

## **Discussion of Handling Delays in Malaysian Government Projects via PMBOK Knowledge Areas: Learning from Project Management Failure**

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DOI: <https://doi.org/10.30880/aitcs.2023.04.02.126>

Received 14 November 2023; Accepted 16 November 2023; Available online 30  
November 2023

**Abstract:** With an emphasis on developing public infrastructure, the Malaysian government played a vital role in the regional construction market. On the other hand, prolonged project timeframes and cost overruns have resulted from delays in government projects, which are ascribed to poor project management. With an emphasis on comprehending the roles played by customers, contractors, and consultants in project delays, this study attempts to look into the underlying causes of these delays. This study uses questionnaire surveys as its primary research approach in an effort to gain important insights into the variables causing these delays. The results will highlight important patterns and trends in ineffective project management. The findings of this study will provide the groundwork for further initiatives aimed at improving project management in Malaysia's construction industry.

**Keywords:** government projects, project delays, construction industry, project management, Malaysia

### **1. Introduction**

Project management typically refers to the tasks that include defining a project demands, specifying the type of work, allocating required resources, planning and implementation phases, and controlling the project progress stages [1]. The construction industry plays a pivotal role in Malaysia's economy, with the government being the largest client, primarily focusing on public infrastructure development. Despite a substantial allocation of RM260 billion under the 11th Malaysia Plan and a total commitment of RM 875.2 billion from the 1st to the 10th Malaysia Plan, project delays have emerged as a significant issue.

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These delays, often attributed to poor project management, contribute to an alarming 10.3% of project costs. In fact, it has been reported that 89% of construction projects in south/central Peninsular Malaysia are facing cost overruns at 5-10% of the contract price. Such delays not only lead to financial losses but also result in additional costs due to extended insurances, prolonged use of site office overheads, labour and equipment, standby costs, and other intangible costs such as opportunity cost.

This paper aims to investigate the causes of these delays due to contractors, clients and consultants who were involved in delayed government projects. By understanding these causes, this paper seeks to offer recommendations for improving project management practices towards on-time government project delivery.

## **2. Results and Discussion**

The issue of delays in Malaysian Government Projects will be discussed through the lens of five PMBOK Knowledge Areas, including project time management, project quality management, human resource management, project communication management, and project cost management.

### **2.1 PMBOK Knowledge Area 1: Project Time Management**

When speaking of delays in Malaysian government projects, time management is definitely a factor. This is because delays typically refer to the inability of a party to manage their time effectively to provide the deliverables within an agreed upon timeframe. Therefore, the purpose of this section is to identify the causes for these failures for each party and the possible remedies which relate to the Project Management Body of Knowledge's Time Management Knowledge Area.

#### **2.1.1 Project Time Management for the Contractor**

According to the article there are 13 causes that can be attributed to contractors for the delays in Malaysian government projects. However, only 4 of them have been identified to be relevant to the Knowledge Area of Time Management. This includes poor site management, delay of delivery of materials to site, labour non-productivity and construction mistakes.

The first-time management related cause is the contractor's poor management of the construction site. This is because poor site management causes work at the construction site to be done inefficiently. To illustrate this point, contractors that poorly manage the site by assigning the wrong labourers to the wrong tasks causes the inefficient use of manpower. This will in turn cause the team to fall behind their schedule. Therefore, to efficiently manage their manpower and thus, their time; contractors should appoint capable subcontractors. The task of a capable subcontractor is to optimise the operations on the construction site. With proper optimisations in place, contractors will be able to manage their time more realistically as capable subcontractors are able to manage the construction site to better meet the time constraints.

The second time management related cause is the delay of the delivery of materials to site. This will cause a delay in the contractor's schedule because materials are the prerequisites to construction work; if there are no materials, there will be no construction. To overcome this issue, the contractor should create contingency plans that are able to take such delays into account. These contingency plans include, having a proactive materials delivery approach, diversifying the material suppliers, having a buffer of construction materials ready on site and having a buffer in the schedule to account for potential delays. By incorporating contingency planning into the contractor's time management workflow, the contractor is able to create a schedule that is more robust to delays in the delivery of materials to site,

leading to more effective time management according to the Project Management Body of Knowledge's Time Management Knowledge Area.

The third time management related cause is labour non-productivity. Labourers are the foundation of construction work. Thus, if the labourers are not productive, the time management schedules produced by the contractors will not be followed. To overcome this issue, contractors should acquire more skilled workers that are specialised and capable. However, the acquisition and maintenance of skilled workers is not easy as they too can be prone to low performance [2]. According to the paper titled "Causes of Low-Skilled Workers' Performance in Construction Projects" by Nigerian and Malaysian researchers, the top 3 reasons why skilled workers show low performance is due to low wages, lack of sufficient skill acquisition centres for skilled workers and lack of incentive scheme programmes for skilled workers [2]. Therefore, contractors should not only work to acquire skilled workers, but also provide incentives to improve their motivation and performance to ensure that the project can be kept on schedule.

The fourth time management related cause is construction mistakes. The reason this is relevant to time management is because construction mistakes may cause further delays in the project schedule. For example, mistakes in the material acquisition stage will cause delays as materials need to be acquired once more; or construction progress will be reversed if it is not up to the standards specified in the design. Therefore, contractors should be capable to not only minimise mistakes but also take any mistakes into account via contingency planning as mentioned above. However, construction mistakes also fall on the shoulder of the client; a party which will be further elaborated upon in the next section. This is because the client has the responsibility to perform proper background checks and research to select a trustable and capable contractor that can avoid construction mistakes for the success of the government project. Thus, contractors should identify and consider any possible construction mistakes when managing time while the clients should carefully select a contractor that is capable enough to manage time in a way that minimises delays and mistakes.

To conclude, the contractor has a large responsibility to prevent delays via time management. The actionable available to the contractor include appointing a capable subcontractor for site management, proper contingency planning for logistical delays and construction mistakes and acquisition of skilled labour to increase productivity for construction projects.

### **2.1.2 Project Time Management for the Client**

According to the article there are 6 causes that can be attributed to clients for the delays in Malaysian government projects. However, only 2 of them have been identified to be relevant to the Knowledge Area of Time Management. This includes slowness in making decisions and the slowness in progress payment.

Firstly, project clients should address the slowness of their decision making process. This is because making decisions slowly will cause a bottleneck in the project execution. This can be further explained as clients are the main cost-bearing stakeholder where the execution of the project depends on the client's decision. Project clients should manage their time effectively by limiting and minimising the amount of time they spend in the decision making phase. However, to do this, they have to make effective administrative decisions in a timely manner. The SMART goals model is able to aid in this situation as it guides the client to set Specific, Measurable, Assignable, Realistic and Time-related goals that are clearly defined which removes the fuzziness of abstract objectives that complicate the decision

making process [3]. Therefore, clients should set goals according to the SMART model for increased clarity to effectively manage their time and speed up the decision making process.

Secondly, the client's slowness in progress payment also causes delays in governmental projects. This is because the client's payment is required to cover labour, overhead, materials and many other costs. To prevent this in the future, clients should manage their time and perform payments in a way that adheres to the contractual provision. To do this, clients should discuss a contract that is practical for them. After this, they should manage their time by creating a payment schedule that states clearly how they would acquire the funds before the payment deadline and related contingency plans to handle uncertainty. Thus, clients that plan for their scheduled payments can prevent the project from being further delayed due to late payments.

To conclude, the client has a large responsibility to prevent delays via time management. The actionable available to the client include creating SMART goals to aid faster decision making to adhere to their defined time management schedule and creating financial plans and schedules to prepare themselves for contractual payments.

### **2.1.3 Project Time Management for the Consultant**

According to the article there are 16 causes that can be attributed to the consultant for delays in Malaysian government projects. However, only 6 of them have been identified to be relevant to the Knowledge Area of Time Management. This includes improper planning and scheduling, changes in designs, changes in specifications, slowness in approving major changes in scope of work, slowness in approval of shop drawings and slow preparation of shop drawings.

The first is improper planning and scheduling that stand out as a primary culprit. Consultants should avoid imposing major changes in design during construction, unless absolutely necessary. Any changes to the design should be carefully evaluated and approved by the client and other stakeholders before being implemented. For successful project completion, consultants must exhibit excellent coordination, project management skills, and produce comprehensive documents during the planning stage. Additionally, a well-defined site management plan schedule is imperative.

The second time management related cause is changes in designs and specifications can disrupt project timelines significantly. Consultants should avoid imposing major changes in design during construction, unless absolutely necessary. Any changes to the design should be carefully evaluated and approved by the client and other stakeholders before being implemented. To mitigate these issues, consultants should refrain from imposing major design and specification changes during construction, emphasising the importance of stability in project parameters.

The third time management related cause is slowness in approving major changes in the scope of work and shop drawings, as well as the slow preparation of shop drawings, contribute to project delays. Consultants should avoid imposing major changes in specifications during construction, unless absolutely necessary. Any changes to the specifications should be carefully evaluated and approved by the client and other stakeholders before being implemented. To address this, consultants should focus on clearly defining the scope in the design brief, ensuring timely approval of major changes, and adhering to project schedules for shop drawing preparation and approval.

However, beyond these six, other factors contribute to project delays. Effective communication is crucial, necessitating established channels and regular updates to keep all stakeholders informed. Inadequate resource allocation and poor risk management can also hinder progress, emphasising the

need for careful assessment and proactive planning. A lack of experienced personnel may lead to inefficiencies, highlighting the importance of a skilled project team and ongoing training. Inefficient project execution, unforeseen site conditions, and delayed decision making further exacerbate delays, underscoring the importance of streamlined processes, thorough site assessments, and prompt decision making. Ineffective quality control can result in rework, emphasising the need for rigorous inspection and adherence to quality standards. Unresolved disputes and insufficient contingency planning pose additional challenges, requiring mechanisms for prompt conflict resolution and comprehensive contingency plans.

In conclusion, addressing delays in Malaysian government projects requires a multifaceted approach. While the identified causes within the Knowledge Area of Time Management are crucial focal points, considering and mitigating the broader spectrum of challenges will contribute to more successful and timely project outcomes. This comprehensive strategy encompasses effective communication, resource allocation, risk management, personnel expertise, project execution, site assessment, decision making, quality control, dispute resolution, and contingency planning. Through a holistic approach, the Malaysian government can enhance the efficiency and success of its projects, meeting both timelines and objectives.

## **2.2 PMBOK Knowledge Area 2: Project Quality Management**

When discussing delays in Malaysian government projects, quality management is a critical factor. Project Quality Management includes the processes for incorporating the organization's quality policy regarding planning, managing, and controlling project and product quality requirements to meet stakeholders' objectives [4]. Therefore, the purpose of this section is to identify the causes of these failures for each party and the possible remedies that relate to the Project Management Body of Knowledge's Quality Management Knowledge Area.

### **2.2.1 Project Quality Management for Contractor**

There are a total of 13 factors that contribute to the causes of delayed government projects in Malaysia due to contractor. Yet, there are only five out of thirteen factors that have been determined to have a connection with the Knowledge Area of Quality Management. The five factors are poor site management, inadequate experience, poor project management practices, construction defective works, and construction mistakes.

Firstly, poor site management, inadequate experience, and poor project management practices are also factors that cause delays in government projects in Malaysia. This is because effective site management and experience are essential to ensure the quality is in the standard range. Without proper oversight, there may occur defects, errors, and deviations from quality standards during the project. To overcome these factors, contractor should have good skills in project management to minimise and improve overall quality.

Secondly, construction defective works will affect delayed government projects because when the government identifies defective works, they require rework and correction to meet quality standards, and they need to go through rigorous quality checks and approvals. This additional work can extend the project timeline and lead to project delays. To avoid this factor, contractor should have a proactive materials delivery approach to identify and address any issues early.

Thirdly, construction mistakes can seriously affect the delay of government projects because this can lower the quality of the construction, which then requires extra quality control and assurance

procedures to make up for. The contractor should provide adequate trainings to the workers to give them the skills and knowledge necessary to perform their tasks accurately and efficiently to prevent this from happening again. This reduces the probability of mistakes due to a lack of competence and ensures they understand and follow the required quality benchmarks.

In conclusion, there are several factors by the contractors that will affect the quality of the work and thus lead to delayed government projects in Malaysia. Therefore, contractors need to take some actions to overcome these problems, such as robust project management skills, proactive delivery of materials, and proper adequate training of workers.

### **2.2.2 Project Quality Management for Clients**

There are a total of 6 factors contribute to the causes of delayed government projects in Malaysia due to clients. Yet, there are only two out of six factors that have been determined to have a connection with the Knowledge Area of Quality Management. The two factors are changes in design and failure to provide the required construction site.

Firstly, changes in design initiated by clients can impact on project quality management from different perspectives, such as cost, schedule, quality, and more. When changes occur in the design, it will lead to changes in requirements, which will directly affect the cost, delivery time, and quality. Clients tend to make changes in the design will always have effect on the quality of project [5]. Moreover, these changes have a high possibility of needing help to meet the expectations or requirements of the stakeholders. To overcome this problem, clients should not impose major changes during construction.

Next, failure to provide the required construction site by clients will affect the delayed government projects because there are concerns about safety and health issues for workers and the surrounding community when there is a lack of preparation before starting the project. There might be hazardous materials in the construction site that must be removed before starting the project. Furthermore, it will be difficult for the project manager to implement the quality control measures effectively as clients are unable to provide the required construction site. Hence, this factor is fulfilled with project quality management. In order to avoid this factor, clients should ensure the construction site is ready and accessible before the project starts.

In conclusion, changes from the client side in the project design can obviously impact project quality management. Major design changes during the construction period may disturb the project's stability. Furthermore, the failure of clients to ready the construction site can result in delayed government projects, hazards and hindering effective quality control implementation. To ensure the project can be delivered successfully within the time given, clients should always prioritise early planning, and the construction sites are always prepared.

### **2.2.3 Project Quality Management for Consultants**

There are a total of 16 factors that contribute to the causes of delayed government projects in Malaysia due to consultants. Yet, there are only seven out of sixteen factors that have been determined to have a connection with the Knowledge Area of Quality Management. The seven factors are poor site management, improper planning, poor project management practices, changes in designs, changes in specification, inadequate experience of consultants, and incomplete documents.

Firstly, poor site management due to consultants is one of the factors that cause delayed government projects in Malaysia. This factor can result in a lack of coordination and inadequate supervision [6]. These can lead to the consequences of rework, accidents, and construction errors which will delay the whole project. Moreover, poor site management can cause over-budget, delays in schedule, and quality problems which will influence the satisfaction of stakeholders. Therefore, the consultant should do site inspection on time to ensure that there is always a second plan when any accident happens that will affect the progress of the project. The site inspection will be able to improve the quality of the project.

Secondly, improper planning and incomplete documents due to consultants are also factors that cause delays in government projects in Malaysia. Poor communication is one of the causes of improper planning. It can lead to misunderstandings between stakeholders, slow decision making, and revisions. Clients might change their requirements if there is a miscommunication happens. Moreover, incomplete documents can cause delays in the progress of the project due to the missing of permits and approval. Without a completed document, it will be difficult to understand the project requirements and specifications. Hence, consultants should have good skills in project management so that they can plan well during the early stages to avoid delays in government projects.

Thirdly, poor project management practices and inadequate experience of consultants will affect the quality of the project because of inefficient resource management that might lead to shortages and delays in the project. Lack of quality control and assurance due to poor project management practices will cause errors when the project is running. Consultants with less experience will struggle to determine project risks and they will face difficulty in handling unexpected issues. Scope creep is also an issue if projects are handled by consultants that are inadequate experience in project management. To solve the factors mentioned, consultants should have good skills in project management through learning and practice.

On the other hand, the cause of delayed government projects in Malaysia included consultants making changes in designs. There will be additional review and approval from the stakeholders which in result made the consultants change the designs as it will be time-consuming to get the approvals. In addition, the additional review and approval might change the quality of the project from many aspects, such as the materials, location and more. Furthermore, the project scope will change, and adjustments in the project are needed, and all these might cause the objectives of the project to be different from the initial goals. The improvement plan to resolve this factor is that the consultant should not impose significant changes in the design during construction.

Lastly, the cause of delayed government projects in Malaysia included the consultants making changes in specifications. The changes in specification will lead to scope and design modification, which request additional work to be completed. Moreover, the resources needed in the project will be reallocated to fulfil the changes which might disturb the overall workflow. Coordination challenges will occur as there will be new requirements from new project stakeholders. Every change to the specification will require updating the quality assurance and control measures to ensure the project always meets the quality standard. The improvement plan for this factor is the consultant should not impose major changes in specifications during construction.

In conclusion, project quality management can effect on the delayed government projects in Malaysia with the factors mentioned above. These factors can bring various of challenges, which include rework, scope changes, resource allocation, and more, which ultimately impact on the project quality and timeline. Therefore, it is vital for consultants to have effective communication with the

project stakeholders during the early phase, proper planning, and project management practices in order to avoid or minimize changes happening in design and specifications during the construction phase to enhance the project quality management.

## **2.3 PMBOK Knowledge Area 3: Project Human Resource Management**

Human Resource Management plays an important role to the succeed of a project. It involves managing people involved in a project, including contractors, clients, consultants, etc. This knowledge area is significant to ensure effective communication, coordination, and resource allocation. Basically, it is concerned with acquiring the right team, ensuring their satisfaction, and tracking their performance [7]. However, in the context of delays in Malaysian government projects, it has been observed that poor project management practices cause to these issues. Therefore, this section aims to analyse the causes of these issues related to contractors, clients and consultants from the perspective of the Project Management Body of Knowledge's Human Resource Management Knowledge Area. It also presents some improvement plans to enhance project management practices to ensure the success of the project.

### **2.3.1 Project Human Resource Management for Contractor**

According to the article, there are 13 causes related to contractors for the delays in Malaysian government projects. Yet, only 7 of them have been identified to be relevant to the Knowledge Area of Human Resource Management. These includes financial difficulties, problem of subcontractor, shortage of labours, poor site management, poor coordination with other stakeholders, poor communication with other stakeholders and poor project management practices.

One significant cause of problems in project human resource management with contractors is financial difficulties. When financial difficulties limit the contractor's ability to pay workers and hire the demanded labour, it hinders the effectiveness of human resource allocation within a project. Consequently, the project may face challenges in maintaining a stable workforce, leading to delays and quality issues. To address this problem, the project managers should implement improvement plans such as improving financial management practices. They are required to closely monitor the project budget to ensure the funds are allocated efficiently and prepare other contingency plans for emergency use. Furthermore, the project managers can discuss with contractors in organizing payment schedules that align with the project milestones, which ensures a smoother cash flow during project execution.

Besides, another cause is the problem of subcontractors in project management. Basically, subcontractors are hired to handle specialized tasks. Sometimes, this can lead to some issues such as project delays, quality issues, and an increase in costs if the tasks are not managed properly. To overcome this problem, it is vital to select reliable subcontractors who are experts in the tasks. The project managers should also outline the terms and conditions, responsibilities, and commitments clearly and easy to understand. Thus, this can reduce the disruptions and misunderstandings among contractors during project execution.

Moreover, the cause of challenges in project human resource management is shortage of labour. Nowadays, due to the higher demand for labour in many construction and infrastructure projects, finding and retaining skilled labour become a difficult task. As a result, this leads to delays in project timelines and affect the project quality. To solve the issue, project managers can invest in workforce planning and development such as assessing the labour project's requirements and providing training to the labour to enhance their skills to ensure their availability when needed.

Next, poor site management is also a significant cause in project human resource management with contractors. It involves overseeing and coordinating the workforce at the project site. This can result in inefficient use of labour and resources. One of the improvement plans is the contractor should have good skills in project management such as the way to manage and coordinate human resources effectively at the project site. This can improve their project management skills to have better site management in order to increase the effectiveness of project human resource management.

Not only that, but some of the causes also related to project human resource management with contractors include poor coordination and communication with other stakeholders, and poor project management practices. Good human resource management requires coordination with other stakeholders such as subcontractors, project team members, etc. However, poor coordination can affect time delays and conflicts in human resource management. Whereas communication is the most important aspect of human resource management. Poor communication with stakeholders can lead to misunderstandings, which impacts the project deliverables and overall productivity.

Additionally, effective human resource management is fundamental of overall project management practices. Poor project management practices can result in issues related to team organization, communication, and resource allocation. To overcome these problems, some alternative ways are consultants should have good coordination and communication by improving their skills to have better collaboration with other stakeholders. Plus, the contractor should have good skills in project management to ensure human resource management in an organized way.

In conclusion, effective project human resource management for contractors is crucial for the success of any project. By addressing the causes of issues such as financial difficulties, problem of subcontractor, shortage of labours, etc, through improvement plans, the project managers can enhance project management practices which contribute to the success of project outcomes.

### **2.3.2 Project Human Resource Management for Client**

Based on the evidence presented in this article, it has been identified that there are six client-related causes that contribute to significant delays in government project execution in Malaysia. Only two out of these causes fall under the Knowledge Area of Human Resource (HR) Management. These include slowness in making decisions and improper scheduling. These causes can lead to substantial impact on its overall project timeline and successful project completion.

First and foremost, slowness in decision making. The process of decision making, as described by Herbert Simon, involves evaluating and choosing courses of action. This process typically occurs after agendas have been fixed, goals have been set, and actions have been [8]. Sometimes, clients might be slow in making decisions due to a lack of clarity about the roles and duties within their team or insufficient understanding about the project. This could be due to insufficient information, changes in their requirements, or even internal conflicts within their organization. A significant challenge could arise if a client involved in the project resigns and there is no one available to take over their responsibilities or continue working with the project manager.

In addition, in terms of improper scheduling, clients might fail to deliver sufficient resources or approval on time, which can cause the delay of the project schedule. This is because some tasks may require specific resources or approval at various stages of a project such as approval of designs, plans, etc. Apart from that, clients might change their requirements frequently, leading to constant adjustments

and modifications to the project timeline. Most importantly, frequent demand changes may lead to confusion among the project HR management team and reducing their efficiency and productivity,

Hence, to overcome the issues of slowness in decision making and improper scheduling due to the clients, the following improvement plans could potentially help to address the issues mentioned above. For instance, administrative decisions by clients should be effective. With clear decisions, the project HR management team can allocate human resources more efficiently, ensuring the right people are working on the right tasks at the right time. Next, the client should avoid making major changes to the requirements of the project. This allows the project HR management team to manage resources effectively without having to constantly adapt to changing requirements. By implementing these improvement plans, this can lead to a more efficient and successful government project execution in Malaysia to improve the national economic growth.

### **2.3.3 Project Human Resource Management for Consultant**

The responsibilities of the Project Management Consultant (PMC) hired by the client generally are to create a specific final product by counting the technical specification, cost and schedule using the organizations sources that already have [9]. This article reveals that there are 16 identified causes contributing to the delay of government projects in Malaysia due to the consultants. Out of these 16 causes, there are eight causes under the purview of project Human Resource (HR) management. These include poor communication with other stakeholders, poor coordination with other stakeholders, poor site management, improper scheduling, poor project management practices, consultant team non-productivity, inadequate experience of consultant, and shortage in consultant team.

Firstly, poor communication with other stakeholders. When consultants fail to communicate effectively with other stakeholders, it can lead to misunderstandings and misinterpretations, which can have a domino effect, leading to delays in project execution. Hence, effective communication is the key to a successful project execution. For instance, consultants should enhance their communication skills, ensuring clear, concise, and timely information exchange with all stakeholders.

The following cause of delay in government projects in Malaysia is poor coordination with other stakeholders. Poor coordination can result in tasks being done out of sequence or resources not being available when needed, causing delays. To improve this, consultants in the project HR management team should focus on improving their coordination skills, ensuring that all tasks are executed in a synchronized manner and resources are optimally utilized.

The third cause is poor site management. The physical site of a project is where all the plans come to fruition. If consultants do not manage the site effectively, it can lead to numerous issues such as safety hazards or inefficient use of resources, contributing to project delays. To ensure that all on-site activities are carried out smoothly and safely, consultants in the project HR management team should develop a comprehensive site management plan schedule that outlines all on-site activities and their timelines.

The fourth cause is improper scheduling. Sometimes, consultants may not properly plan when and who will do each task, resulting in tasks taking longer than planned or resources not being available when needed. This could be due to a lack of understanding of the project's timeline or not having a clear plan of action. Thus, to ensure that all tasks are planned and executed in an orderly manner, consultants should provide a reasonable project schedule duration, taking into account all tasks, their dependencies, and the resources available.

The fifth cause is poor project management practices. These poor practices may include lack of risk management, poor quality control or due to budget-related issues. To avoid such poor project management practices, consultants should identify possible risks in the early phases as part of risk management practices to mitigate any potential issues that could cause delays.

The sixth cause is consultant team non-productivity. There are various factors that can cause a team to not perform productively. These problems could be due to personality clashes, poor communication, lack of cooperation, or lack of trust among team members. To address these issues, the project manager should focus on hiring skilled workers who can contribute effectively to the project and provide adequate training to the pre-hire consultants.

The seventh cause is inadequate experience of consultant. The experience of consultants plays a significant role in their ability to manage projects effectively. Inexperienced consultants may lack the necessary knowledge or skills to foresee potential issues and mitigate them before they cause delays in project execution. One more thing to emphasize is that inadequate experience as a consultant cannot help in providing valuable insights to the project manager in decision-making. Hence, adequate training should be provided to the consultants to help in managing the project effectively.

The eighth and final cause is shortage in consultant team. A shortage in the consultant team can overburden the existing members leading to burnout and decreased productivity. This is a significant factor that can lead to delays in project completion. When there aren't enough consultants on a team, the existing members may have to take on additional responsibilities to compensate for the shortfall. This can lead to an increased workload and longer working hours. Therefore, to address this issue, consultants should ensure that they have sufficient team members to handle all aspects of the project effectively.

In conclusion, while consultants play an integral role in project management, there are certain areas related to HR management where improvements can be made to prevent delays in government projects in Malaysia. By implementing these improvement plans, it is possible to address the identified causes contributing to the delay of government projects due to consultants.

## **2.4 PMBOK Knowledge Area 4: Project Communication Management**

Project communication management is one of the main important factors that causes delay in construction projects. According to the article, communication problems are the most frequent problem occurring in a construction project. Communication management is very important in a construction project because a construction project usually involves many stakeholders from different parties which are contractors, clients, and consultants. To complete a project that meets stakeholder requirements and expectations, all parties need to communicate and coordinate well. Therefore, the purpose of this section is to identify the causes for communication problems for each party and the possible remedies which relate to the Project Management Body of Knowledge's Communication Management Knowledge Area.

### **2.4.1 Project Communication Management for Contractor**

There are 13 causes that can be attributed to contractors for the delays in Malaysian government projects according to the article. However, only 4 of them have been identified to be relevant to the Knowledge Area of Communication Management. This includes problems of subcontractors, poor site management, poor communication with stakeholders, and poor coordination with stakeholders.

The first cause of delay in construction projects related to communication management is the problem of subcontractors. A construction project may involve a main contractor and many subcontractors from different specialised fields. Most of the labour groups from different subcontractors have their own way of doing things. If the subcontractors of a project are not on the same channel with the main contractor, the project will probably face a lot of disaster such as conflict between subcontractors, clash in project scheduling, and failure to meet client requirements [10]. Hence, it is crucial to let all subcontractors stay connected with the main contractor. Main contractor is responsible for uniting and organising all subcontractors to ensure all of them are on the right track. Therefore, the main contractor should host meetings with subcontractors regularly to get known of their progress and discuss the project details with them.

The second cause of delay in construction projects related to communication management is the poor site management by contractors. Contractors have the responsibility to manage the project site by providing proper planning, technical information, and resource allocation. The main factor that leads to poor site management is communication failure. Most of the poor site management cases are caused by contractors who failed to provide clear information to all layers of workers [11]. Unclear command can cause some of the lower layer workers unclear of their jobs roles, and did not complete their task in time, eventually causing the delay in project happens. Hence, to improve site management, the contractor should ensure that all information related with the project can reach all layers of workers, this can be done by appointing personnel with good communication skills as site manager, to manage and monitor all workers in sites and provide them with necessary information.

Then, the third cause of delay in construction projects related to communication management is the contractor's poor coordination with other stakeholders. A construction stakeholder can include contractor, client, and consultant. Coordination means planning and organising resources between different parties to ensure that the project reaches standard on maximum efficiency [12]. Poor cooperation and coordination between contractor and other stakeholders can affect the efficiency of project resource distribution and cause the project schedule to delay. Therefore, contractors need to have meetings with other stakeholders regularly to report the progress and address project-related issues so that other stakeholders can cooperate with the contractor with their available resources and increase the efficiency of the project.

Next, the fourth cause of delay in construction projects related to communication management is the contractor's poor communication with other stakeholders. Communication between stakeholders in a construction project means delivery of latest information related with the project from one party to other involved parties [12]. Contractor failure in communication with other stakeholders may cause issues such as misunderstood requirements. When a contractor misunderstood requirements of other stakeholders, the project outcome may not align with expectations of other stakeholders, causing the contractor to spend more time to modify the misunderstood part, which can ultimately lead to project delay. Thus, the contractor should establish a communication channel with other stakeholders and ensure that all of their progress and any changes are always updated in the channel, to avoid construction issues due to poor communication.

In conclusion, there are several causes of delay in construction projects due to contractor bad communication management. Contractors need to maintain and take care of their relationship with other stakeholders including subcontractors, clients and consultants, to ensure that every party is on the same route, and prevent any misunderstanding and failure in providing information. This can be done by establishing communication channels between different stakeholders and providing latest information to them or having regular meetings with different stakeholders.

### **2.4.2 Project Communication Management for Client**

According to the article, 6 causes were recorded in the results of data analysis on the causes of delayed government projects in Malaysia. However, only 2 of the causes of delays have been identified to be relevant to the Knowledge Area of Communication Management. This includes changes in design and slowness in making decisions.

The first discussion about one of the significant causes of delays in government projects in Malaysia related to the Knowledge Area of Communication Management for clients is the changes in design. These changes can arise due to various reasons, but this discussion will analyse the client expectations. When communication between project teams, especially the designers and the client does not perfectly understand each other requirements, the process of approval will become slow, and the implementation might become terrible if it does not fulfil the requirements. This lack of efficient communication management can result in project delays as adjustments are made, and the project team struggles to adapt to new design requirements. Hence, to address the causes of delays in the changes in design, the client should be willing to give more scarce attention, listening and calling about the requirement, the project teams also need to tell the client the operation, issue and concerns to prove the benefits to do so [13].

Client slowness in making decisions is one of the communication issues that will cause delay of project. This is because a construction project will have critical tasks and phases that need client approval and decisions to carry on. Certain essential tasks cannot be initiated without the approval and decision of the client. Hence, if the client is always slow in making decisions, the project schedule will be paused many times, eventually causing delay in project completion. Therefore, clients need to have a faster decision making process. In order to make faster decisions, the client can have more interaction and communication with other stakeholders like contractors and consultants to get their opinions and use these opinions to support the decision making process.

In conclusion, the client also is included in part of the project element no matter in relation to client requirements until the communication with the stakeholder or project team. The causes of delay that are related to communication such as changes in design and slowness in making decisions are equally important to the project teams to take care when proceeding a project. Clients also need to give cooperation to the project teams, to make sure the workflow is going smoothly, and everybody holds in position.

### **2.4.3 Project Communication Management for Consultant**

According to the article, 16 causes can be attributed to the consultant for delays in Malaysian government projects. However, only 2 of them have been identified to be relevant to the Knowledge Area of Communication Management. This includes poor communication with other stakeholders and improper planning.

This article has clearly stated that poor communication between consultants and other project stakeholders can significantly contribute to delays. In a project segment, consultants play an important role in providing expertise and guidance. However, when communication is lacking or ineffective, it can lead to misunderstandings, conflicts, and misleading project objectives. To address this problem, this article on improvement plans in managing government project delays that place the eighth (8) priority clearly defines that consultants should have good communication such as using the sentences in clear, open, and consistent communication with stakeholders and other relevant parties. Other

examples like conducting regular meetings, writing informational or progress reports, and providing feedback to prevent communication-related delays.

The next issue that has been analysed is improper planning. Effective communication by the consultant is essential in the planning phase to ensure that project objectives, timelines, and expectations are well-defined and understood by all parties. Consultants should engage in comprehensive discussions with project teams and relevant parties to align on project requirements and specifications. This includes clear communication about project scope, budget, and any potential challenges. Consultants can reduce the likelihood of issues arising during project execution that could lead to delays. Consultants play an important role in having the proper planning, supported by effective communication, which is essential for project success.

In conclusion, to solve the problem of delays in Malaysian government projects, everybody that is related to the project must play their own role to succeed the project. While the identified causes within the Knowledge Area of Communication Management such as poor communication with other stakeholders and improper planning, considering challenges to overcome and to contribute to more success. Through a holistic approach, the Malaysian government will more effectively and efficiently complete and succeed the projects, hence meet the project objectives and expected outcome.

## **2.5 PMBOK Knowledge Area 5: Project Cost Management**

Findings have also shown that poor cost management causes delays in Malaysian Governmental Projects. This is because the cost of property construction is large. Therefore, the purpose of this section is to identify the causes for these failures for each party and the possible remedies which relate to the Project Management Body of Knowledge's Cost Management Knowledge Area.

### **2.5.1 Project Cost Management for the Contractor**

According to the article there are 13 causes that can be attributed to contractors for the delays in Malaysian government projects. However, only 3 of them have been identified to be relevant to the Knowledge Area of Cost Management. This includes poor site management, construction defective works, financial difficulties, and shortage of labours.

The first cost-management related cause for delays are costs incurred due to defects in construction works. This is because defects in construction can be costly, requiring the contractor to spend more time and money to pay labourers, materials, re-designs and other costs. To prevent this from occurring, contractors should provide adequate training to workers to ensure that they are competent enough to perform the construction work with minimal defects. In the article "A review on training and leadership development: its effectiveness for enhancing employee performance in Indian construction industry" the ability to train labourers in the construction industry is a strategic tool to increase the overall performance of the contractor even though it may require the contractor to carry the training cost [14]. Therefore, contractors should be careful at managing cost and perform analysis to determine the optimal form of training that minimises both the losses from construction defects and the cost of training.

The second identified cause of delays is financial difficulties. This is because financial difficulties in construction projects include inaccurate cost estimates, unforeseen site conditions, scope changes, economic downturns, poor financial planning, delays in client payments, contract disputes, legal or regulatory issues, and fluctuations in interest rates and high financing costs. Addressing these factors requires proactive financial management, accurate cost estimation, strategic risk mitigation, and

clear communication with stakeholders, ultimately enhancing the financial resilience of construction projects and minimising the risk of delays. To mitigate this challenge, contractors should strive to maintain strong financial resources. A robust financial foundation enables contractors to navigate unexpected challenges and ensures a steady flow of funds for ongoing projects. Implementing sound financial management practices, such as budgeting and financial planning, can contribute to the stability required to address and overcome financial difficulties, ultimately preventing delays.

The third cause, shortage of labour, can be alleviated through the promotion of modern technology by the government. The shortage of labour in the construction industry is primarily caused by rapid urbanisation, heightened competition for skilled workers across industries, demographic shifts resulting in an ageing workforce, the cyclical nature of construction, a skills mismatch, and workforce attrition due to physical demands and safety concerns. Understanding these causes is crucial for developing effective strategies to address the shortage and sustain a skilled and adaptable workforce in the construction sector. Embracing technology in construction processes can enhance efficiency and productivity, compensating for the shortage of human labour. The government plays a pivotal role in encouraging and incentivizing contractors to adopt modern construction technologies. This includes promoting the use of advanced machinery, automation, and other technological innovations that can streamline construction processes and mitigate the impact of labour shortages. By doing so, the construction industry can enhance its overall capacity and resilience, minimising delays associated with workforce limitations.

To conclude, the contractor has a large responsibility to prevent delays via time management. The actionable available to the client include creating SMART goals to aid faster decision making to adhere to their defined time management schedule and creating financial plans and schedules to prepare themselves for contractual payments.

### **2.5.2 Project Cost Management for the Client**

According to the article there are 6 causes that can be attributed to clients for the delays in Malaysian government projects. However, only 4 of them have been identified to be relevant to the Knowledge Area of Cost Management. This includes financial difficulties, changes in design, improper scheduling, and slowness in progress payment.

Firstly, financial difficulties are one of the factors that cause delays in government projects in Malaysia. The reason is that they will lead to delayed payments or an inability to allocate resources effectively. To solve this issue, the client should have a good project financial plan that will show in detail how the funds will be distributed for all project costs. This helps ensure that the project remains within budget and financial difficulties are minimised.

Secondly, the cause for delays is changes in design because the client changes the project design may lead to additional costs. The client needs to redesign the project and reorder all materials which will be over the budget. This also will stop the ongoing work and disrupt the project timeline during construction then the associated costs will be increased. Thus, to address this issue the client should not impose major changes during construction.

Thirdly, improper scheduling is also the cause of delays in government projects in Malaysia. This will become a problem in cost management due to improper scheduling can increase labour and equipment costs. Thus, the client should ensure the construction site is ready and accessible before the project starts. The construction site preparation can ensure that labour and equipment can be deployed efficiently to avoid wasting time and higher costs.

Last but not least, the client's slowness in progress payment is one of the causes of delays in governmental projects. When the client cannot make payment on time then the contractor doesn't have enough funds to pay for labour, materials, and other expenses leading to financial difficulties affecting their operating project. Thus, payment made by the client should be on time within the contractual provisions.

In conclusion, there are four causes of the Knowledge Area of Cost Management affecting delays in Malaysia government projects. These factors include financial difficulties, changes in design, improper scheduling, and slowness in progress payments. To prevent these challenges, clients can employ proactive steps such as preparing a good project financial plan, payment made on-time within the contractual provisions, ensuring the construction site is ready and accessible before the project starts, and not imposing major changes during construction. By addressing these factors and implementing effective cost-management practices, clients can enhance the efficiency, timeliness, and cost-effectiveness of government projects in Malaysia.

### **2.5.3 Project Cost Management for the Consultant**

According to the article there are 16 causes that can be attributed to the consultant for the delays in Malaysian government projects. However, only 3 of them have been identified to be relevant to the Knowledge Area of Cost Management. This includes improper planning, change in design and inaccurate estimated project cost.

Firstly, improper planning is one of the factors that cause delays in government projects in Malaysia. Planning is the most important part in a project as it can directly affect project outcome. Hence, consultants have the responsibility to plan well at the beginning of a project, this includes allocating resources effectively, setting clear goals and milestones for each phase and identifying all potential risks in all phases. If the consultant failed to make proper planning, the project will most likely exceed the budget that had been set by the client, this will cause the project to delay as the consultant will need to discuss the budget issue with the client before continuing the project. Therefore, project consultants should make proper planning at the start of a project, such as setting up project budget limits for each phase, to control the project budget properly.

Secondly, changes in designs is one of the factors that cause delays in government projects in Malaysia. Consultant should avoid making any changes in designs of the project once the project has been initiated. This is because more cost will be needed to accommodate the design change in the project. For example, change in design may cause the materials ordered by the contractor to be wasted, and they need more cost to order new materials that fit new designs. The later in the project timeline that changes in designs occur, the more significant the cost implications will be when implementing these design changes. Changes in designs will increase project cost, and may cause budget overrun, which causes delay of the project at the end. Sometimes, changes in designs are unavoidable in a construction project due to client request. Therefore, the consultant should take account of these additional costs due to change in designs at the budget planning process, so that the project will always have the budget to deal with the sudden change in designs [15]

Lastly, inaccurate estimated project cost is also one of the factors that cause delays in government projects in Malaysia. Project consultants are responsible for the project cost estimation, which estimate costs of contractors, subcontractors, materials, labour and equipment. When the consultant estimated the cost too low, it may lead to budget overrun at the half of the construction, causing the project progress to be halted. Conversely, when the consultant did not do well in resource

allocation and just set the project budget over high, the consultant may face difficulties at client approval, and the client may request the consultant to redo and modify the budget planning again, until it is reasonable, which also leads to delay in project progress. Hence, the accurate estimation of the project cost is important in a project progress. Therefore, in order to make more accurate project cost estimation, the consultant should make cost estimation after analysing every aspect of the project, this includes unpredictable risks, whereby the consultant needs to add cost contingency to the budget plans.

In conclusion, consultants play an important role in project cost planning. Inaccurate project cost planning can lead to delay in project. Therefore, consultants need to ensure that the project cost is estimated accurately, at the same time include contingent costs to counter unpredictable events. The consultant also needs to inspect the project budget in every phase of the project, to ensure that the project follows the budget plan.

### **3. Conclusion**

In conclusion, this report discusses the current issues of project delays in Malaysian government projects highlighted by the study, especially in the construction industry. These delays have become a critical issue, resulting in substantial financial excesses and adverse economic impacts. The purpose of this report is to analyse the causes of these issues from the perspectives of contractors, clients and consultants and to provide some improvement plans to overcome them. This report uses the lens of the Project Management Body of Knowledge (PMBOK) framework to analyse the five essential knowledge areas for understanding and addressing project delays. This knowledge area includes project time management, project quality management, human resource management, project communication management, and project cost management.

The findings show project delays in Malaysian government projects are not limited to a single knowledge area, but are frequently interconnected. The main causes of project delays are poor integration of project components, inadequate scope definition, ineffective time management, and cost control issues. In addition, the stakeholders' involvement and management also played a vital role in causing delays severely. Some holistic approach that addresses these issues from the interconnected knowledge areas includes improving project planning and execution, enhancing stakeholder engagement and communication, and a more comprehensive understanding of project requirements.

Overall, by implementing these effective project management improvement plans, it is believed that government projects can enhance on-time delivery. This will not only reduce the financial losses, but also contribute to the overall project development and better project management practices within the Malaysia's construction industry. As a result, this will foster the economic growth and improvement.

### **Acknowledgment**

The authors would like to thank the Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia for its support.

*Penulis ingin mengucapkan terima kasih kepada Fakulti Sains Komputer dan Teknologi Maklumat, Universiti Tun Hussein Onn Malaysia atas sokongan dan dorongan sepanjang proses menjalankan tugas ini.*

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