistency in the use of tools could be improved.

Risk Management:

A score of 2.00 reflects a significant gap in Risk Management. Interviews with the project team revealed that risk identification and mitigation are not prioritized, with risks being handled reactively as they arise (personal communication, September 23, 2024). Marzouk et al.

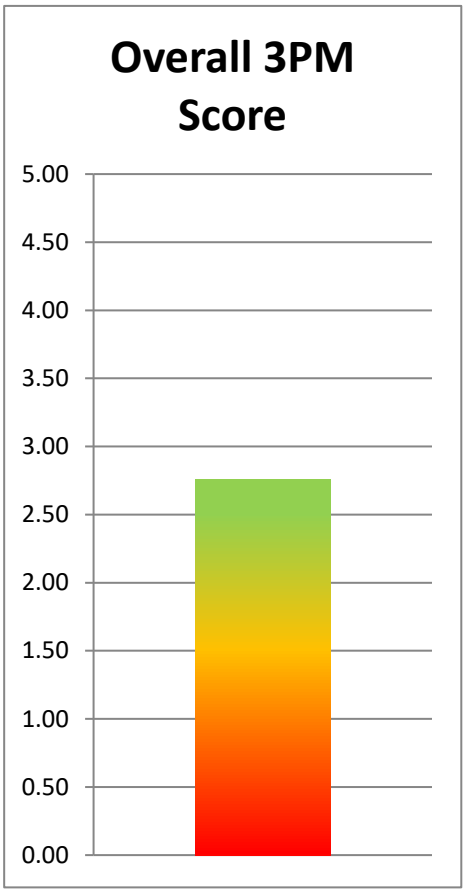
(2012) emphasizes that a structured approach to risk management is essential for minimizing project disruptions.

For the question, "Does your organization describe how risks will be identified, documented, and quantitatively assessed?" the Project Manager rated it a 2 indicating that while the organization acknowledges the need for risk identification and documentation, these processes are not consistently applied. The question, "Does your organization describe how identified risks will be monitored and how changes to the risk register will be assessed?" was also rated a 2 confirming that the monitoring and reassessment of risks are similarly inconsistent. This highlights a reactive approach to risk management, where risks are addressed as they arise rather than being proactively managed.

Overall Maturity

The overall score of 2.76, depicted in Figure 7, indicates moderate project management maturity. Certain areas showed strength, such as Schedule Management and Communications Management, while others like Risk Management and Stakeholder Management need improvement. The interviews with key staff provided valuable insights into the organization’s processes, reinforcing the need for formalized procedures.

Figure 7 Overall 3PM Score



Note: From self-assessment tool. Own creation.

The establishment of a Project Management Office is key to improving overall project management maturity. A PMO could provide structure and standardization across all knowledge areas, ensuring consistency in scope, cost, and risk management. Akel et al. (2011) emphasizes that an agile approach to setting up a PMO can help organizations adapt to changing project demands while maintaining control over processes. Similarly, Aubry et al. (2017)

argues that a PMO enhances organizational project management by aligning project objectives with business goals, thereby increasing overall efficiency and accountability.

By centralizing project management practices, a PMO could enable A & E Construction to monitor real-time performance, streamline communication, and establish formal processes for risk and resource management. This would support continuous improvement and drive the organization toward higher maturity levels, as recommended by Backlund et al. (2015). In the long run, a PMO could help institutionalize best practices, leading to more predictable outcomes and a better alignment with stakeholder expectations.

4.2. Directive PMO

To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.

Introduction to Directive PMOs

According to the Project Management Institute (PMI), PMOs can take multiple forms, each tailored to the needs of the organization (PMI, 2021). This flexibility allows PMOs to adapt to various roles, such as improving project management concerning cost, schedule, quality, and risk management, as well as aligning projects with strategic goals. By understanding the different configurations of PMOs, organizations can better leverage them to engage stakeholders, develop talent, and realize value from their investments (PMI, 2021).

Saha (2024) discusses various types of Project Management Offices (PMOs) and categorizes them based on influence and position within an organization, referencing the Project Management Institute (PMI).

Types of PMOs Based on Position:

1. Individual PMOs: Support single projects or programs and oversee every stage from start to finish.
2. Departmental PMOs: Support projects within a single department like an IT PMO, enhancing project delivery capabilities in that department.
3. Enterprise PMOs (EPMOs): Create processes and methodologies to improve project performance across the entire organization which provides a high-level view of the project portfolio for strategic alignment.

Types of PMOs Based on Influence:

1. Supportive PMOs: They play a passive, consultative role, provide templates, best practices, training, and resources but with little control over projects.
2. Directive PMOs: These PMOs have the highest level of influence, they directly manage projects, and ensure adherence to centralized data, practices, and controls.
3. Controlling PMOs: They are a middle ground and enforce standards through frameworks and intervene when necessary to correct errors or inefficiencies.

The Directive Project Management Office (PMO) is the recommended PMO type for A & E Construction, due to its structured approach and direct influence over project management

practices. A Directive PMO offers a centralized approach to project management, positioning itself as the authoritative body that manages all aspects of project execution. In this structure, project managers are not just overseen by the PMO but are integral to it, reporting directly to the office and being assigned to projects based on organizational priorities. This setup allows the Directive PMO to exert full control over projects, setting methodologies, KPIs, and policies, which results in greater uniformity and higher standards across all initiative. This level of control is especially important in industries requiring high levels of standardization, such as construction (Snorradóttir, 2014).

The Directive PMO undertakes a variety of activities including defining project methodologies, whether Agile, Kanban, or Waterfall, ensuring that each project follows a cohesive process. It also standardizes project KPIs and policies around resource allocation, procurement, and continuity which provides consistency in project delivery. With all projects managed directly under its purview, the PMO can identify and implement process improvements and direct resources more effectively based on data-driven insights (PM Majik, n.d.).

Advantages of a Directive PMO

There are several significant advantages to using a Directive PMO. First, the Directive PMO promotes alignment across projects and teams. This standardization simplifies communication with both internal team members and external stakeholders, reducing confusion and enabling smoother collaboration (Philbin, 2018). Additionally, because the Directive PMO cen-

tralizes control, it reduces departmental conflicts and makes resource allocation more efficient. Project teams only need to be trained on one set of tools, making it easier to assign resources where needed and reducing onboarding time for new projects (PM Majik, n.d.).

The Directive PMO model is especially useful in highly project-oriented organizations such as those that deliver projects directly to clients. In such environments, having a Directive PMO means that the organization can maintain high standards in project management, ensuring consistency in quality and approach. Furthermore, the level of accountability within a Directive PMO is high as it holds responsibility for project success or failure, making it easier for C-suite executives to assess project outcomes and performance (PM Majik, n.d.).

Directive PMO Structure and Responsibilities

A Directive PMO centralizes expertise allowing skilled project managers to be readily available for any project which shortens the time from project commissioning to execution. By ensuring all managers share the same skill set and work within the same frameworks, the Directive PMO creates a harmonious environment conducive to effective project delivery, particularly in scenarios that involve substantial stakeholder engagement (PM Majik, n.d.).

Saha (2024) mentions that Directive PMOs exert a high degree of influence on projects by directly managing them. Rather than simply offering guidance, tools, and frameworks as needed, they actively oversee projects from start to finish. This centralized oversight allows

Directive PMOs to leverage their data, analytics, and best practices, which can reduce the likelihood of project failure (Saha, 2024).

A Directive PMO's involvement does not stem from a lack of trust in project teams. As Saha (2024) mentions, a Directive PMO can be highly effective in industries with strict regulations, such as fintech or construction, where having project teams report directly to the PMO can provide greater oversight and ensure compliance. Therefore, for a construction company like A & E, implementing a Directive PMO could be especially advantageous. The construction industry frequently faces challenges related to safety, regulatory compliance, and project deadlines. A Directive PMO would provide A & E with a centralized authority capable of enforcing standardized procedures across all projects, reducing risks and improving project coordination.

In addition to managing the tools and training offered to teams, directive project management offices (PMOs) are responsible for overseeing the resources and timelines of individual projects. Unlike supportive or controlling management models, the directive PMO takes charge of the outcomes for each initiative.

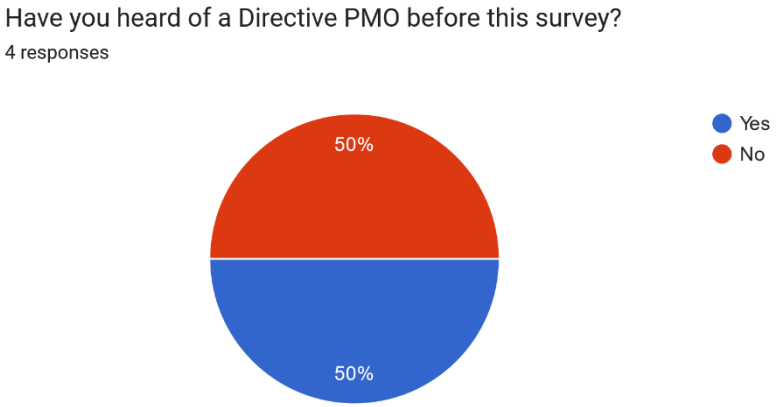
Survey Insights on Directive PMO Awareness

Philbin's (2018) work underscores the importance of aligning PMO perceptions and awareness with organizational roles. Thus, to quantify the understanding and perception of a Di-

rective PMO among staff, a survey (See Appendix 6) consisting of ten questions was distributed to key members of the construction team, including the Site Manager, Project Manager, Project Assistant, and Engineer. The survey responses provided insights into how each role perceives the Directive PMO, particularly in terms of awareness, impact, and expectations.

When asked if they had heard of a Directive PMO before this survey, responses varied slightly. As depicted in Figure 8, the Site Manager and Project Assistant indicated that they had not heard of it before, suggesting that these roles may have had less exposure to structured project management methodologies. In contrast, both the Project Manager and the Engineer had heard of a Directive PMO, indicating some prior awareness, though not necessarily in-depth familiarity.

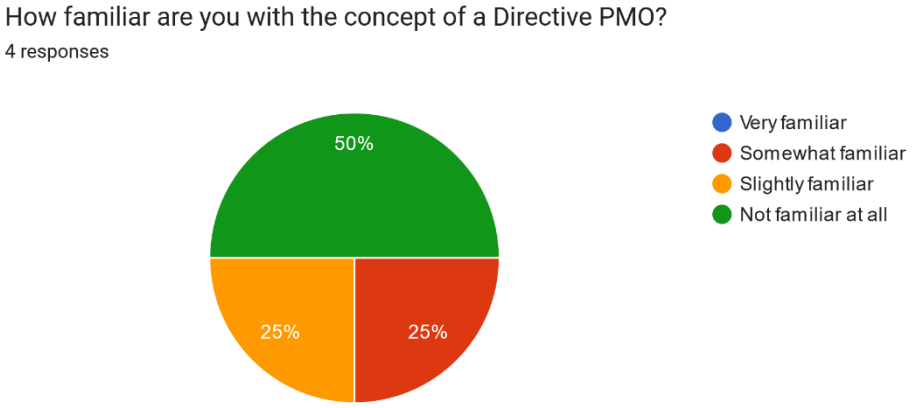
Figure 8 Have you heard of a Directive PMO before this survey?



In terms of familiarity with the concept, the Site Manager and Project Assistant expressed that they were “not familiar at all” with a Directive PMO. This unfamiliarity suggests that

these roles may require a foundational introduction to its structure and objectives. The Project Manager reported being “somewhat familiar” with the concept, likely due to previous project management experience. The Engineer, meanwhile, felt only “slightly familiar,” which could imply limited exposure or awareness from previous projects or discussions. The results can be seen in Figure 9 below.

Figure 9 How familiar are you with the concept of a Directive PMO?

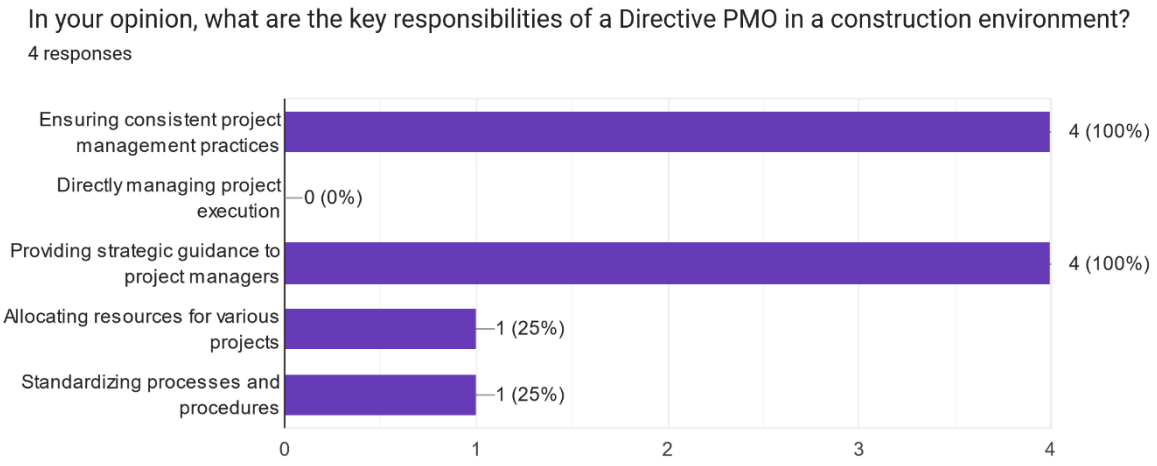


When describing what they thought a Directive PMO is, the responses reflect different interpretations based on each role's responsibilities and experience. The Site Manager, not having much background knowledge, associated it with centralized project control and assumed it provided overarching management. The Project Manager described it as a centralized team responsible for establishing project standards and practices, indicating a more concrete understanding of its purpose. The Project Assistant, without detailed knowledge, assumed it

helps manage projects across the company, while the Engineer believed it involves organizing project processes, indicating they associate it with project organization and standardization.

In response to the question on key responsibilities of a Directive PMO in a construction environment, all roles unanimously identified that ensuring consistent project management practices is central to its role. This consistent response in Figure 10 implies that the team collectively understands the value of standardization and process consistency in enhancing project quality and coherence.

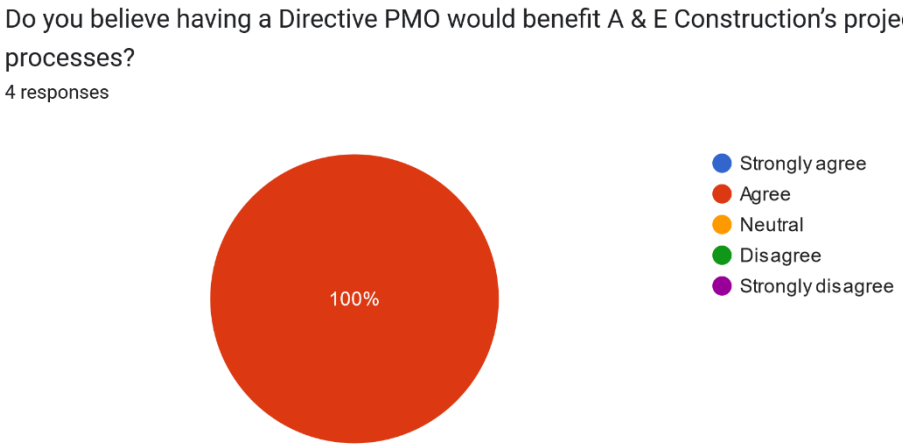
Figure 10 In your opinion, what are the key responsibilities of a Directive PMO in a construction environment?



In Figure 11, when asked if they believed a Directive PMO would benefit A & E Construction's project management processes, all roles responded agreed that it would bring positive

changes. This shared belief across the team suggests an openness to structured support and an understanding that such an organization can lead to improvements in project outcomes.

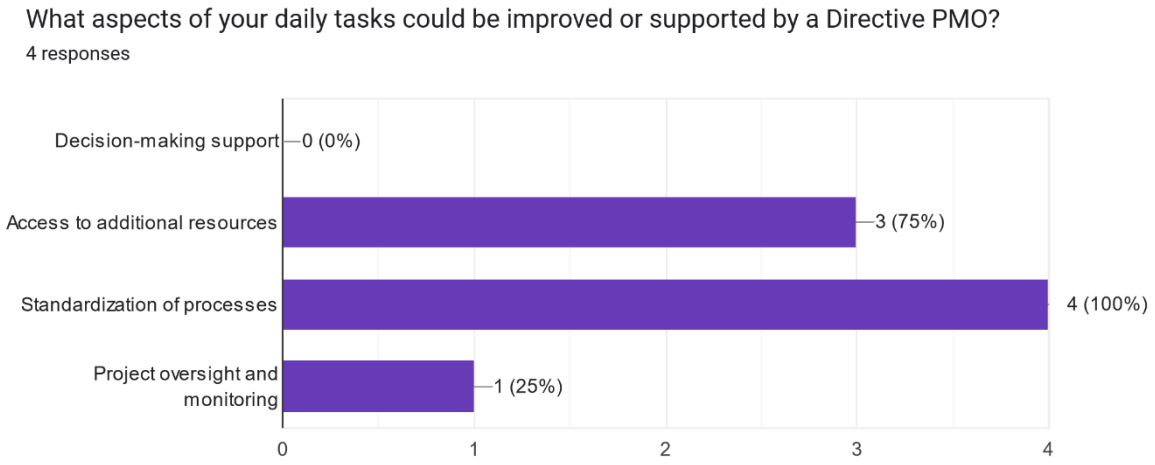
Figure 11 Do you believe having a Directive PMO would benefit A & E Construction's project management processes?



The next question explored how a Directive PMO might impact their specific roles, and each role identified different areas of improvement. The Site Manager felt that it would streamline their responsibilities by providing clearer guidelines. The Project Manager mentioned that it would make processes more efficient, allowing for a focus on higher-level tasks rather than day-to-day project logistics. The Project Assistant shared that it could ease their tasks by providing more precise guidance, while the Engineer saw it as a way to streamline processes so they could concentrate more on technical tasks. Together, these responses illustrate how each team member sees the potential benefits of a Directive PMO in aligning and clarifying their roles within the project framework.

Regarding what aspects of their daily tasks could be improved or supported by a Directive PMO, the Site Manager, Project Manager, and Engineer all expressed that additional resources and process standardization would be helpful. Meanwhile, the Project Assistant focused on the standardization of processes and oversight as the key areas where a Directive PMO could make a difference. The results in Figure 12 indicate a shared understanding of the value of resources and uniformity, although each role may emphasize different operational needs.

Figure 12 What aspects of your daily tasks could be improved or supported by a Directive PMO?

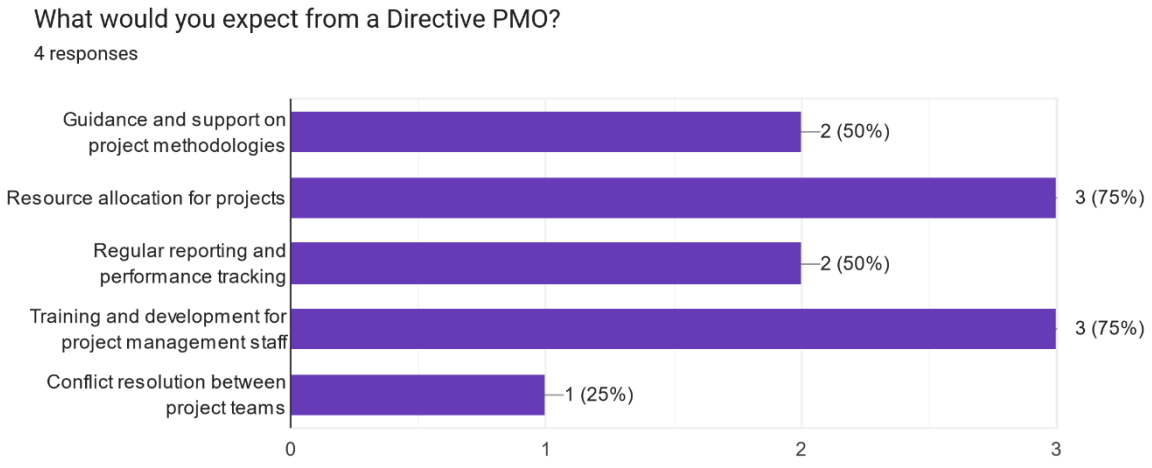


When considering challenges associated with implementing a Directive PMO, each team member acknowledged that it would likely require an adjustment period. The Site Manager anticipated that additional reporting requirements could demand extra time, potentially slowing down immediate tasks. Both the Project Manager and Engineer foresaw an initial slow-

down as the team learns to work within the new system, while the Project Assistant mentioned the time needed to adapt to new processes as a possible challenge. As Snorradottir (2014) mentions, challenges such as adaptation periods are common when introducing a centralized PMO. However, training sessions and support resources, such as a roadmap, could ease this transition

In terms of their expectations from a Directive PMO, the Site Manager and Project Assistant expressed a need for guidance on project methodologies and resource support. On the other hand, the Project Manager and Engineer prioritized resource allocation, training, and methodological support as their key expectations. These responses in Figure 13 reflect an interest in both resource support and access to project management expertise, with slight variations depending on the role's responsibilities.

Figure 13 What would you expect from a Directive PMO?



Finally, the team provided suggestions for successfully integrating a Directive PMO at A & E Construction. The Site Manager emphasized the importance of keeping processes simple and aligned with current workflows to facilitate smooth integration. The Project Manager and Engineer both suggested that training sessions would be essential to help everyone understand the new processes, indicating a desire for hands-on learning and support. Meanwhile, the Project Assistant proposed the provision of a roadmap or handbook, which would help all team members understand the changes and how to implement them effectively. These suggestions indicate a shared interest in support mechanisms that would enable the team to understand and adapt to the new Directive PMO structure with greater ease.

Overall, the responses collectively suggest that while each role within the team has varied familiarity and understanding of a Directive PMO, there is a common acknowledgment of its potential benefits and a willingness to embrace the structural changes it may bring.

4.3. Roles and Responsibilities within PMO Framework

To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.

In today's increasingly dynamic business environment, the role of the Project Management Office (PMO) has evolved significantly to meet the demands of greater uncertainty, accelerated change, and heightened competition. Traditionally viewed as project overseers, PMOs

are now central to driving strategic initiatives and ensuring the realization of organizational benefits. As organizations operate in more complex environments where value creation must be fast and align with broader business objectives, the PMO's responsibilities have expanded. These offices are now tasked not only with managing project portfolios but with orchestrating strategic conversations between senior leaders, business unit heads, product owners, and project teams, ensuring that decisions are based on real-time insights into project performance, risks, and opportunities (PMI, 2021).

The role clarification within the PMO framework is essential to ensure that all team members understand their specific responsibilities and how they contribute to the larger organizational goals. By focusing on critical initiatives with the potential to significantly impact the future of the organization, PMOs ensure that resources are concentrated where they are most needed. This shift has seen PMOs move from being mere project watchdogs to becoming facilitators of value-driven decision-making processes which enables corrections as needed to ensure the fullest possible realization of business outcomes (PMI, 2021).

PMOs are instituting smarter and more streamlined processes that balance the need for effective governance with the flexibility required in today's fast-paced environment. This "right-sizing" of processes means eliminating wasteful steps and fostering continuous improvement without stifling innovation or productivity. PMOs play a critical role in ensuring that communication, collaboration, and improvement happen consistently which enhances the organization's capacity to respond to emerging challenges and opportunities (PMI, 2021).

Another key responsibility of PMOs is talent and capability development. By taking a more proactive role in recruiting and nurturing team members, PMOs help build technical and strategic management skills across the organization. This includes fostering leadership capabilities within project teams to ensure that they can deliver not only on the technical aspects of projects but also drive broader organizational change (PMI, 2021).

Moreover, PMOs are now positioned as change leaders that actively build a culture that supports change management as a critical competitive differentiator. This cultural shift ensures that organizations remain agile and resilient as well as capable of both driving and responding to change in ways that enhance performance and outcomes. As PMOs take on these expanded roles, role clarity and accountability become even more critical to their success. By clearly defining the roles within the PMO framework, organizations can ensure that every individual is aligned with the overall strategic vision, promoting both efficiency and effectiveness in delivering value (PMI, 2021).

This section will delve into the specific roles within the PMO by examining how these roles can contribute to clearer governance structures, effective communication, and the successful realization of organizational benefits. Through a thorough definition of responsibilities, the PMO can ensure that each team member is held accountable for their contributions.

Structured Interviews with HR and Project Management Staff

The focus of the structured interviews with HR and project management staff at A&E Construction was to understand current role perceptions, existing responsibilities, and identifying any overlaps or gaps. Below is an in-depth analysis based on these interviews, supported by project management literature.

1. Current Role Perceptions

HR and Project Management Staff

The HR department perceives its role as fundamental in recruitment, employee relations, and managing performance reviews. They see themselves as primarily administrative, ensuring the workforce remains stable, motivated, and compliant with labour regulations. However, the HR Coordinator mentioned feeling disconnected from the core operations of the project management process which led to some challenges in hiring specialized roles. This disconnect can hinder the HR department's ability to hire individuals who align with the strategic goals of projects, especially since the HR team has minimal input into project-based requirements (Personal communication, October 9, 2024).

The project management staff, on the other hand, view their responsibilities as heavily centered on planning, execution, and monitoring project progress. The Project Manager specifically described feeling burdened by administrative tasks that could be delegated to Finance or other supporting departments. This perception stems from a lack of structured communication and collaboration between different departments in the organization, which could be addressed by the establishment of a Project Management Office (Kerzner, 2017).

2. Existing Responsibilities and Gaps

Project Management Role and PMO Integration

The Project Manager at A&E Construction is responsible for ensuring that projects are completed on time, within scope, and on budget. However, the role expands beyond traditional boundaries because the absence of a structured PMO means that the project manager also takes on tasks related to risk management, resource allocation, and even some procurement duties. The lack of a centralized PMO leads to inefficiencies in decision-making and reporting as project managers do not have clear guidelines or support mechanisms to delegate these tasks. This results in overextension especially as projects grow in complexity (Ichsan et al., 2023).

Without a fully functional PMO, the project manager struggles to implement standardized risk management frameworks. Currently, risks are identified and managed on a project-by-project basis, often resulting in inconsistent practices and preventable issues (Personal communication, October 9, 2024). Establishing a PMO would not only clarify roles but also help standardize risk management processes across projects, a necessity as highlighted by Bredillet (2019).

HR's Role in Resource Management

The HR department's role in resource management is primarily reactive. They are involved in hiring personnel but not in the strategic allocation of human resources to projects. Interviews revealed a significant gap in communication between HR and the project management teams, especially in terms of understanding project timelines and resource needs. Delays in recruitment and misalignments in skillsets can be detrimental to project success (Ershadi et al., 2021).

The absence of HR's involvement in resource forecasting and planning also creates challenges. HR staff noted that they often receive requests for new hires or replacements too late, which places unnecessary pressure on recruitment efforts. This issue could be mitigated by the PMO taking a more proactive role in integrating HR into the early stages of project planning, ensuring the right resources are allocated (Zein, 2010).

Role Overlap between Project Manager and Other Departments

A notable overlap was found between project manager and procurement officers. The Project Manager frequently engages in procurement-related tasks, especially when urgent materials are needed on-site. This creates inefficiencies and detracts from the manager's core responsibilities of overseeing project execution. Similarly, the procurement team feels that the lack of a clear decision-making structure in procurement and project management creates confusion, often leading to delays in acquiring essential materials (Personal communication, October 10, 2024).

The establishment of a PMO would address this overlap by clarifying the scope of responsibilities for each role. In a well-structured PMO, the procurement officer would be responsible for all procurement tasks, while the project manager would only oversee these activities from a high level to ensure alignment with the overall project plan (Müller et al., 2019).

Gap in Accountability for Risk and Performance Monitoring

Another gap identified was in performance monitoring and accountability. Currently, no department is specifically responsible for consolidating project performance metrics, risk reports, or financial data. This makes it difficult for A&E Construction to make informed decisions or adjust course when necessary. As noted by Kerzner (2017), PMOs play a crucial role in ensuring that there is a standardized approach to performance monitoring which is currently missing in A&E Construction's operations.

HR could play a more integral role in this aspect by managing the human resource elements of performance monitoring, such as tracking the utilization and efficiency of personnel on various projects. However, HR staff have noted that they currently lack the tools and authority to implement such systems (Personal communication, October 10, 2024). The PMO could serve as the central hub for performance data, ensuring that HR has access to real-time information on project staffing needs and workforce performance.

3. The Need for Clarified Roles in the PMO Framework

The introduction of a PMO would allow for a more structured delegation of tasks. For instance, HR's role could evolve from simple recruitment and employee relations to actively participating in the resource planning process, ensuring the company has the right people at the right time. Similarly, the project manager would benefit from having a dedicated PMO to handle administrative tasks such as risk management and reporting, thus enabling them to focus on project execution (Zein, 2010).

By defining roles within the PMO framework, A&E Construction can minimize overlaps and gaps, allowing each department to focus on its core competencies. This would also ensure that the company is better equipped to manage the complexities of modern construction projects, which require seamless integration of human resources, procurement, and project management functions (Ichsan et al., 2023).

The structured interviews with HR and project management staff have highlighted significant gaps and overlaps in the current role distribution within A&E Construction. Without a centralized PMO, both HR and project management staff are forced to take on tasks outside their expertise, leading to inefficiencies. Establishing a PMO would clarify roles, improve communication, and provide a framework for more effective resource management and risk mitigation, ultimately contributing to the success of construction projects at A&E.

Roles and Responsibilities Matrix

The structured interviews with HR and project management staff have highlighted significant gaps and overlaps in the current role distribution within A&E Construction. The insights gathered helped in designing a clear and well-defined responsibility assignment matrix as seen in the chart below.

Chart 6
Roles and Responsibilities Matrix

Responsibilities	Project Manager	HR Department	Procurement Officer	PMO Director
Project Planning	Lead overall planning and execution.	Assist in workforce planning based on project needs.	Provide input on procurement timelines for materials.	Facilitate cross-departmental communication and define guidelines.
Risk Management	Identify project-specific risks.	N/A	Identify supply-related risks.	Standardize risk management across projects.
Resource Management	Coordinate project resources.	Recruit and allocate staff based on project forecasts.	Manage supplier and vendor resources for material availability.	Oversee and optimize resource allocation with HR.
Procurement	Oversee high-level procurement needs for projects.	Collaborate with procurement to ensure staff meets procurement timelines and labor requirements.	Manage procurement process, ensuring timely delivery.	Standardize procurement processes and guidelines.
Performance Monitoring	Track project-specific metrics.	Monitor HR-related performance (staff utilization).	Ensure procurement efficiency and supplier performance.	Consolidate overall performance metrics (risk, budget, schedule).

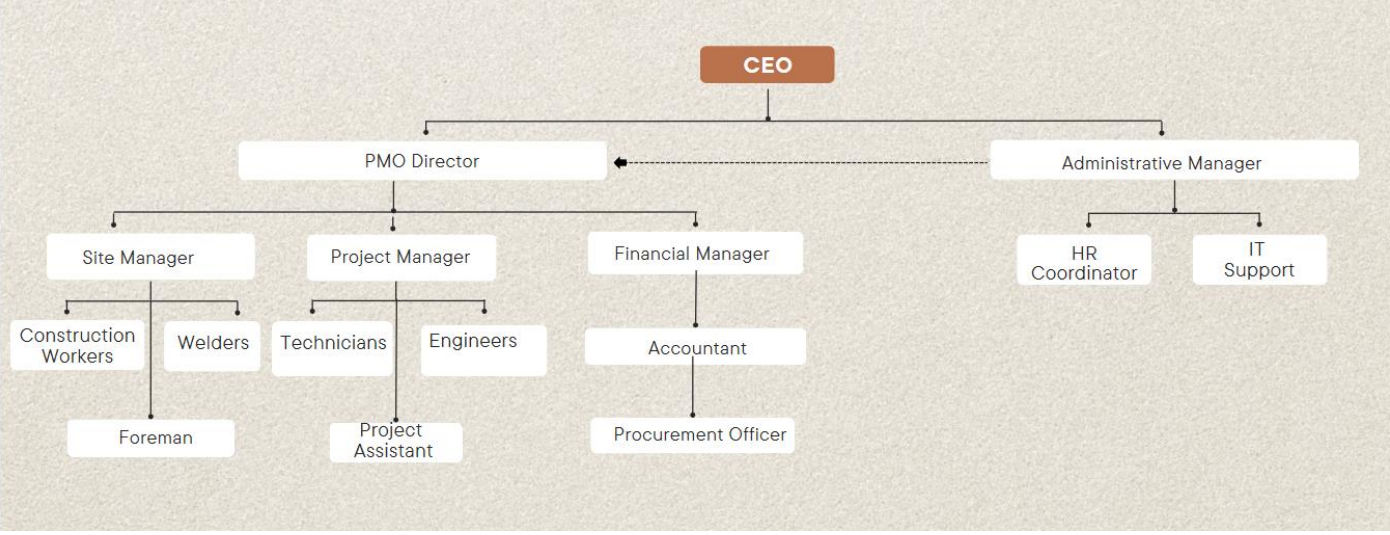
Reporting	Provide progress updates to senior management.	Provide HR-related reports, including staffing for procurement needs.	Submit procurement status and issues.	Prepare consolidated reports (costs, risks, performance).
Decision-Making	Make key project decisions (scope, timeline).	Provide input on HR impacts.	Advise on procurement feasibility.	Ensure decisions align with strategic PMO guidelines.
Issue Resolution	Lead resolution of project-specific issues.	Handle HR-related issues affecting project timelines.	Address supply chain or procurement issues.	Coordinate inter-departmental issue resolution.

Note: From Author, self-produced

Proposed Directive PMO Structure for A & E Construction

The Proposed Directive PMO Structure for A & E Construction, as shown in Figure 14, centralizes project management functions by establishing a cohesive framework that consolidates decision-making, resource allocation, and risk management under a single entity known as the PMO. This structure ensures that all departments (Project Management, HR, Procurement etc.) operate under unified guidelines and processes, thereby reducing redundancies and improving coordination across the organization.

Figure 14 Proposed Directive PMO Structure for A & E Construction



Note: Proposed Directive PMO Structure for A & E Construction. Own creation.

The PMO acts as a centralized hub that integrates communication between departments, facilitating collaboration and ensuring that resources, procurement, and risk management are handled consistently across all projects. This directive structure standardizes processes, such as performance monitoring and procurement, which were previously managed independently by each department, leading to inefficiencies. By centralizing these tasks, the PMO enables a streamlined, organization-wide approach that aligns with strategic objectives, improves project execution, and enhances accountability.

This centralization fosters real-time oversight and allows the PMO to proactively address issues and ensure that decisions are made based on consolidated data, reducing constraints, and alignment with organizational goals.

4.4. Assessment of Project Management Processes at A & E Construction

To assess the project management processes of the construction firm as well as pinpoint any deficiencies or opportunities for improvement.

Observations of Project Management Practices

The current state of project management at A & E Construction reveals several inefficiencies, as highlighted by staff feedback and observations. The absence of a Project Management Office (PMO) has led to unstandardized and inconsistent practices. Project teams work without a clear framework, which results in fragmented communication, undefined roles, and poor delegation of responsibilities. This has further contributed to a lack of accountability across project phases.

Personal communication on October 17, 2024, with key staff indicated frustration over the lack of formal processes for project oversight. Several team members reported inconsistent decision-making due to the lack of real-time project data or structured guidelines. There is a growing sentiment that introducing a PMO would centralize operations, provide clear guidance, and mitigate the risks associated with the current disorganized project execution. The failure to establish clear lines of communication between project stakeholders such as internal teams, contractors, and suppliers has been a persistent issue. Staff reported that delays often arise because information is lost or miscommunicated, leading to project slowdowns and cost overruns. This can be traced back to the absence of dedicated project management tools for formal communication.

Process Documentation and Reports

The documentation of project management processes at A & E Construction is minimal, with limited formalization of practices across projects. Reports on project progress, resource allocation, and risk management are either inconsistent or missing. This lack of documentation hampers the company's ability to measure performance, monitor project status and implement corrective actions when required.

Current documentation practices lack a structured approach to capturing key metrics, such as project milestones, resource utilization, or budget adherence. Without formal reports, senior management finds it challenging to make informed decisions on project adjustments. A well-documented process would serve as a vital tool for assessing project performance against predefined goals and objectives, thereby reducing uncertainties.

Incorporating a PMO could resolve many of these issues by creating standardized templates for project reports which would ensure consistency and facilitate easier tracking of progress across all projects. The PMO could also introduce a digital platform for storing and sharing project documentation, thereby improving transparency and communication between teams.

Benchmarking Studies: Comparison to Industry Standards

A & E Construction's project management processes fall short when compared to industry standards, particularly in areas such as risk management, resource allocation, and performance monitoring. According to the Project Management Institute's *PMBOK Guide* (2021),

effective project management should be grounded in structured processes, a comprehensive risk management framework, and robust communication plans—areas where A & E Construction is currently lacking.

One key deficiency is the company's ad hoc approach to risk management. Industry standards emphasize the importance of identifying, assessing, and mitigating risks early in the project lifecycle. In contrast, A & E Construction tends to address risks reactively, often after they have already impacted project timelines or budgets. The absence of a formal risk management framework increases the company's vulnerability to project failures.

Similarly, resource management practices at A & E Construction do not align with industry best practices. Effective resource management, as outlined by Oliveira et al. (2017), requires centralized control of resources to ensure that personnel, equipment, and materials are available when needed. A & E Construction's decentralized approach to resource management results in inefficient use of labour and materials which contributes to delays and cost overruns.

Finally, A & E Construction lacks a mature system for performance monitoring and reporting. According to Thunberg et al. (2017), consistent tracking of project performance is crucial for identifying potential issues early and making adjustments to ensure successful project outcomes. A & E Construction's failure to implement a formal system for monitoring project

progress hampers its ability to identify areas for improvement and make data-driven decisions.

Opportunities for Improvement

To address the deficiencies identified, A & E Construction must consider implementing several changes to its project management processes. Establishing a PMO would be a critical first step in providing structure and consistency across projects. The PMO would introduce standardized project management practices including formalized risk management, resource allocation, and performance monitoring processes.

1. **Standardizing Project Management Practices**: Introducing a unified framework would reduce the variability in how projects are executed. A PMO would centralize decision-making and provide clear guidelines for project execution, thereby minimizing confusion and improving communication between teams.
2. **Implementing Risk Management Protocols**: Developing a structured risk management framework would allow the company to proactively identify, assess, and mitigate risks. This would reduce the likelihood of project delays or failures due to unforeseen risks.
3. **Enhancing Resource Management**: A centralized approach to resource allocation would ensure that the right resources are available at the right time. This would improve project efficiency, reduce resource wastage, and lower overall project costs.

4. **Developing a Performance Monitoring System**: Establishing a formal system for tracking project performance would provide real-time data on project progress, resource utilization, and budget adherence. This would enable senior management to make informed decisions and take corrective actions when necessary.

By addressing these deficiencies, A & E Construction would not only improve its project management processes but also enhance its ability to deliver projects on time and within budget, thereby improving client satisfaction and overall business performance.

A & E Construction's current project management processes exhibit several deficiencies, including the absence of standardized practices, poor resource management, and a lack of formal risk management. By establishing a PMO and aligning its processes with industry best practices, the company can improve its efficiency, reduce project delays, and better manage resources. The introduction of structured risk management, enhanced documentation, and performance monitoring systems would provide the company with the tools needed to deliver projects successfully and maintain its competitive edge in the construction industry.

Mapping Current Workflows to Optimized Processes in a Directive PMO

In order to enhance A & E Construction's project management capabilities, it is crucial to assess the existing workflows and compare them with the optimized processes that would be implemented through a directive Project Management Office (PMO). This comparison high-

lights key areas of inefficiency in the current approach and provides a roadmap for improvement by introducing standardization, centralized control, and proactive management practices. Oyewobi et al. (2015) emphasizes the importance of integrating strategic performance measurement models to optimize organizational processes. In the construction industry, aligning project management practices with strategic goals ensures enhanced project outcomes and efficiency. The following chart outlines the major differences between the current workflows and the optimized processes that a PMO would introduce, along with the potential impacts of these improvements.

Chart 7 Comparing Existing Workflows to Optimized Processes in a Directive PMO

Workflow Area	Existing Workflow (Current State)	Optimized Workflow (PMO-Driven State)	Impact of Optimization
Project Planning	Ad hoc planning; lacks standardization across projects	Standardized planning process with templates and tools provided by the PMO	Ensures consistency, reduces delays caused by poor planning, improves resource allocation
Risk Management	No formal risk management; reactive approach to issues	Proactive risk management framework; regular risk assessments and mitigation strategies	Early risk detection, reduced likelihood of project delays or cost overruns
Resource Allocation	Decentralized resource management; inefficient allocation	Centralized resource pool managed by the PMO; optimized scheduling and allocation	Reduced resource wastage, improved efficiency, lower project costs
Communication	Fragmented communication, no clear and formal	Structured communication channels established by the	Better collaboration, fewer miscommunications,

	lines between stakeholders	PMO; regular status updates	quicker issue resolution
Budget Management	Inconsistent tracking of project budgets	Standardized budget tracking and reporting with PMO oversight	Improved cost control, better forecasting, fewer budget overruns
Performance Monitoring	Irregular monitoring; lack of real-time data	Continuous performance tracking with defined KPIs and real-time reporting	Improved decision-making, timely corrective actions, increased project success rates
Documentation and Reporting	Minimal and inconsistent documentation	Comprehensive and standardized documentation templates provided by the PMO	Enhanced transparency, easier project audits, better knowledge management
Change Management	No formal process for handling project changes	PMO-established change control process with clear approval pathways	Reduced scope creep, better handling of project variations, minimized disruption
Lessons Learned/Continuous Improvement	No formal mechanism for capturing and applying lessons learned	PMO-led reviews to capture lessons and integrate into future projects	Continuous improvement, better project outcomes over time
Stakeholder Management	Inconsistent stakeholder engagement	PMO-led stakeholder communication plan with defined engagement strategies	Increased stakeholder satisfaction, better alignment with project goals
Quality Assurance	No standardized approach to quality management	PMO-driven quality control process, regular audits, and quality metrics	Improved project quality, fewer defects, higher client satisfaction

Note: From Author, self-produced

4.5. Implementation plan for the PMO at A & E Construction

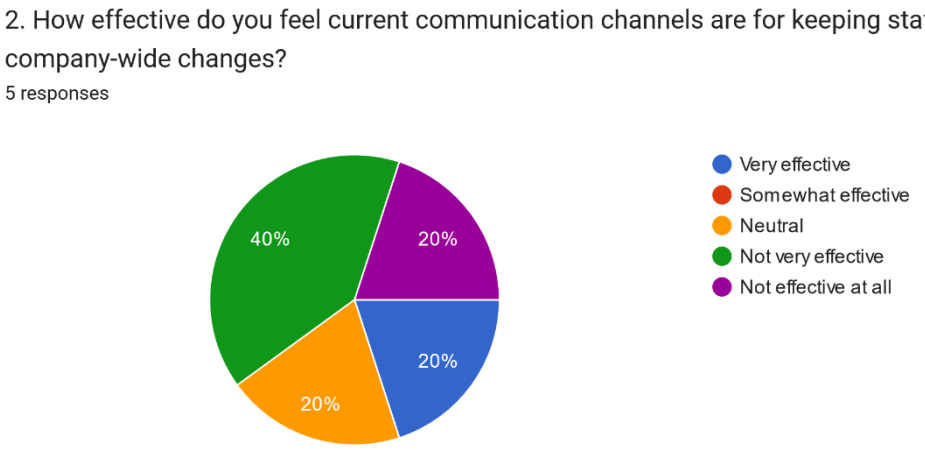
To develop an implementation plan for the PMO that focuses on addressing potential challenges and facilitates a smooth integration into the operations of the construction company.

The successful integration of a Project Management Office into the operations of A & E Construction requires a strategic implementation plan that addresses potential challenges and aligns with the company's existing structure and culture. This objective was pursued by gathering insights from multiple data sources including interviews with the project management and senior management teams, internal employee surveys, and consultations with external PMO experts. By synthesizing information from these diverse sources, this section presents a comprehensive analysis of the identified challenges and offers targeted recommendations to facilitate the PMO's seamless integration.

The responses to the survey (See Appendix 7) from A & E Construction staff provides insights into perceived challenges and suggestions regarding the directive PMO integration. Respondents came from diverse departments including Project Management, Construction, Finance, and HR. This variety helps to ensure that perspectives across different areas are included, offering a holistic view of the anticipated challenges and support needs. Below is an analysis of each question based on the responses:

As depicted in Figure 15, when asked about the effectiveness of existing communication channels, responses showed that 40% found them "Not very effective," while 20% rated them as "Not effective at all." Another 20% rated communication as "Very effective," suggesting a general dissatisfaction with current communication channels. This highlights a need for enhanced communication methods as part of the PMO integration to keep employees informed and engaged.

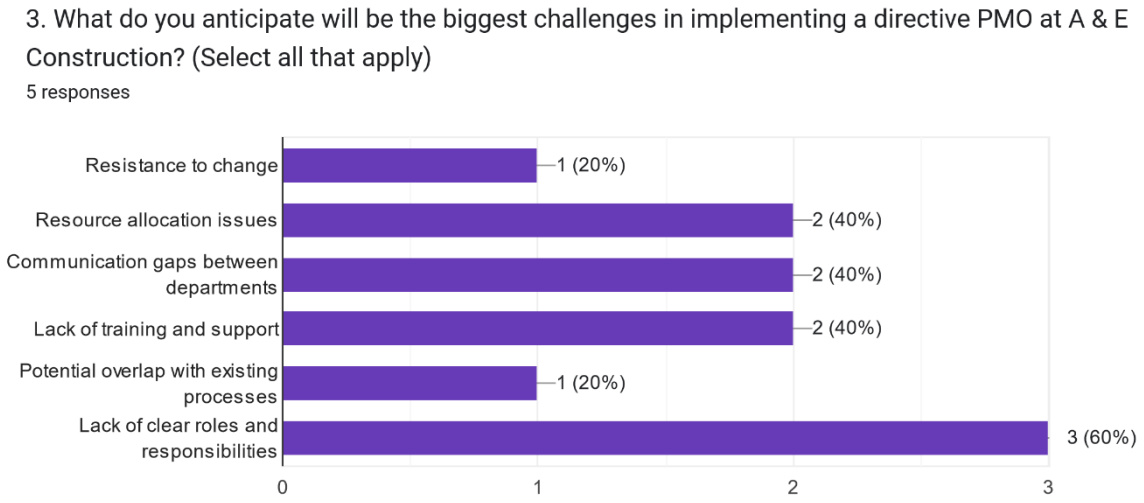
Figure 15 Effectiveness of Communication Channels



Staff members identified several challenges in Figure 16. The most common being "Lack of clear roles and responsibilities," selected by 60%. While 40% of respondents, respectively, were concerned about “Resource allocation issues,” “Communication gaps between departments,” and “Lack of training and support.” This feedback underscores the need for a structured approach addressing these specific areas, particularly regarding role clarity. In addition, consultations with external PMO experts who have successfully integrated PMOs into similar organizations underscored the importance of role clarity, structured training programs, and

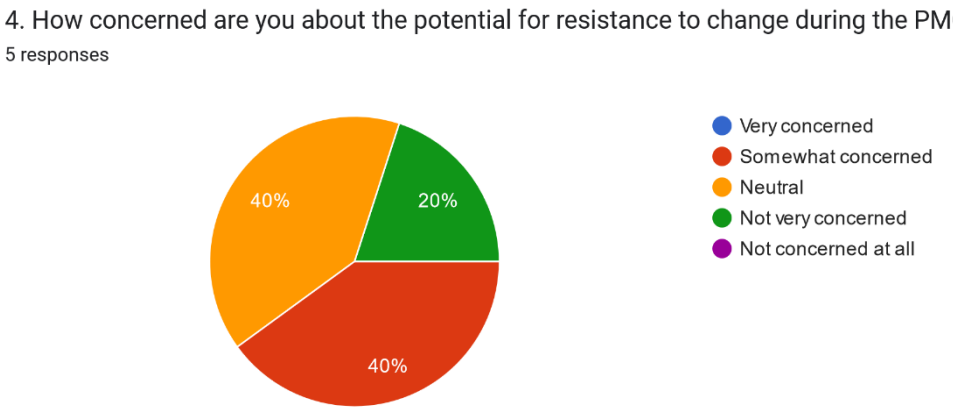
phased implementation for a PMO (personal communication, October 28,2024). These experts highlighted that role ambiguity often leads to project inefficiencies. Too and Weaver (2014) argue that effective governance structures within PMOs are essential for successful project alignment and knowledge sharing.

Figure 16 Challenges of Implementing the PMO



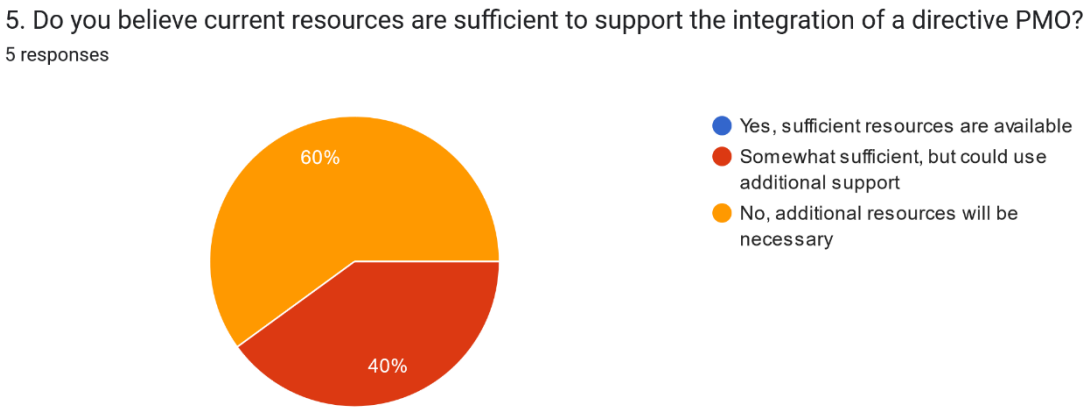
In terms of resistance to change, 40% of respondents were "Somewhat concerned," while another 40% expressed "Neutral" feelings. In Figure 17, only 20% reported being "Not very concerned." This indicates that most employees are moderately aware of potential resistance, emphasizing the need for strategies to ease this transition and encourage acceptance.

Figure 17 Resistance to Change



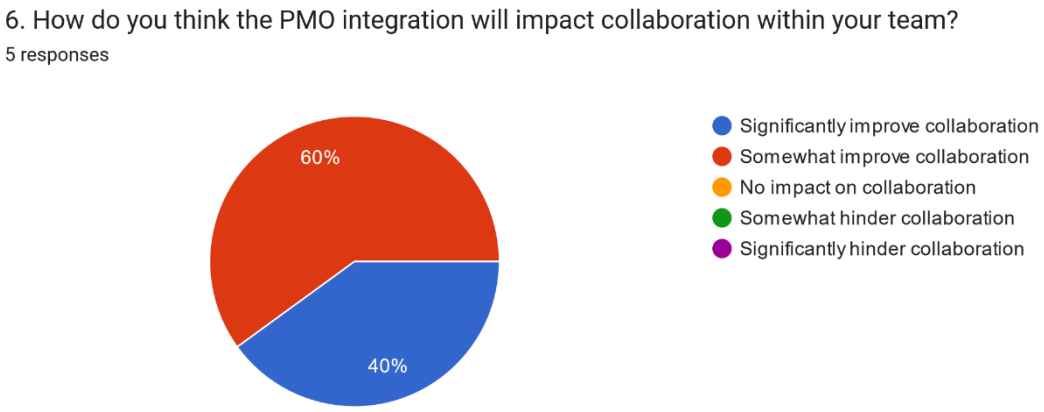
In Figure 18, a significant 60% of respondents felt that current resources are insufficient and additional support will be necessary. Another 40% believed resources were "Somewhat sufficient but could use additional support." This feedback points to a clear need for additional resource allocation to facilitate a successful PMO integration.

Figure 18 Current Resources for PMO Integration



When considering the impact of PMO integration on collaboration depicted in Figure 19, 40% of respondents anticipated a "Significantly improve collaboration" in collaboration, while 60% expected "Somewhat improve collaboration." This positive outlook suggests that employees see the potential for better teamwork which may help to bolster acceptance of the PMO integration. Drawing on Saini et al. (2018) research, implementing systems for tacit knowledge transfer within the PMO will support agile and lean operations by making informal knowledge accessible across departments. This is vital as 60% of surveyed employees in A & E Construction anticipated improved collaboration with a directive PMO. Hence, introducing workshops and inter-departmental collaboration frameworks will enhance the shared understanding of project objectives and team roles.

Figure 19 Improvement on Collaboration

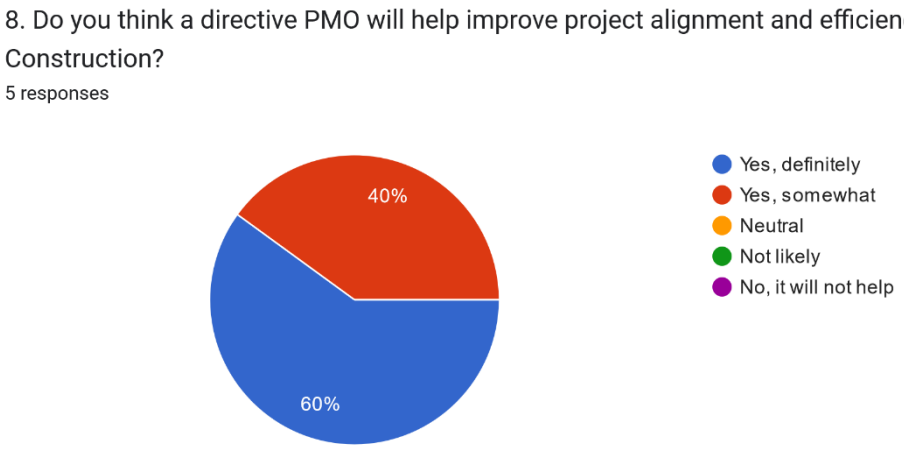


Most employees (60%) indicated a need for "Extensive training and support," while 40% felt "Moderate training and support" would suffice. Figure 20 shows a clear demand for training initiatives to help employees adapt, reinforcing the importance of preparing tailored training programs to support the transition. In addition to the modular template mentioned by Bhandari (2022), he emphasizes the role of PMOs in promoting a culture of continuous learning. For A & E, incorporating this element means positioning the PMO as a hub for iterative feedback and skill enhancement which will support ongoing staff development through focused training on lessons learned from previous projects. This training could be facilitated through monthly review sessions where teams reflect on completed milestones, discuss project roadblocks, and refine methods for future tasks. Establishing such feedback loops aligns with the need for “extensive training and support” noted by 60% of surveyed staff, ensuring that each project iteration benefits from an increasingly skilled workforce.

Figure 20 Level of Support

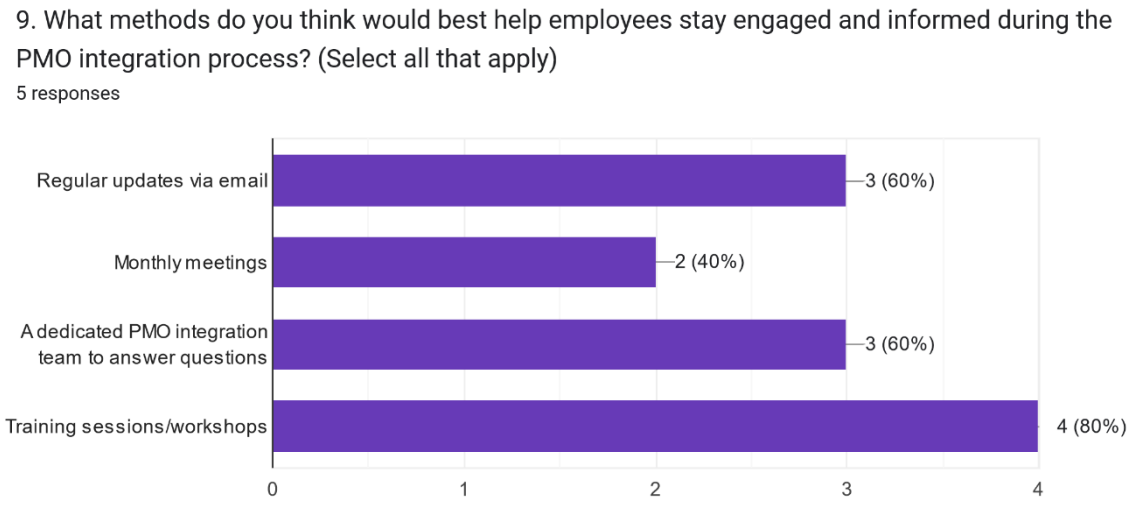
Regarding the benefits of a directive PMO in Figure 21, 60% of respondents were optimistic, stating it would "Definitely" improve project alignment and efficiency, while 40% believed it would "Somewhat" help. This positive perspective highlights general optimism that the PMO can enhance alignment and efficiency. In addition, interviews conducted with the project management and senior management teams revealed essential considerations for aligning PMO practices with the current operations and management expectations. A key insight was the importance of creating a structured plan to address resistance and ensure a clear communication pipeline across departments (personal communication, October 28, 2024). This aligns with findings from Alqahtani (2019), who emphasized the need for knowledge-sharing frameworks within PMOs to foster a knowledge-driven environment, especially within construction-focused organizations.

Figure 21 Improvement on Project Alignment and Efficiency



As seen in Figure 22, employees suggested various methods to stay informed, with 80% favoring "Training sessions/workshops," and 60% each advocating for "Regular updates via email" and "A dedicated PMO integration team." These preferences suggest that multiple communication channels will be necessary to keep everyone engaged and well-informed during the transition.

Figure 22 Methods to Help Employees to Stay Engaged



Staff recommendations for improving the integration process included clearer communication on benefits, a phased rollout, and more accessible training. These suggestions indicate practical ways to ease the integration, which could lead to a more positive reception of the directive PMO.

Chart 8 below is a high-level 30-day PMO implementation plan for A & E Construction, aligned with the provided guidance and tailored to address potential challenges in integrating the PMO into its construction operations. This plan divides tasks by category and by week to ensure methodical progression and successful PMO deployment.

Chart 8 High-Level 30-Day PMO Implementation Plan for A & E Construction

Category	Task	Details	Timing

1.0 Project Management	1.1 Finalize Vision	Define the PMO vision, focusing on aligning with A & E's project objectives and construction-specific needs.	Week 1
	1.2 Finalize Scope	Scope PMO responsibilities, prioritizing areas critical to construction workflows and project oversight.	Week 1
	1.3 Finalize Project Plan	Develop a customized project plan, addressing specific integration and operational risks for A & E.	Week 1
2.0 Portfolio Governance	2.1 Governance Committee Setup	Establish a governance committee to oversee PMO initiatives, ensuring representation from all departments.	Week 2
	2.2 Prioritization Process	Develop a prioritization system to help the PMO rank projects by business impact and resource availability.	Week 2
	2.3 Change Management Process	Design a change management approach tailored to construction projects to manage project scope adjustments.	Week 2
	2.4 Project Dashboard	Implement a project dashboard with red/yellow/green indicators for quick visual progress tracking.	Week 3
	2.5 Project Review Process	Create a formal review process to evaluate project milestones, addressing unique construction demands.	Week 3
	2.6 Additional Reports	Design additional reports to monitor performance metrics critical to A & E's construction objectives.	Week 3

	2.7 Formalize Governance	Launch the governance committee and hold initial meetings to establish oversight processes.	Week 4
3.0 Methods and Standards	3.1 Status Reporting	Define consistent status reporting practices to improve project visibility across A & E.	Week 2
	3.2 Standard Deliverables	Identify key project deliverables and create templates for efficiency in construction project tracking.	Week 2
	3.3 Initiation Processes	Set standard project initiation procedures to streamline start-up phases for new projects.	Week 3
	3.4 Project Templates	Develop templates for project plans, timelines, and budgets tailored to construction activities.	Week 3
	3.5 Milestone Standards	Define clear milestones specific to construction projects to maintain consistent progress tracking.	Week 3
	3.6 Scope Management	Establish scope management guidelines, essential for maintaining control over large construction projects.	Week 3
	3.7 Change Management Process	Implement a system for handling scope and timeline adjustments in response to project changes.	Week 3
	3.8 Acceptance Process	Define a project acceptance process, including quality and compliance checks specific to construction.	Week 3
4.0 Resource Management	4.1 Time Recording System	Implement a time-tracking tool for accurate resource allocation and monitoring.	Week 3

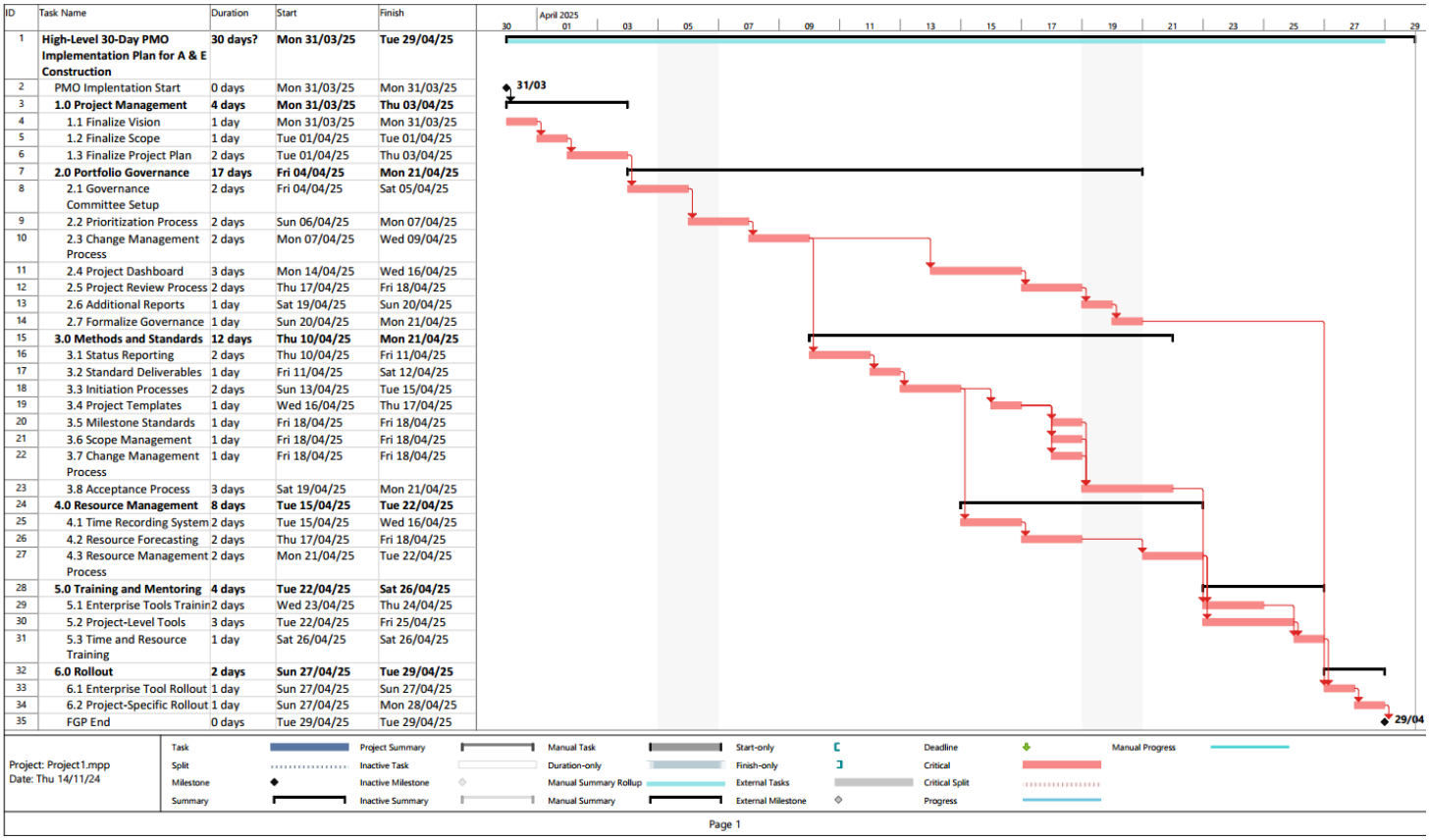
	4.2 Resource Forecasting	Develop a system for forecasting resource needs based on project schedules and construction phases.	Week 3
	4.3 Resource Management Process	Create guidelines for resource management, focusing on balancing field and office demands.	Week 4
5.0 Training and Mentoring	5.1 Enterprise Tools Training	Train staff on PMO tools and processes, ensuring alignment with construction-specific needs.	Week 4
	5.2 Project-Level Tools	Educate team members on project-specific tools and templates developed for construction projects.	Week 4
	5.3 Time and Resource Training	Ensure staff understand the time capture and resource forecasting systems to optimize utilization.	Week 4
6.0 Rollout	6.1 Enterprise Tool Rollout	Launch enterprise PMO tools, completing integration within A & E's operating systems.	Week 4
	6.2 Project-Specific Rollout	Deploy project-specific tools and processes to all active projects, starting with a pilot for feedback.	Week 4

Note: from author, self-produced.

This 30-day PMO implementation plan for A & E Construction, based on the PMI conference paper by Merla (2005), prioritizes foundational PMO components across key opera-

tional areas—project management, governance, methods and standards, resource management, and training. As depicted in Chart 9, each week's goals align with critical PMO setup phases, ensuring that the PMO's integration addresses A & E's unique construction needs while supporting overall efficiency and project alignment.

Figure 23 Gantt Chart of the High-Level 30-Day PMO Implementation Plan for A & E Construction



ID	Task Name	Duration	Start	Finish
1	**High-Level 30-Day PMO Implementation Plan for A & E Construction**	**30 days?**	**Mon 31/03/25**	**Tue 29/04/25**
2	PMO Implentation Start	0 days	Mon 31/03/25	Mon 31/03/25
3	**1.0 Project Management**	**4 days**	**Mon 31/03/25**	**Thu 03/04/25**
4	1.1 Finalize Vision	1 day	Mon 31/03/25	Mon 31/03/25
5	1.2 Finalize Scope	1 day	Tue 01/04/25	Tue 01/04/25
6	1.3 Finalize Project Plan	2 days	Tue 01/04/25	Thu 03/04/25
7	**2.0 Portfolio Governance**	**17 days**	**Fri 04/04/25**	**Mon 21/04/25**
8	2.1 Governance Committee Setup	2 days	Fri 04/04/25	Sat 05/04/25
9	2.2 Prioritization Process	2 days	Sun 06/04/25	Mon 07/04/25
10	2.3 Change Management Process	2 days	Mon 07/04/25	Wed 09/04/25
11	2.4 Project Dashboard	3 days	Mon 14/04/25	Wed 16/04/25
12	2.5 Project Review Process	2 days	Thu 17/04/25	Fri 18/04/25
13	2.6 Additional Reports	1 day	Sat 19/04/25	Sun 20/04/25
14	2.7 Formalize Governance	1 day	Sun 20/04/25	Mon 21/04/25
15	**3.0 Methods and Standards**	**12 days**	**Thu 10/04/25**	**Mon 21/04/25**
16	3.1 Status Reporting	2 days	Thu 10/04/25	Fri 11/04/25
17	3.2 Standard Deliverables	1 day	Fri 11/04/25	Sat 12/04/25
18	3.3 Initiation Processes	2 days	Sun 13/04/25	Tue 15/04/25
19	3.4 Project Templates	1 day	Wed 16/04/25	Thu 17/04/25
20	3.5 Milestone Standards	1 day	Fri 18/04/25	Fri 18/04/25
21	3.6 Scope Management	1 day	Fri 18/04/25	Fri 18/04/25
22	3.7 Change Management Process	1 day	Fri 18/04/25	Fri 18/04/25
23	3.8 Acceptance Process	3 days	Sat 19/04/25	Mon 21/04/25
24	**4.0 Resource Management**	**8 days**	**Tue 15/04/25**	**Tue 22/04/25**
25	4.1 Time Recording System	2 days	Tue 15/04/25	Wed 16/04/25
26	4.2 Resource Forecasting	2 days	Thu 17/04/25	Fri 18/04/25
27	4.3 Resource Management Process	2 days	Mon 21/04/25	Tue 22/04/25
28	**5.0 Training and Mentoring**	**4 days**	**Tue 22/04/25**	**Sat 26/04/25**
29	5.1 Enterprise Tools Trainin	2 days	Wed 23/04/25	Thu 24/04/25
30	5.2 Project-Level Tools	3 days	Tue 22/04/25	Fri 25/04/25
31	5.3 Time and Resource Training	1 day	Sat 26/04/25	Sat 26/04/25
32	**6.0 Rollout**	**2 days**	**Sun 27/04/25**	**Tue 29/04/25**
33	6.1 Enterprise Tool Rollout	1 day	Sun 27/04/25	Sun 27/04/25
34	6.2 Project-Specific Rollout	1 day	Sun 27/04/25	Mon 28/04/25
35	FGP End	0 days	Tue 29/04/25	Tue 29/04/25

Note: from author, self-produced.

The phased approach allows for weekly evaluation and adjustment, ensuring all elements are adapted for construction project demands. By Week 4, the PMO should be fully operational, with staff trained and systems ready to streamline project oversight and management

(Merla, 2005). A brief pause in further PMO development is recommended to allow these processes time to mature, which will help identify areas for improvement and ensure that they meet the operational demands of A & E's construction environment (Merla, 2005). This period of consolidation will allow the PMO to stabilize, fostering a strong foundation for further advancements and ensuring sustained effectiveness as the PMO evolves to support higher levels of project management rigor and efficiency within the organization (Merla, 2005).

To ensure the successful deployment of the PMO Implementation Plan for A & E Construction, the critical path, task progress, and resource allocation should be monitored. The critical path consists of a sequence of interconnected tasks that directly influence the project's completion date. Any delay in a task on the critical path results in a delay for the entire project. Regular progress reviews should assess task completion rates against planned durations which enables early identification of potential setbacks. Resource allocation should be continuously evaluated and adjusted, if necessary, to maintain efficiency. In addition, it is necessary to have consistent communication with stakeholders to provide updates on progress and any adjustments required.

5 CONCLUSIONS

In summary, the findings from this study provide valuable insights into the current project management practices and maturity level at A & E Construction as well as the potential benefits of implementing a Directive Project Management Office (PMO). The analysis reveals that while certain project management competencies are moderately developed, several core areas require enhanced formalization and structure to reach industry standards. The information below summarizes the results of the specific objectives:

1. **Maturity Level Assessment**: The maturity assessment for A & E Construction revealed a moderate level of project management maturity, with stronger performance in areas such as Schedule and Communications Management, but weaknesses in Integration and Risk Management. These findings highlight both existing strengths and key areas requiring formalization and standardization to enhance maturity across all knowledge areas.
2. **Directive PMO Suitability**: Evaluations suggest that a Directive PMO is the most suitable type for A & E Construction, as it offers centralized oversight, aligns project practices with organizational goals, and strengthens resource and risk management. The Directive PMO structure is expected to support consistent project execution, providing the necessary frameworks for improving efficiency and accountability.
3. **Defined Roles and Responsibilities**: Clarifying roles within a PMO framework would reduce overlaps and inefficiencies, allowing each team member to focus on their core responsibilities. The structured PMO setup ensures clear accountability and enhances collaboration between HR, project manager, and other departments which is critical for efficient project delivery.

4. **Assessment of Project Management Processes**: Analysis of current processes at A & E Construction indicates significant opportunities for improvement, particularly in standardizing project documentation, risk assessment, and resource management. A PMO-driven approach could introduce the necessary frameworks and consistency for aligning these processes with industry standards.
5. **Implementation Plan**: The 30-day PMO implementation plan lays out a phased approach to address challenges, including resistance to change and insufficient resources. By systematically rolling out the PMO functions, A & E Construction can establish a stable foundation that fosters improved communication, process standardization, and project alignment.

6 RECOMMENDATIONS

- **Implement an Agile Training Initiative**

  Establish a training initiative focused on agile principles for team members across all levels. While construction projects traditionally follow Waterfall or phased approaches, agile techniques can be adapted to improve responsiveness to change and stakeholder needs— particularly in communication and incremental delivery. This training should emphasize cross-functional team collaboration, iterative planning, and adaptable strategies that can help address unexpected project challenges in a structured manner.

- **Develop a Knowledge Management Repository for Continuous Learning**

  Establish a centralized, accessible digital repository to capture project insights, lessons learned, and best practices. This repository would be essential for cultivating a continuous learning environment. Thus, allowing the project manager to access past experiences and avoid repeating common drawbacks. This involves standardizing the repository so that post-project reviews, key process insights, and innovative solutions are catalogued for future use.

- **Establish Cross-Departmental Collaboration Sessions**

  Facilitate monthly collaboration sessions with representatives from key departments (e.g., HR, finance, procurement, engineering) to discuss resource needs, project timelines, and interdepartmental dependencies. These sessions will address communication gaps and improve coordination, enabling each team to align its activities with PMO priorities and respond quickly to emerging project requirements.

- **Conduct a Bi-Annual PMO Maturity and Impact Assessment**

  Schedule a bi-annual review of the PMO's impact, focusing on measurable outcomes such as cost savings, on-time project completion rates, and process standardization levels. This assessment would provide management with a clear view of how the PMO's efforts are contributing to organizational goals and allow for adjustments to strategies, tools, and training.

- **Introduce a PMO-Led Mentorship Program**

  Develop a mentorship program led by the project manager within the PMO to provide guidance to less experienced team members. This program will ensure

knowledge transfer, skill enhancement, and support for junior staff which will help them become experts at managing project complexities, client expectations, and interdepartmental coordination.

7 VALIDATION OF THE FGP IN THE FIELD OF REGENERATIVE AND SUSTAINABLE DEVELOPMENT

The proposal to establish a project management office within A & E Construction is potentially going to have a huge impact on how the company complies with the P5 framework, which encompasses People, Prosperity, Planet, Peace, and Partnerships (GPM Global, 2023). As construction activity in Belize expands, the introduction of a structured approach to the management of its projects could render an important role in enhancing the sustainability and overall effectiveness of project execution and ensuing infrastructure. This analysis takes a closer look at the way in which the proposed PMO enhances the P5 pillars and contributes toward wider company objectives.

People: The proposed PMO would positively impact the well-being of employees and stakeholders through role clarity, enhanced communication, and continuous learning. Standardization of project management processes at work would help reduce cases of work stress and conflicts generally experienced as a result of undefined responsibilities and variable communication. This would contribute to a healthier and more collaborative work environment leading to increased job satisfaction and productivity (GPM Global, 2023).

Prosperity: The proposal recognizes that the establishment of a PMO could lead to improved project outcomes which would directly contribute to the financial success of A & E Construction. It is by focusing on better planning, resource management as well as risk reduction in projects that this may help bring down the cases of overruns, hence increasing profit for the company. Additionally, the PMO's emphasis on continuous improvement could drive innovation and efficiency, further supporting the long-term economic viability of the company (GPM Global, 2023).

Planet: The proposed PMO could play a crucial role in promoting environmentally responsible construction practices. By introducing sustainability into the project management guidelines, it would foster energy-efficient technologies, renewable resources, and waste reduction strategies within the activities of the PMO. These practices could reduce the impact on the environment which the projects may cause, hence saving the planet for the future generation (GPM Global, 2023). The PMO's focus on sustainability would also enhance A & E Construction's reputation, positioning A & E Construction as a leader in environmentally sensitive construction within Belize.

Peace: The PMO could contribute to the realization of peace within a company by fostering transparency, accountability, and ethical practices in operations. Standardization and clarity in interactions would avoid miscommunication or conflicts with the internal structure of the organization and externally with interested parties. Consequently, this would enhance a harmonious work environment and strengthen relationships with clients, suppliers, and society at large (GPM Global, 2023).

Partnerships: The PMO could enhance A & E Construction's ability to collaborate effectively with various stakeholders. By developing a single framework for project management, the PMO would ensure greater coordination and communication to its partners with suppliers, subcontractors, and clients. Greater collaboration would thus build healthier partnerships—a good construction project needs good collaboration; innovation in sustainable practices cannot be achieved without such partnership ((GPM Global, 2023).

In conclusion, the proposal for a PMO at A & E Construction is designed not only to improve project performance but also to align with the P5 framework, thus supporting the wider commitment of the company to sustainable and responsible development. The PMO would need to integrate the P5 pillars into proposed project management practices so that future projects at A & E Construction are of benefit to people, prosperous, environmentally sustainable, peaceful, and built on firm partnerships contributing towards long-term company success and positive impact on the community.

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APPENDICES

Appendix 1: FGP Charter

CHARTER OF THE PROPOSED FINAL GRADUATION PROJECT (FGP)

1. Student name

Janeli Gissel Manzanero

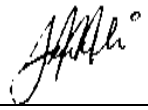
2. FGP name

Project Management Office (PMO) proposal for a construction company in Belize

3. Application Area (Sector or activity)

Construction

4. Student signature



5. Name of the Graduation Seminar facilitator

Professor Paula Villalta Olivares

6. Signature of the facilitator

7. Date of charter approval

8. Project start and finish date

July 9, 2024	August 19, 2024

9. Research question

What elements are necessary to successfully implement a Project Management Office at a construction company in Belize, A & E Construction?

10. Research hypothesis

The project performance of A & E Construction will benefit from a Project Management Office that prioritizes the areas of role clarification, comprehensible processes and guidelines, communication plans, and efficient project management tools.

11. General objective

To establish a proposal for the creation of a PMO within A & E Construction that provides a structured approach to project management.

12. Specific objectives

1. To evaluate the maturity of A & E Construction to identify its strengths, areas that need improvement, and specific needs.
2. To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.
3. To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.
4. To assess the project management processes of the construction firm as well as pinpoint any deficiencies or opportunities for improvement.
5. To develop an implementation plan for the PMO that focuses on addressing potential challenges and facilitates a smooth integration into the operations of the construction company.

13. FGP purpose or justification

A Project Management Office is a crucial step in the continued process of improving project performance at A & E Construction. The proposal of a PMO is important because it seeks to address the increasing complexity of construction projects, the need for defined processes, defined responsibilities, and effective communication. By forming a PMO, A & E Construction will be able to enhance project management practices, therefore cutting out inefficiency and ensuring the projects are delivered on time and within

the agreed budget. This framework will establish a structured approach to the management of projects resulting in better project delivery and higher customer satisfaction.

With the growing construction industry in Belize, companies must continuously change to remain competitive. A PMO will provide A & E Construction with the tools and strategies to assure that industry standards and clients' expectations in deliveries are met. Other advantages of this implementation include enhanced collaboration across teams, better resource management, improved project tracking and reporting accuracy. Furthermore, by using proper project management tools and processes, A & E Construction could mitigate risk, avoid potential expensive delays, and subsequently increase profitability and market reputation.

Quantitatively, the establishment of a PMO is predicted to reduce project overruns by up to 20% which will bring substantial cost savings. Given that A & E Construction manages numerous projects between $1 million and $10 million, this decrease could save the company $200,000 to $2 million every year. Moreover, the PMO will institute a culture of continuous improvement and accountability that will support the long-term growth and sustainability of the organization. These improvements shall bring an added advantage to the performance of the projects, while enabling A & E Construction to emerge at the front line in the construction industry in Belize.

14. Work Breakdown Structure (WBS). In table form, describing the main deliverable as well as secondary, products or services to be created by the FGP.

1. Project Management Office (PMO) proposal for a construction company in Belize
    1.1 Final Graduation Project Deliverables
        1.1.1 Introduction
        1.1.2 Theoretical framework
        1.1.3 Methodological framework
        1.1.4 Preliminary bibliographical research
        1.1.5 Annexes (FGP schedule, FGP WBS, FGP Charter)
    1.2 FGP development
        1.2.1 Proposal for a PMO
            1.2.1.1 Perform Maturity Analysis
            1.2.1.3 Define Directive PMO
            1.2.1.3 Determine roles and responsibilities within the PMO
            1.2.1.4 Conduct risk assessment
            1.2.1.5 Development of an implementation plan for the construction company.
        1.2.2 Conclusions

1.2.3 Recommendations
1.2.4 Validation of the FGP in the field of regenerative and sustainable development
1.2.5 Reference lists
1.2.6 Annexes
1.2.7 Tutor approval for reading.
1.3 Reader's review.
1.2 Board of examiners evaluation.

15. FGP budget

Item	**Description**	**Cost (USD)**
Transportation	Travel for interviews and site visits	$100
Food	Meals during travel	$50
PMI Membership	Subscription to gain access to relevant journals	$109
Printing and Binding	Final thesis document	$30
	TOTAL	**$289**

16. FGP planning and development assumptions

i. Tutor Guidance and Support: Consistent and timely direction and support throughout the final graduation project will be provided by the academic tutor. This includes feedback on drafts, assistance with research approaches, and general academic support.

ii. Stakeholder Engagement and Support: Key stakeholders of A & E Construction—the senior management, project manager, and all those within —will be actively involved in the interview process and provide honest feedback regarding the proposal of the PMO implementation plan.

iii. Access to Relevant Academic Resources: Constant access to academic resources such as online databases, journals, books, and other literature will be available to the researcher for conducting research and developing the FGP.

iv. Time Commitment of the Researcher: The researcher will commit a minimum of 20 hours a week to the FGP development process.

17. FGP constraints

I. The Final Graduation Project must be completed within a maximum period of 14 weeks. This applies to all research, writing, revision, and submission deadlines.

II. There is a limited research budget available. This constraint can reduce the ability to purchase materials or software tools.

III. The focus of this study is on A & E Construction in Belize. As such, this may result in findings or recommendations not immediately applicable to other construction firms or industries unless further modified.

IV. The key stakeholders at A&E Construction may be restricted due to their availability or unwillingness to participate. Interviews, questionnaires, and focus groups may be delayed, which will impact the proposed timeline.

18. FGP development risks

i. If the information received from A & E Construction regarding the projects is inaccurate or incomplete, it may be very challenging to make an effective assessment of the project management maturity level and areas of improvement.

ii. Technical problems in accessing web-based sources for academic materials, databases, and project management software tools will affect research progress and analysis.

iii. Health and safety requirements may limit face-to-face meetings, site visits, or data collection activities. This may also cause a delay in project milestones.

iv. The researcher's commitment of 20 hours a week may change due to personal circumstances resulting in limited progress and lower quality of the final graduation project deliverables.

v. The company’s strategic plan might not prioritize setting up a PMO due to lack of time and resources.

vi. PMO implementation might not correspond with the strategic goals of A& E Construction.

vii. There might be resistance from the employees and the management in trying to adopt the PMO.

19. FGP main milestones

Milestones are related to deliverables on the second level (deliverables) and third level (control accounts) of the WBS of section 14 of this Charter. At the same time the deliverables are related to the specific objectives (in the case of the FGP please include the times for the tutorship reviews as well as for the readership).

Deliverable	**Finish estimated date**
1.1 FGP Deliverables	19/08/2024
1.1.1 Introduction	12/08/2024
1.1.2 Theoretical Framework	29/07/2024
1.1.3 Methodological Framework	05/08/2024
1.1.4 Annexes	19/08/2024
1.2 FGP development	17/01/2025
1.2.1 Proposal for a PMO	30/09/2024
1.2.2 Conclusion	21/10/2024
1.2.3 Recommendations	21/10/2024
1.2.4 Validation of the FGP in the field of regenerative and sustainable development	28/10/2024
1.2.5 Bibliography	28/10/2024
1.2.6 Annexes	04/11/2024
1.2.7 Tutor approval for reading	02/12/2024
1.3 Readers review	20/12/2024
1.4 Board of examiners evaluation	17/01/2025

20. Theoretical framework

20.1 Estate of the nomatter”

The construction industry in Belize is experiencing rapid expansion, driven by increased demand for residential, commercial, and infrastructure projects. A & E Construction, a key player in this sector, faces challenges in efficiently managing its diverse project portfolio. The current project management practices at A & E Construction lack a structured framework, leading to project overruns, resource mismanagement, and communication breakdowns. Traditional ad-hoc project management methods are insufficient to meet the demands of modern construction projects, which require systematic and standardized approaches. Recent research highlights the importance of structured project management methods, such as the establishment of Project Management Offices (PMOs), to enhance organizational performance and project delivery outcomes. PMOs centralize project management activities, providing governance, standardizing processes, and supporting project managers with tools and methodologies. However, there is often a gap between

theoretical frameworks and practical implementations, especially in construction firms where flexibility and adaptability are crucial. Currently, A & E Construction operates without a formal PMO, relying on the project manager and ad-hoc processes, leading to inconsistencies and inefficiencies.

Previous research supports the implementation of PMOs to improve project management practices. Akel et al. (2011) discuss the application of agile concepts in establishing successful PMOs, emphasizing the importance of essential processes for integration with organizational operations. Ershadi et al. (2021) highlight the role of PMOs in enhancing sustainable procurement practices in the construction industry. Farid (2021) presents a case study of PMO transformation, demonstrating the importance of leadership, support, and engagement in achieving a successful PMO. Ko & Kim (2019) emphasize the need for project portfolio management maturity and strategic alignment to improve PMO efficiency. Oliveira & Fernandes (2017) identify specific functions of supportive PMOs in engineering and construction organizations, providing guidance on roles, processes, and implementation strategies. Philbin (2018) investigates PMO implementation in collaborative research settings, offering insights into managing multidisciplinary teams and maximizing project impact. These studies collectively provide a foundation for proposing a PMO at A & E Construction, focusing on defining roles and responsibilities, standardizing processes, and enhancing communication to address current project management challenges.

20.2 Basic conceptual framework

Project Management Office
Project Management
Maturity Model
Role Definition
Communication Strategies
Standardized Processes

21. Methodological framework

Objective	**Name of deliverable**	**Information sources**	**Research method**	**Tools**	**Restrictions**
To evaluate the maturity of A & E	Project Management Maturity	Primary: Interviews with key staff from A	**Mixed Methods:** Surveys to gather numerical data	Survey tools (e.g., SurveyMonkey), interview guides,	Limited availability of de-

Construction to identify its strengths, areas that need improvement, and specific needs.	Model: A detailed report that identifies the current project management maturity level.	& E Construction (e.g., managers, project leads). Official documents from A & E Construction. Secondary: PMBOK Guide 7th Edition, Akel Alsadeq & Hamamo (2011), Aubry et al. (2017).	on current practices and maturity levels, combined with interviews and document analysis for in-depth insights **Analytical:** Analyzing the maturity model results to identify specific areas where the company falls short compared to best practices.	document analysis software.	tailed historical project data, potential biases in self-reported data.
To define what a Directive PMO is, as it is the recommended PMO type for A & E Construction.	Detailed Definition and Characteristics highlighting the PMO's key characteristics, functions, and how it differs from other PMO types.	**Primary:** Case studies of Directive PMO implementations in the construction industry, Internal meetings and focus groups with A & E Construction's management and project staff. **Secondary:** PMBOK Guide 7th	**Mixed Methods**: Surveys to quantify understanding and perception of a Directive PMO among employees, combined with qualitative insights from interviews and focus groups. **Analytical:** Comparing current decision-making and project	Literature review tools, case study analysis tools, interview guides.	Limited examples or case studies specifically tailored to the construction industry in Belize.

		Edition, Saha (2024), Snorradóttir (2014), Philbin (2016), PM Majik (n.d.).	oversight practices with characteristics of a Directive PMO.		
To define the roles and responsibilities within the PMO framework to ensure role clarification and accountability.	An updated organizational chart displaying the PMO's ideal structure and roles.	Primary: Interviews with project management staff and HR personnel. Company policy documents and role descriptions Secondary: Kerzner (2017), Bredillet (2019), Müller et al. (2019).	**Mixed Methods:** Surveys to quantify role clarity and accountability, combined with observations, process documentation reviews, and interviews. **Statistical:** Analyzing survey data on role clarity and accountability.	Survey tools, interview guides, organizational design software.	Resistance to changes in roles and responsibilities within the organization.
To assess the project management processes of the construction firm to identify deficiencies or opportunities for improvement.	A framework incorporating best practices from existing PMO models and the benefits of the proposed PMO.	Primary: Observations of project management practices. Process documentation and reports. Secondary: Oliveira et al. (2017),	**Qualitative Methods:** Observations, process documentation reviews, and interviews. **Analytical:** Mapping out the existing workflows	Observation checklists, process mapping tools.	Limited access to detailed process documentation and reports.

		Farid (2021).	and comparing them to optimized processes.		
To develop an implementation plan for the PMO focusing on addressing potential challenges and facilitating smooth integration.	An implementation plan outlining essential processes and actions for setting up the PMO.	Primary: Interview strategy sessions with the project management team and senior management. Secondary: Too & Weaver (2014), Saini et al. (2018).	**Mixed Methods:** Surveys to gather quantitative data on anticipated challenges and integration readiness, combined with qualitative feedback from the project management team and senior management. **Observational:** Observing potential challenges that might arise from proposing implementation plan.	Survey tools, interview guides, project planning software.	Scope of the implementation plan may be compromised by a lack of time and resources for thorough planning.

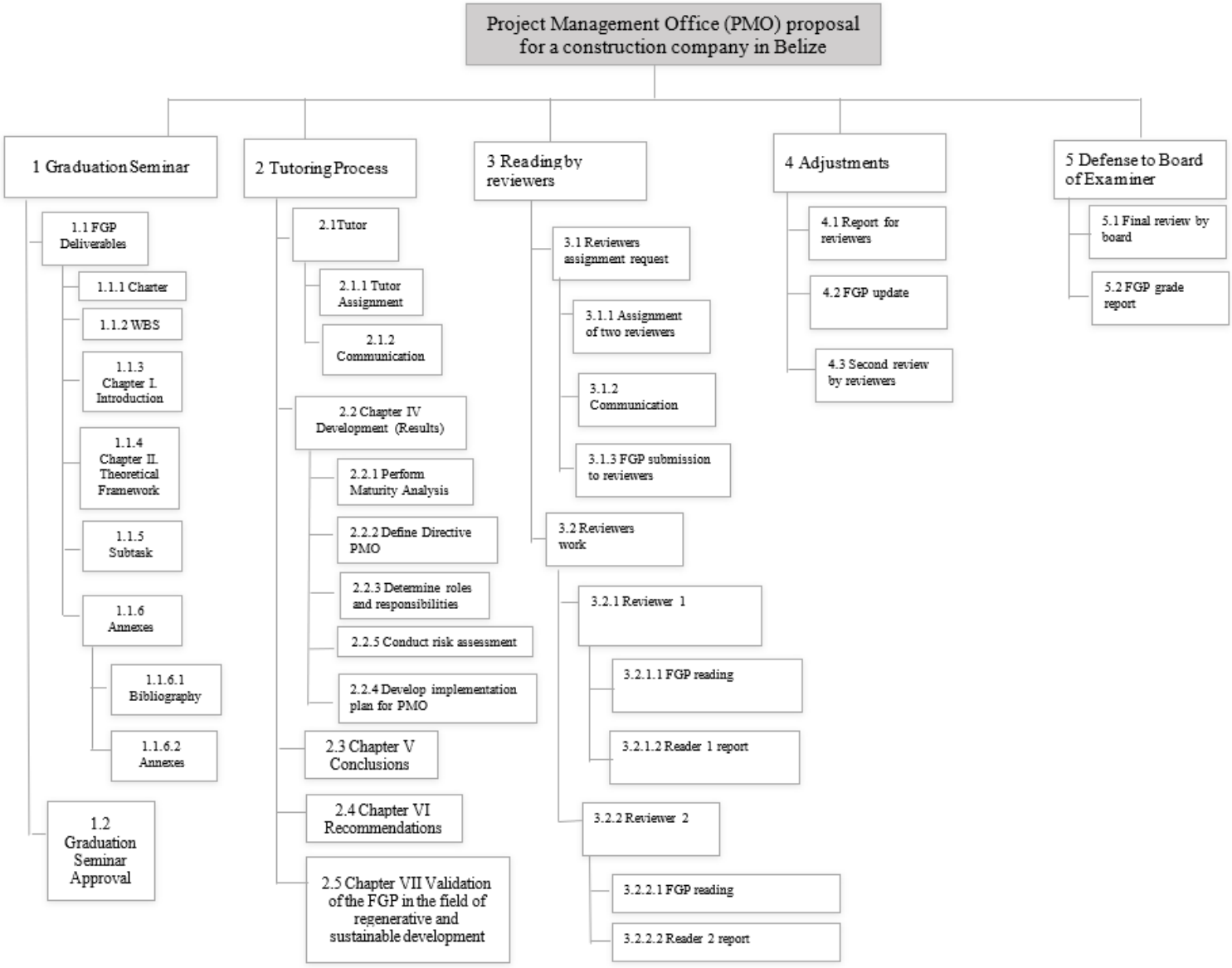
22. Validation of the work in the field of the regenerative and sustainable development.

The proposal for establishing a Project Management Office (PMO) at A & E Construction is strategically aligned with the principles of regenerative and sustainable development. By focusing on the P5 framework—People, Prosperity, Planet, Peace, and Partnerships—the PMO is designed to enhance the company's project management practices while contributing to the broader goals of sustainability.

This alignment ensures that the PMO will not only improve the efficiency and effectiveness of project delivery but also foster practices that are environmentally responsible, socially equitable, and economically viable.

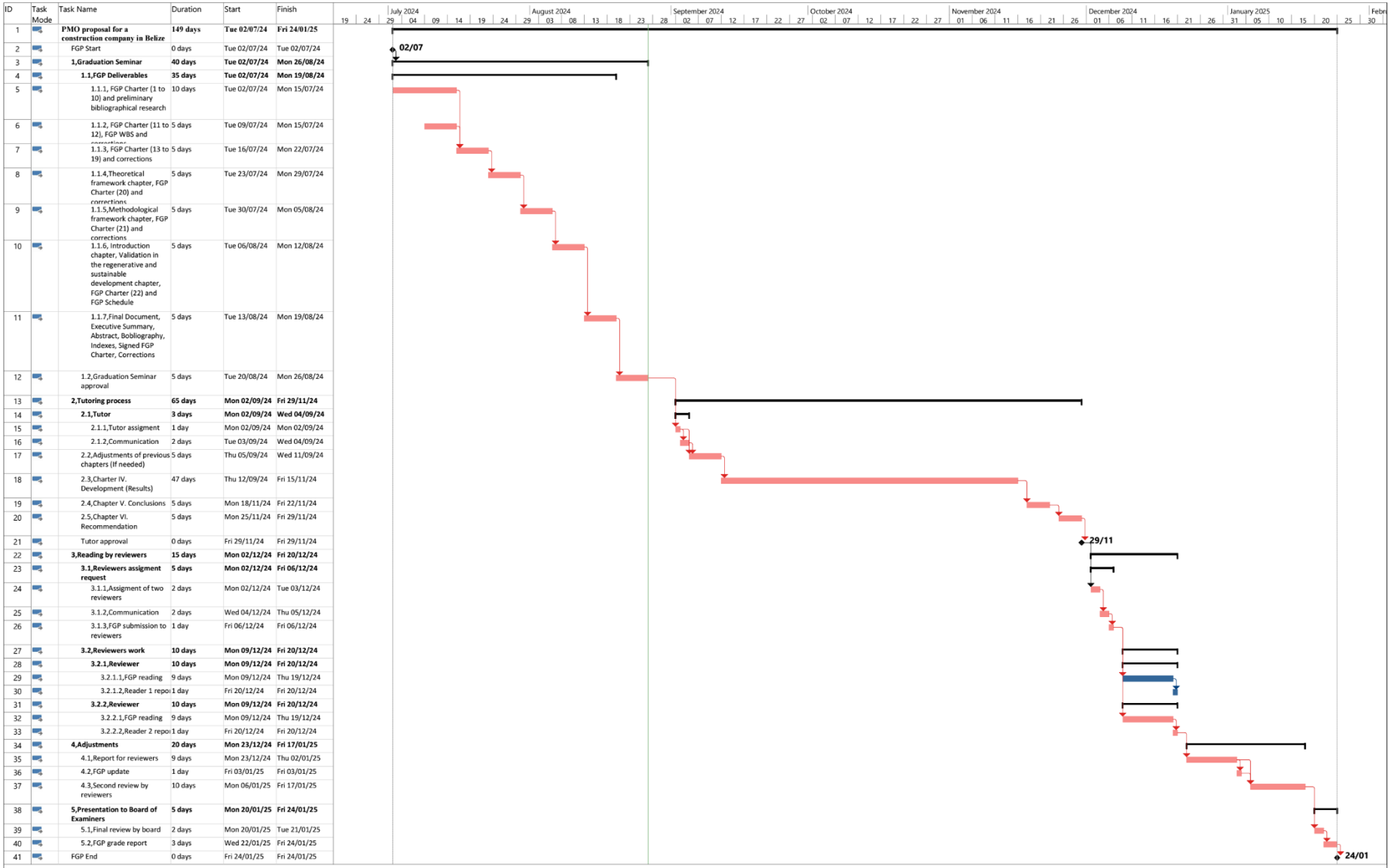
The PMO will support regenerative and sustainable development by incorporating sustainability into every aspect of project management, from planning to execution. Potential indicators to measure the success of the PMO in this regard include the reduction of project overruns, increased stakeholder satisfaction, and the adoption of green construction practices. Moreover, continuous improvement and innovation focused by the PMO will continue to keep A & E Construction at the forefront of sustainable practices in the construction industry in Belize toward long-term stewardship of the environment and community well-being (GPM Global, 2023).

Appendix 2: FGP WBS



Appendix 3: FGP Schedule

ID	Task Mode	Task Name	Duration	Start	Finish
1		**PMO proposal for a construction company in Belize**	**149 days**	**Tue 02/07/24**	**Fri 24/01/25**
2		FGP Start	0 days	Tue 02/07/24	Tue 02/07/24
3		**1,Graduation Seminar**	**40 days**	**Tue 02/07/24**	**Mon 26/08/24**
4		**1.1,FGP Deliverables**	**35 days**	**Tue 02/07/24**	**Mon 19/08/24**
5		1.1.1, FGP Charter (1 to 10) and preliminary bibliographical research	10 days	Tue 02/07/24	Mon 15/07/24
6		1.1.2, FGP Charter (11 to 12), FGP WBS and corrections	5 days	Tue 09/07/24	Mon 15/07/24
7		1.1.3, FGP Charter (13 to 19) and corrections	5 days	Tue 16/07/24	Mon 22/07/24
8		1.1.4,Theoretical framework chapter, FGP Charter (20) and corrections	5 days	Tue 23/07/24	Mon 29/07/24
9		1.1.5,Methodological framework chapter, FGP Charter (21) and corrections	5 days	Tue 30/07/24	Mon 05/08/24
10		1.1.6, Introduction chapter, Validation in the regenerative and sustainable development chapter, FGP Charter (22) and FGP Schedule	5 days	Tue 06/08/24	Mon 12/08/24
11		1.1.7,Final Document, Executive Summary, Abstract, Bobliography, Indexes, Signed FGP Charter, Corrections	5 days	Tue 13/08/24	Mon 19/08/24
12		1.2,Graduation Seminar approval	5 days	Tue 20/08/24	Mon 26/08/24
13		**2,Tutoring process**	**65 days**	**Mon 02/09/24**	**Fri 29/11/24**
14		**2.1,Tutor**	**3 days**	**Mon 02/09/24**	**Wed 04/09/24**
15		2.1.1,Tutor assigment	1 day	Mon 02/09/24	Mon 02/09/24
16		2.1.2,Communication	2 days	Tue 03/09/24	Wed 04/09/24
17		2.2,Adjustments of previous chapters (If needed)	5 days	Thu 05/09/24	Wed 11/09/24
18		2.3,Charter IV. Development (Results)	47 days	Thu 12/09/24	Fri 15/11/24
19		2.4,Chapter V. Conclusions	5 days	Mon 18/11/24	Fri 22/11/24
20		2.5,Chapter VI. Recommendation	5 days	Mon 25/11/24	Fri 29/11/24
21		Tutor approval	0 days	Fri 29/11/24	Fri 29/11/24
22		**3,Reading by reviewers**	**15 days**	**Mon 02/12/24**	**Fri 20/12/24**
23		**3.1,Reviewers assigment request**	**5 days**	**Mon 02/12/24**	**Fri 06/12/24**
24		3.1.1,Assigment of two reviewers	2 days	Mon 02/12/24	Tue 03/12/24
25		3.1.2,Communication	2 days	Wed 04/12/24	Thu 05/12/24
26		3.1.3,FGP submission to reviewers	1 day	Fri 06/12/24	Fri 06/12/24
27		**3.2,Reviewers work**	**10 days**	**Mon 09/12/24**	**Fri 20/12/24**
28		**3.2.1,Reviewer**	**10 days**	**Mon 09/12/24**	**Fri 20/12/24**
29		3.2.1.1,FGP reading	9 days	Mon 09/12/24	Thu 19/12/24
30		3.2.1.2,Reader 1 repor	1 day	Fri 20/12/24	Fri 20/12/24
31		**3.2.2,Reviewer**	**10 days**	**Mon 09/12/24**	**Fri 20/12/24**
32		3.2.2.1,FGP reading	9 days	Mon 09/12/24	Thu 19/12/24
33		3.2.2.2,Reader 2 repor	1 day	Fri 20/12/24	Fri 20/12/24
34		**4,Adjustments**	**20 days**	**Mon 23/12/24**	**Fri 17/01/25**
35		4.1,Report for reviewers	9 days	Mon 23/12/24	Thu 02/01/25
36		4.2,FGP update	1 day	Fri 03/01/25	Fri 03/01/25
37		4.3,Second review by reviewers	10 days	Mon 06/01/25	Fri 17/01/25
38		**5,Presentation to Board of Examiners**	**5 days**	**Mon 20/01/25**	**Fri 24/01/25**
39		5.1,Final review by board	2 days	Mon 20/01/25	Tue 21/01/25
40		5.2,FGP grade report	3 days	Wed 22/01/25	Fri 24/01/25
41		FGP End	0 days	Fri 24/01/25	Fri 24/01/25



Appendix 4: Preliminary bibliographical research

1. Akel, Mahmoud & Alsadeq, Imad & Hamamo, Nagy. (2011). Establishing a Project Management Office (PMO) Using the Agile Approach.

This paper investigates the application of agile concepts to build a successful PMO using cases from the MENA region. This chapter explores the role of PMO as the proponent for project management and breaks down typical organizational needs around a PMO and tells you how agile methods can help accelerate phases related to establishing a PMO. This paper argues that these may still be a steppingstone for the future agile adaptations in PMO operations and thus, it lays its focus on what are essential processes needed to form a PMO which can effectively integrate with organization operations.

2. Ershadi, M., Jefferies, M., Davis, P., & Mojtahedi, M. (2021). Achieving sustainable procurement in construction projects: The pivotal role of a project management office. Construction Economics and Building, 21(1), 45-64.

Ershadi et al. (2021) have rightly indicated that construction activities, particularly waste generation, have environmental and ecological effects. Customer demands and regulations for environmental criteria have compelled contractors to embrace more sustainable operations. Sustainable procurement management considers the environmental impacts in procurement decisions with an objective to achieve positive environmental results. In contrast to prior research, which has been focused on the public sector in terms of green procurement,

this study is concerned with internal capacities of private businesses as strong management structures—Project Management Offices. This study aims at identifying the requirements of sustainable project procurement and exploring how PMOs can help satisfy them within the private sector. The findings imply that PMOs enhance the quality of collaboration and decision-making over sustainable procurement by defining 17 standards of sustainability and providing their insights on how to adopt sustainable behavior.

3. Farid, S. (2021). A Roadmap to PMO Excellence. Paper presented at PMO Symposium®: Where Leaders Meet. Denver, Colorado, USA. Newtown Square, PA: Project Management Institute.

Successful and enduring PMOs in today's environment are agile and adjustable. At Fonterra, its PMO went through a good deal of change by reviewing the current state and formulating a comprehensive plan of improvements to attain its vision. The key to working through the challenges and defining a clearer approach was strong leadership, support, and engagement. The paper discusses the need for a PMO roadmap, the critical success factors, the eight steps to generate one, and the rewards and lessons learned along the way. The results help support the thesis by providing hands-on examples of PMO implementation as well as highlighting the need for maturity assessment, role definition, process evaluation, and structured implementation strategy.

4. Fewings, P., & Henjewele, C. (2019). Construction project management: an integrated approach. Routledge.

The book is consistent with maturity analysis objectives of a construction company, establishment of roles and duties within PMO, procedures for project management evaluation, and an implementation plan. The insights which will be gained on how technology impacts the management of projects will help in avoiding probable issues and ensuring a smooth integration of PMO into A & E Construction.

5. Hopkinson, M. (2010). The Project Risk Maturity Model: Measuring and Improving Risk Management Capability (1st ed.). Routledge. https://doi.org/10.4324/9781315237572

This bibliographical research supports the thesis proposal for establishing a Project Management Office within the construction company by emphasizing the importance of mature risk management practices. It describes support from a formal framework, the Project Risk Maturity Model, that helps in the evaluation and improvement of risk management capability. It points out a strategy for recognizing strengths, places for improvement, and specific requirements within procedures related to project management. It gives relative comparison with the recognized standards and provides the stages through which improvement can be achieved; hence, it is easier to design an effective PMO implementation strategy that enables its integration to match operational needs of the company while maximizing project performance.

6. Ko, J. H., & Kim, D. (2019). The effects of maturity of project portfolio management and business alignment on PMO efficiency. Sustainability, 11(1), 238.

This data envelopment analysis (DEA) efficiency study on PMOs provides insights that would be relevant to improve PMO implementation in A & E Construction. It examines elements that influence PMO efficiency, which emphasize the need for project portfolio management maturity (PPMM) and strategic alignment with business objectives. The findings show that enhancing PPMM and strategic alignment can be done; therefore, there is great potential for considerable improvement in PMO efficiency and overall performance.

7. Oliveira, C., Tereso, A., & Fernandes, G. (2017). PMO conceptualization for engineering and construction businesses. Procedia computer science, 121, 592-599.

This literature identifies that the project management methods are increasingly being recognized to improve organizational performance. Many organizations have created a project management office as an initiative to centralize project management and improve the delivery of projects. A lot of PMO types and functions have been presented, but a business finds it difficult to decide on exactly which functions to apply. Even though some roles are predefined in literature, real applications are different. This paper gives specific functions of a supportive PMO in regard to establishing and implementing project methodology, supportive tools, and enhancing the competencies related to project management in an engineering and construction organization. The findings that are presented help to get a better understanding

of how to implement a PMO within a construction firm by guiding roles, processes, and strategies for implementation to achieve improvement in maturity for project management.

8. Philbin, S. P. (2018, October). PMO implementation for project management in a collaborative research context. In Proceedings of the 39th American Society for Engineering Management (ASEM) International Annual Conference.

This bibliographical study investigates how a Project Management Office (PMO) might improve project delivery by standardizing processes and best practices, especially in collaborative research settings. It emphasizes the PMO's responsibility in managing multidisciplinary teams, coordinating with partners, and maximizing project impact. The study presents a case study of a PMO implementation in a higher education institution, providing managerial insights and crucial success elements for integrating a PMO into joint research projects. This study will help to define methods for adopting a PMO in A & E Construction, assisting with objectives like as maturity evaluation, role definition, process assessment, and implementation planning.

9. Project Management Institute. (2021). A Guide to the Project Management Body of Knowledge PMBOK Guide Seventh Edition and the Standard for Project Management. Pennsylvania: Project Management Institute.

The Project Management Institute developed the PMBOK Guide, which includes standard terminology and rules for project management. The seventh edition was published in 2021,

and it contains basics such as the critical path method and WBS, extremely crucial in project design and execution. The guide uses general management principles, like organizational behaviour and budgeting, in concord with larger operational strategies. Such ideas will help support the thesis on developing a Project Management Office at A & E because the book provides basic information and methodologies for effective project management and PMO establishment.

10. Saini, M., Arif, M., & Kulonda, D. J. (2018). Critical factors for transferring and sharing tacit knowledge within lean and agile construction processes. Construction Innovation, 18(1), 64-89.

This research identifies the critical success factors (CSFs) that are critical for the transfer of tacit knowledge in construction companies in lean and agile processes. Critical factors identified include organizational trust, motivation, leadership, and business strategies. It provides new insight into the CSFs of knowledge transfer, which is critical for construction to support strategies in building a Project Management Office within Belizean construction businesses by means of increasing awareness of effective management practices and organizational capabilities.

Appendix 5: 3PM Maturity Assessment Questionnaire

CRYSTAL
CLARITY - STRENGTH - VALUE

QUESTION	SCORE
1. Does your organisation describe the roles and levels of delegated authority for decision making on the project?	
2. Does your organisation describe the main roles required on the project and their responsibilities?	
3. Does your organisation describe how the project charter is prepared and authorized?	
4. Does your organisation describe any software you will use to help track, estimate, report or document any part of the project?	
5. Does your organisation describe the tools and techniques that will be used to monitor project performance?	
6. Does your organisation describe the overall process for how requested changes will be documented and assessed?	
7. Does your organisation describe the approved project change control process?	
8. Does your organisation describe how project status will be reported?	
9. Does your organisation describe how project configuration management and version control will occur in the project?	
10. Does your organisation describe how project requirements will be gathered and documented?	
11. Does your organisation describe how project requirements will be checked, monitored and how changes to them will be assessed?	
12. Does your organisation describe how the work breakdown structure is prepared and the format it is documented in?	
13. Does your organisation describe how the work breakdown structure will be checked, monitored and how changes to it will be assessed?	
14. Does your organisation describe how the project and product scope will be defined and documented?	
15. Does your organisation describe how the project scope will be checked, monitored and how changes to it will be assessed?	
16. Does your organisation describe the processes, tools and techniques used to develop a project schedule?	
17. Does your organisation describe how the project schedule will be checked, monitored and how changes to it will be assessed?	
18. Does your organisation describe and require the use of scheduling software?	
19. Does your organisation describe the processes, tools and techniques used to estimate costs on the project?	
20. Does your organisation describe how project cost estimates will be checked, monitored and how changes to them will be assessed?	
21. Does your organisation describe the processes, tools and techniques used to prepare and document a project budget?	
23. Does your organisation describe how the project budget forecast will be checked, monitored and how changes to it will be assessed?	
24. Does your organisation require the use of earned value management techniques for monitoring cost and/or time?	
25. Does your organisation describe any internal financial processes that may influence the project?	
26. Does your organisation describe and require the use of cost and budgeting software?	
27. Does your organisation describe the processes for implementing quality assurance in the project?	
28. Does your organisation describe how quality assurance audits will occur in the project?	
29. Does your organisation describe how quality control will be defined, inspected and documented on the project?	
30. Does your organisation describe how the quality management processes will be checked, monitored and how changes to them will be assessed?	
31. Does your organisation describe and require the use of quality management software?	
32. Does your organisation describe how the numbers and experience of people required to complete the work will be estimated?	
33. Does your organisation describe how the people required to complete the work will be monitored and changes to human resource requirements assessed?	
34. Does your organisation describe how the project team members will be recruited, developed and managed?	
35. Does your organisation describe how project leadership skills will be developed and assessed?	
36. Does your organisation describe how project communications will be defined and documented?	
37. Does your organisation describe the processes, methods, tools and techniques for distributing project communications?	
38. Does your organisation describe how project communications will be monitored and how changes to the communications process will be assessed?	
39. Does your organisation describe the use of communications management software?	
40. Does your organisation describe how risks will be identified, documented and qualitatively assessed?	
41. Does your organisation describe how risks will be identified, documented and quantitatively assessed?	
42. Does your organisation describe how identified risks will be monitored and how changes to the risk register will be assessed?	
43. Does your organisation describe how project issues will be documented and monitored?	
44. Does your organisation describe the use of risk management software?	
45. Does your organisation describe the processes, tools and techniques for preparing, assessing, negotiating and implementing project contracts?	
46. Does your organisation describe how contracts will be monitored and how changes will be assessed?	
47. Does your organisation describe how suppliers to the project will be managed?	
48. Does your organisation describe the processes by which contractual claims are assessed and are resolved?	
49. Does your organisation describe how project stakeholders will be identified and their needs and expectations documented?	
50. Does your organisation describe the processes and strategies for managing and influencing project stakeholder expectations?	
51. Does your organisation describe how the stakeholder register will be monitored and changes to it assessed?	
52. Does your organisation describe how the project customers' needs will be identified and managed?	

Appendix 6: Survey on Understanding and Perception of a Directive PMO

Survey on Understanding and Perception of a Directive PMO

Objective: This survey aims to gather insights into the understanding and perception of a Directive Project Management Office (PMO) within A & E Construction. Your responses will help improve project management practices and alignment across the organization.

Role:

Please select your role at A & E Construction:

- Site Manager
- Project Manager
- Engineer
- Project Assistant

Section 1: Understanding of a Directive PMO

1. **Have you heard of a Directive PMO before this survey?**
    - Yes
    - No
2. **How familiar are you with the concept of a Directive PMO?**
    - Very familiar
    - Somewhat familiar
    - Slightly familiar
    - Not familiar at all
3. **How would you describe a Directive PMO?**
   (Open-ended)
4. **In your opinion, what are the key responsibilities of a Directive PMO in a construction environment?**
    - Ensuring consistent project management practices
    - Directly managing project execution
    - Providing strategic guidance to the project manager
    - Allocating resources for various projects
    - Other: _____

Section 2: Perception of the Directive PMO's Role in A & E Construction

5. **Do you believe having a Directive PMO would benefit A & E Construction's project management processes?**
    - Strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree
6. **How would a Directive PMO impact your role?**
   (Open-ended)

7. **What aspects of your daily tasks could be improved or supported by a Directive PMO?**
    - Decision-making support
    - Access to additional resources
    - Standardization of processes
    - Project oversight and monitoring
    - Other: _____
8. **What challenges do you foresee with implementing a Directive PMO in A & E Construction?**
   (Open-ended)

Section 3: Expectations and Suggestions

9. **What would you expect from a Directive PMO?**
   (Multiple-choice options with the ability to select multiple)
    - Guidance and support on project methodologies
    - Resource allocation for projects
    - Regular reporting and performance tracking
    - Training and development for project management staff
    - Conflict resolution between project teams
    - Other: _____
10. **What suggestions do you have for successfully integrating a Directive PMO at A & E Construction?**
    (Open-ended)

Thank you for your responses!
Your feedback will play a vital role in shaping how a Directive PMO can best support the team and improve project delivery across A & E Construction.

Appendix 7: Survey on PMO Integration

A & E Construction: PMO Integration Survey

Purpose: This survey aims to collect insights on potential challenges and suggestions from A & E Construction employees regarding the integration of a directive PMO. Your responses will help prioritize focus areas in the implementation plan.

1. What department do you work in?

- ☐ Project Management
- ☐ Operations
- ☐ Finance
- ☐ HR
- ☐ Other (Please specify): _____

2. How familiar are you with the concept of a directive Project Management Office (PMO)?

- ☐ Very familiar
- ☐ Somewhat familiar
- ☐ Neutral
- ☐ Not very familiar
- ☐ Not familiar at all

3. What do you anticipate will be the biggest challenges in implementing a directive PMO at A & E Construction? (Select all that apply)

- ☐ Resistance to change
- ☐ Resource allocation issues
- ☐ Communication gaps between departments
- ☐ Lack of training and support
- ☐ Potential overlap with existing processes
- ☐ Lack of clear roles and responsibilities
- ☐ Other (Please specify): _____

4. How concerned are you about the potential for resistance to change during the PMO integration?

- ☐ Very concerned
- ☐ Somewhat concerned

☐ Neutral
☐ Not very concerned
☐ Not concerned at all

5. Do you believe current resources are sufficient to support the integration of a directive PMO?

☐ Yes, sufficient resources are available
☐ Somewhat sufficient, but could use additional support
☐ No, additional resources will be necessary

6. How do you think the PMO integration will impact collaboration within your team?

☐ Significantly improve collaboration
☐ Somewhat improve collaboration
☐ No impact on collaboration
☐ Somewhat hinder collaboration
☐ Significantly hinder collaboration

7. What level of support or training do you think will be needed to help employees adapt to the directive PMO structure?

☐ Extensive training and support
☐ Moderate training and support
☐ Minimal training and support
☐ No additional training and support needed

8. Do you think a directive PMO will help improve project alignment and efficiency at A & E Construction?

☐ Yes, definitely
☐ Yes, somewhat
☐ Neutral
☐ Not likely
☐ No, it will not help

9. What methods do you think would best help employees stay engaged and informed during the PMO integration process? (Select all that apply)

☐ Regular updates via email

☐ Monthly meetings or town halls
☐ A dedicated PMO integration team to answer questions
☐ Training sessions/workshops
☐ Other (Please specify): _____

10. What suggestions do you have to make the PMO integration process smoother?

(Open text response)

Appendix 8: Philological Dictum

Stephanie Flores Bradshaw

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Belize District, Belize
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Academic Tutor
Master's Degree in Project Management
Universidad para la Cooperación Internacional
C. 35, Barrio Escalante
San José 10101
Costa Rica

November 20, 2024

Re: Philological Review of Final Graduation Project submitted by Janeli Gissel Manzanero in partial fulfilment of requirements for a Master's Degree in Project Management (MPM)

Dear Academic Tutor,

With this letter, I confirm that I have reviewed the Final Graduation Project (FGP) submitted by MPM candidate Janeli Gissel Manzanero entitled "Project Management Office (PMO) Proposal for a Construction Company in Belize."

I hereby confirm that Janeli Gissel Manzanero has made all the corrections to the FGP as I have advised as philologist. It is my professional opinion that the document meets the literary and linguistic standards in written English as required for the MPM by the Universidad para la Cooperación Internacional.

Warm Regards,

Stephanie Flores Bradshaw
Philologist

Valdosta State Univers

This Certifies That

The Board of Regents of the University System of Georgia Upon Recommendation of the Faculty of Valdosta State University

Has Conferred on

Stephanie Denise Flores-Bradshaw

the Degree of

Master of Arts

English

with all the Rights, Privileges, and Honors thereunto appertaining.

Whereof the seal of the University and the signatures of its duly authorized officers are hereto affixed.

Given this thirtieth day of July, in the year of our Lord two thousand and eleven

Chancellor of the University System of Georgia

President of the University

Dean, Division of Graduate Studies

Registrar

Stephanie Flores Bradshaw

Lot 18 Castillo Estate, 13.5 Mls Philip Goldson Hwy, Belize District | (501)605-7888 | sdfloresbradshaw@gmail.com

Profile

Content analyst working with the Central Bank of Belize, the monetary authority in the country. My training and experience as a teacher, writer, and editor prepared me for this niche field, functioning as editor-in-chief and content strategist in a high-demand office that melds corporate strategy, project management, and financial education. My latest pursuit is to build capacity in business and strategy management to take on further leadership roles in the organization and beyond.

Experience

CONTENT ANALYST | CENTRAL BANK OF BELIZE | MARCH 2015 - PRESENT

- Manage website redesign project; lead project team in planning, designing, executing, and monitoring phases; recommend and implement user-centered design to meet organization's end-goal.
- Develop and implement organization's content strategy.
- Manage creation, approval, and publication of digital and other public communications.
- Train and support over 30 content creators in building content management competency.

TUTOR, WRITER, EDITOR | FREELANCE | JANUARY 2010 - PRESENT

- Draft and edit corporate communications, reports, scripts, advertisements, speeches, and other texts.
- Tutor undergraduate and graduate students in crafting academic papers or theses.

ADJUNCT ENGLISH INSTRUCTUR, RESEARCH ASSISTANT | VALDOSTA STATE UNIVERSITY | AUGUST 2010 – JULY 2012

- Designed and taught freshmen composition courses.
- Instructed English as a second language to international students.

LEGAL ASSISTANT | BARROW & WILLIAMS LAW OFFICE | OCTOBER 2022 – AUGUST 2008

- Coordinated commercial and real estate transactions; prepared and filed submissions for court proceedings; provided administrative support to Senior Counsel.

Education

MASTER OF BUSINESS ADMINISTRATION | DECEMBER 2023 | SHIPPENSBURG UNIVERSITY, PENNSYLVANIA

MASTER OF ARTS IN ENGLISH | JULY 2011 | VALDOSTA STATE UNIVERSITY, GEORGIA

BACHELOR OF ARTS IN ENGLISH | AUGUST 2009 | VALDOSTA STATE UNIVERSITY, GEORGIA

Certification

CERTIFICATE IN STORYTELLING AND CONTENT STRATEGY | AUGUST 2011 | UNIVERSITY OF WASHINGTON PROFESSIONAL & CONTINUING EDUCATION, SEATTLE, WASHINGTON