

## The Necessity of the Project Manager in Housing Development: Case Studies in Penang, Malaysia

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**Abstract:** The housing industry contributes immensely to national growth, forms part of the productive economic sector and actively contributes to the gross domestic product (GDP) of a country. However, current threats and challenge have built up barriers that slow down the growth of the industry. The objectives of this paper are to identify the factors that cause the time and cost overrun of housing projects; to study the current project management practice in housing development project and its effectiveness in solving the housing development issues; to study the necessity of the project manager and application of effective project management practices and the necessity of the project manager to carry out effective project management practices so as to achieve project objectives. A comprehensive literature study and a series of case studies conducted by interviews with six prominent housing development companies in Penang were carried out. The personal interview was carried out as its effectiveness in obtaining comments and to probe opinions from the respondents. The questionnaire for this study is designed to collect data mainly on opinions, awareness and suggestions. The primary function of the structured questions is to guide the face-to-face personal interviews. The target respondents were senior project managers or persons holding a similar role in the company. Among all the factors, deficiency in project management practices is the main contributor to the low performance of housing development. The findings of this research have shown that the agreement of the necessity of Project Manager in effective project management in leading the housing project to success completion.

**Key words:** Project Management • Project Manager • Construction Industry • Housing Industries • Malaysia

### INTRODUCTION

To most individuals, housing represents the largest single investment item of a lifetime. This is a clear fact that most people know. Syafiee [1] stated that this scenario is especially true as family incomes increase and housing is viewed as a basic consumption and more as a key to a secure future. Ismail [2] also added that Malaysia, like other developing countries, considers housing as a basic need and one of the main sectors in the national economy. This is because housing provision is not only to meet the people's needs but also contributes to the national growth.

Generally, housing development is initiated by both the state government and the private sectors. According to the Asia Report Properties [3], Malaysia's housing market recovered strongly in the second half of 2007. Positive factors include Malaysia's improving economy, availability of loans to foreigners and no restriction to number of units that can be purchased, the strengthening of the ringgit that augurs well for the high-end residential

housing market, the government's efforts to exempt real property gains tax will spur foreign direct investment (FDI) and help the growth of the housing development industry. However, the existence of abandoned housing projects due to the failure by developers to complete their housing schemes that had been approved by local authority has led to the predictable under-performance of developers in the construction of housing schemes. The Ministry of Housing and Local Government of Malaysia have monitored the existence of housing abandonment in Malaysia since 1986 and reported that the accumulative figure of the total projects involved up to 31st December 2001 was 526. On top of that, a total of 261 projects were recorded as abandoned projects in year 2005 [4].

Through the literature review, most factors that lead to the cost and time overrun of the project or worse, that caused the project to be abandoned, is due to the inefficiency in project management (PM) practices in the housing industry. Interest in PM is growing significantly and an industry is evolving around PM training and education [5]. PM could be described as 'currently

fashionable', given the level of interest in the area. On the one hand, the PM is recognized to be the key enabler of business change and a vital contributor to future business success. However, on the other, projects commonly fail to meet their objectives [6]. Thomas and Mengel [5], also affirmed that role complexity, chaos and uncertainty play within our projects and project environments is gaining recognition in both research and practice. However, in the Penang housing development scenario, the project manager's role is not clearly defined and not a paramount concern. The project manager position is not a necessity requirement in Penang housing development projects and the scope of work and responsibility are not specified in the housing project contract form. Thus, this does lead to the need of studying the actual practice of PM process. Hence, it is time to review the understanding of the necessity of the project manager in housing development in Penang.

For the above reasons, this research is set to study and review the theoretical concepts, principles and practices of PM in the construction industry. Meanwhile, case studies on selected major housing development companies in Penang was carried out to study the current PM practices in the housing development and to determine both the effectiveness and weaknesses of the practice. A comparison will be carried out among the standard practice and the current practice in the industry.

**Research Objective:** The following research objectives have been identified:

- To identify the factors that causes the time and cost overrun in housing projects;
- To study the current PM practices in housing development projects and its effectiveness in solving housing development issues;
- To study the role of project managers and the application of effective PM practices to the housing development projects; and
- To study the necessity of project manager in effective PM in the contribution of achieving project objectives.

**Overview of Housing Development in Malaysia:** The provision of suitable housing is still one of the biggest problems faced in the world. It is known that increasing populations, immigration and natural disasters are the main reasons for the great housing demand. Furthermore, the conventional construction method, which commonly practiced in the building construction industry, is unable to respond to the huge demand in a short time with standard quality [7]. Today, the Western World has made

substantial progress in solving its housing problems. However, it is still a paramount problem for developing countries such as Malaysia, together with the issue of having better environmental quality [8]. This is a multidimensional problem and there are many issues related to the reasons for and the solutions to, the problem.

Malaysia just like other developing countries has considered housing as a basic need and one of the main sectors in the national economy. This is because housing provision is not only to meet the people's needs but also to contribute to national growth [2,9]. Even though housing provision significantly contributes to national growth, the government aim is mainly to meet housing needs and ensure all citizens are provided with affordable housing especially for the lower income group. In line with this, the government has invited the private sector to be involved in providing housing for all income groups (low cost < RM 42,000, low medium cost RM 42,001-RM 70,000, medium cost RM 70,001-RM 100,000, high cost > RM 100,000). This is because the government cannot provide sufficient housing for everyone because of an inadequate work force and funding. The government, through the local authorities has imposed a 30% quota provision of low cost housing in every residential development. Furthermore, under the Seventh Malaysia Plan (1996-2000) and Eight Malaysia Plan (2001-2005), the Malaysian government is committed to provide adequate, affordable and quality housing for all Malaysians, particularly the low-income group. This is in line with the Istanbul Declaration on Human Settlement and Habitat Agenda (1996) to ensure adequate shelter for all. Towards this end, the private sector would undertake the lead role while the public sector would provide the necessary support and regulatory measures to ensure efficiency.

However, construction threats and challenges might slow down the growth of the industry. Kadir [8] has identified 10 most critical project delay factors; material shortage at project site; non-payment to suppliers causing the stoppage of material delivery to site; change of order by consultants causing project delay; late issuance of construction drawing; incapability of contractor's site management to organize site activities; late issuance of progress payment by client to contractor; late supply of material in the market; lack of foreign and local workers in the market; coordination problems with subcontractors; equipment shortage. Thus it may be concluded that most of the housing development issues and threats are related to the inefficiency of project manager and ineffective PM practice in the industry. Lim [10] has discussed how the deficiency in project management body of knowledge areas that leads to the

project failure: Integration management; scope management; time management; cost management; quality management; human resource management; communication management; risk management; procurement management. Hence, the identification of the necessity of the project manager and effective PM practice in the housing development process is vital in leading the housing project to success.

**Project Management and Project Manager:** As a “new occupation”, the history of PM can be reliably traced back only as far as the mid-twentieth century. Its early expansion within engineering and construction derived in part from the prestige afforded by its association in the delivery of a number of high profile “megaprojects” in the USA, such as the Manhattan project and the Apollo space missions [11]. According to Walker [12], “the industry needs to be concerned with identifying and studying the process of managing construction projects and with structuring its organizations and implementing techniques and procedures that make the process more effective. It may well be that the designation of a suitable individual with the title of project manager will assist in this, but it is not likely to be an instant and universal solution.” In other words, the nature of the project will establish the role of the contributor and ascertain the need of project manager in the PM process for efficient output. Professional competency in PM is attained by the combination of knowledge acquired during training and skills developed through experience and the application of the acquired knowledge [13].

Thomas and Mengel [5] stated that in 1996, the Australian Institute of Project Management (AIPM) published its National Competency Standard for Project Management, which “was adopted by the Australian Government as part of that country’s national qualification system”. This was followed by The International Project Management Association (IPMA) that represents members of various national organizations primarily in Europe, Asia and Africa. Whereas this IPMA “has developed its own standards and certification program which is comprised of a central framework and quality assurance process plus national programs developed by association members”.

According to Chartered Institute of Building [14], “PM may be defined as the overall planning, coordination and control of a project from inception to completion aimed at meeting a client’s requirements in order to produce a functionally and financially viable project that will be completed on time within authorized cost and to the required quality standards”.

Meanwhile, Project Management Institute [15] defines PM as a set of processes that are applied to a project to deliver a product or service. From the two definitions of PM, the role of a project manager can be deduced as pursuing the client objectives and requirements and coordinating the project team to ensure the project is soundly produced and fulfill the client needs in terms of quality, functions, utilities, aesthetic and within the agreed schedule and cost by utilizing all the available resources throughout the whole project development process.

**The Housing Development Process:** Housing project extended to all over nation and it is a capital-intensive project with aims of long life expectancy (Chauhan *et al.*, 2008 16). According to Issac [17]: “Properties (housing) development is the process by which buildings are erected for occupation or for sale/investment. Properties development is much like any other economic activity, satisfying wants with the application of scarce resources. In the case of property (housing) development the wants are for space to work in, sell from, live in and enjoy recreational and educational activities in. The process, by which buildings are erected to provide space, employs the key factors of production: land for site, capital cost for the purchase of land and the entrepreneurial talent of the property developer to initiate the process and bring the pieces together”. The housing development process from inception to completion can be summarized according to the outline of RIBA (Royal Institute of British Architects) plan of work. The RIBA plan of work represents a sound and practical practice of sequence of design team’s work and as a guideline to allocate the scope and responsibility of a particular consultant at every stage throughout the project development process. Hence, it is a useful guideline in PM practice for the housing development process.

**Role of Project Manager in Housing Development Process:** Generally, the project manager is appointed to serve client needs in managing the project as a whole and leading the project team to achieve the client’s objective. A project manager that well versed in the PM process can play an important coordinating role in providing the necessary link between the client and the project team, eliminating the dispute, enhancing team productivity and synergy. According to Edum-Fotwe and McCaffer [13], project managers in construction are responsible for the overall success of delivering the owner’s physical development within the constraints of cost, schedule, quality and safety requirements. As such they play a crucial role.

Table 1: Project manager roles according to RIBA plan

Development stages	Critical roles of PM
i) Inception	<ul style="list-style-type: none"> <li>• Accept appointment from client.</li> <li>• Arrange meeting with client.</li> <li>• Gather and obtain information from client.</li> <li>• Communicate with design consultant on project inception.</li> </ul>
ii) Feasibility	<ul style="list-style-type: none"> <li>• Evaluate brief from client and advice client on the project feasibility study.</li> <li>• Carry out feasibility study based on client requirement and project nature.</li> <li>• Gather advice and information from design consultant on feasibility study.</li> <li>• Prepare feasibility study report.</li> </ul>
iii) Outline Proposals	<ul style="list-style-type: none"> <li>• Ensure the client need and requirement is delivered to architect and design team and ensuring the design is sound and performs accordingly.</li> <li>• Gather all project information from design consultant for project scheme design.</li> <li>• Propose alternative on project program, schedule, technical problem and etc.</li> <li>• Obtain client agreement on the proposals outline.</li> </ul>
iv) Scheme Design	<ul style="list-style-type: none"> <li>• Ensure the design and specification is complied accordingly.</li> <li>• Detail Proposal on project design, schedule, cost, technical problem and etc.</li> <li>• Reconfirm from client on the project schedule and cost.</li> <li>• Obtain client agreement on the scheme design.</li> </ul>
v) Detail Design	<ul style="list-style-type: none"> <li>• Obtain final decision on every matter relate to design, specification, construction and cost.</li> <li>• Ensure the design and specification is complied as client requirement.</li> <li>• Complete the cost checking for the design.</li> <li>• Obtain client agreement on the detail design, specification and cost.</li> </ul>
vi) Production Information	<ul style="list-style-type: none"> <li>• Advice client on time and cost impact if there is any change on the requirement.</li> <li>• Ensure the design and specification is complied as client requirement.</li> <li>• Review all the design, drawing, specification and all the details to carry out work.</li> <li>• Ensure all the product information such as drawing, schedule and specification is complete and ready for tender purpose.</li> </ul>
vii) Tender Action	<ul style="list-style-type: none"> <li>• Assist client in evaluate the selected contractor in term of capability, resources, experience, past project record, cash flow, etc.</li> <li>• Advice client on the selection of suitable contractor.</li> </ul>
viii) Project Planning	<ul style="list-style-type: none"> <li>• Preparation of contract document.</li> <li>• Ensure all information, drawing, specification are ready for construction work.</li> <li>• Held site meeting with contractor for monitoring site progress and solving technical issue.</li> <li>• Monitoring and controlling on site progress, quality and cost.</li> </ul>
ix) Operation on Site	<ul style="list-style-type: none"> <li>• Held site meeting with contractor for monitoring site progress.</li> <li>• Held client-consultant meeting for solving technical issue and decision making purpose.</li> <li>• Monitoring and controlling on site progress, quality and cost.</li> </ul>
x) Completion and Feed-back	<ul style="list-style-type: none"> <li>• Ensure all the construction work is complete by the contractor as agreed.</li> <li>• Final inspection on completed building and arrange for hand over process.</li> </ul>

Extracted form: Nur Maizura (2001)

Nur Maizura [18] has carried out the study on the project manager role throughout the project development process base on RIBA plan of work in the following sequence:

**The Project Manager's Attribute:** PM as a field and occupation is closely implicated both rhetorically and practically in the broad shift towards post-bureaucratic organizations and societies in the late twentieth century [11]. There is no doubt that organizations have recognized the importance of effective PM in positively influencing project outcomes and, subsequently, the effectiveness of organizations [19].

According to Naaranoja *et al.* [20], PM strategy refers to a strategy for the management of a project like teaming strategy; Flexibility of projects; risk management avoidance strategy like piloting; contract strategy and alliances. More recently, the demand for project managers has mushroomed, as project working increased dramatically in a broad range of industries [21]. As noted by Paton *et al.* [11], PM is developing as a discrete occupation, which is central to the managerial regime within a specific but important form of post-bureaucratic organization.

Hence, the following essential element that adopted from Ong [22] is suggested in formulating and facilitating effective PM to achieve project excellence and success.

- A good understanding of the client, its objective and priorities
- A detailed appraisal and understanding of the project nature and characteristic
- A proper and structured appraisal and management of the project risks
- Selection of a suitable project team (design/construction)
- Use of suitable building procurement system
- Use of suitable contractual arrangement
- Having an effective organization structure that allows efficient communication channel and is capable of adapting to changes
- Having proper and appropriate planning
- Maintaining proper information recording and retrieval systems
- Ability to adapt and manage change
- Emphasis on the importance of good commercial/business and human relations

While there are many who contribute to a given project, project managers often are considered the direct leadership component essential to project success [19]. As Jacque *et al.* [23] added, effective PM represents the exercise of a form of leadership that fundamentally differs from the leadership related to organizational success or follower outcomes.

**Methodology:** In this research, personal interviews were carried out as its effectiveness in obtaining comments and probe opinions from the respondents. A pilot study was carried out in order to obtain feedbacks from the industry with regard to the questionnaire design.

The questionnaire for this study was designed to collect data mainly on opinions, awareness and suggestions. The primary function of the structured questions is to guide the face-to-face personal interviews. The questions were open-ended which do not impose restrictions as to the possible answer but offer richer and deeper responses [4]. The questionnaire was divided into 2 main parts. The first part focuses on the respondent and company profile; the years involved in construction industry; education background; company profile; organization structure; track record; ongoing and current project information; and other relevant data. The second part consists of 3 sections, with total of 16 questions which focus on the housing development issues, project manager roles and practices in housing, that mainly relate to the literature research and the questions is summed up with the conclusion and recommendation to improve the quality of the project manager in order to enhance the success of the housing development project.

Six prominent housing development companies in Penang were selected as case studies of this research (Refer to Table 2). The target respondents were the senior project managers or the person who held a similar role in the company (Refer to Table 2). A set of the questionnaire was presented to each respondent by email before the interview for better understanding and communication purposes during the interviews.

A set of questionnaire was presented to each respondent by email before the interview for better understanding and communication purposed during the interviews. Discussions on the result of the data analysis were made. The discussions focused on the housing development issue, role and necessity of project manager and PM practice that was implemented by the company.

Table 2: Company Information

Company	Incorporated	Ownership	Total Projects	Achievements
A	18 April 1983	Limited	22	- ISO 9001:2000
B	29 August 1994	Limited	5	
C	1999	Limited	7	- The Golden Bull Award 2005 Malaysia 100 Outstanding SMEs - The Enterprise 50 Award 2005 Top 50 Winner - 4 <sup>th</sup> Asia Pacific / Malaysia e-Entrepreneur Excellence Award 2005 Winner - The Golden Bull Award 2006 Malaysia 100 Outstanding SMEs-4 <sup>th</sup> Position - Business Superbrand Status-2006 - BM TRADA certification ISO 9001:2000 - The Golden Bull Award 2007 Malaysia 100 Outstanding SMEs - In Penang My Preferred 2 <sup>nd</sup> HOME PROPERTY 2007 - Penang International Expo 2007 Winner - 1 <sup>st</sup> Top 50 Enterprise Awards Malaysia
D	1984	Limited	26	- Landscaping awards
E	2005	Limited	11	
F	1975	Limited	7	- Member of Real Estate and Housing Developers' Association Malaysian (REHDA) - ISO 9001:2000

Table 3: Respondent background

Company	Post	Years of experience	Personal achievement
A	Project Manager / Civil Engineer	14	Registered with BEM as a Professional Engineer
B	Project Manager / Civil Engineer	17	Master degree in Civil Engineering Registered with BEM as a Professional Engineer
C	Senior Project Manager / Civil Engineer	30	
D	Contract Manager	15	Master Degree in Project Management
E	Senior Project Manager / Civil Engineer	15	
F	Group Managing Director	18	Degree of Doctor of Philosophy in Construction Management

Comparison of different opinion and PM practice for the selected company with the literature result was carried out. Meanwhile, the suggestion on the improvement of effective project management practice was aid to conclude the analysis process.

**Analysis and Findings of the Study:** A total of 6 Penang housing development firms were selected for interview with their respective representative(s) hereinafter referred to as the respondent(s). The analysis was based on the result obtained from the interview and discussion in detail in the following section and the summary of the interview result is shown in Table 3.

**Housing Development Issues:**

- Most of the respondents were of the opinion that land issues in Penang Island such as scarcity of land and the restriction in land status have caused a great rise in both Penang land cost and housing development cost which in turn creates a barrier for Penang housing developers in the provision of housing that caters for all income level groups. Some respondents also pointed out that the establishment of the one stop centre (OSC) in Penang local authorities is still in a premature stage and has no significant impact in expediting the application of authorities' approval process.

Meanwhile, in the case of company F, the respondent pointed out that lack of capital and aggressiveness among Penang housing developers have reduced their competitiveness with Kuala Lumpur (KL) developers which are more aggressive and financially stronger. As a result, most of the large scale development projects in Penang state have been taken over by KL contractors and hence reduced the opportunity of Penang developers to expose and involve in large scale development.

- All respondents have different points of view in regard to the influence of the current economy condition to housing development. Though there is steady growth recorded in the country's economy, there is no significant impact in boosting the

property market especially in housing development. In fact, some respondents have stated that the rising cost of basic construction material such as steel and cement and uncertainties of political conditions due to the recent forming of state and federal government might slow down the growth of the industry.

However, most of the respondents agreed that the government policies and incentives such as Malaysia My Second Home (MM2H), abolishment of the Real Property Gains Tax (RPGT) and allowing purchasers to offset their housing loan with their savings in the Employee Provident Fund (EPF) Account II, etc., has successfully attracted more foreign investors to inject funds to housing development and support those low and medium income groups to own houses.

- Each respondent has their own criteria and priority in selecting the suitable indicator for measuring their project performance. Generally, project profitability, sales ability, time, cost, quality and safety are the main indicators selected to gauge the project performance and use as a guideline in achieving the company objective and vision. Those indicators serve as project targets and the information can then be used for benchmarking purpose and is a key component of an organization's move towards achieving best practice.
- Most of the respondents claimed that they did not face project delay or cost overrun as the result of their strict control on time and cost management, except in the case of company E. However, in the case of company F, the respondent has pointed out the high fluctuation in construction material cost and lack of construction labor issues has created a great pressure on both the project schedule and budget for the ongoing and upcoming project.
- According the respondents, there are a lot of factors that lead to project delay or overrun. Some of the factors mentioned correspond with the literature review results. The following is a summary of the possible factors of project delay or overrun:

- Deficiency in project management practices
  - Fluctuation of construction material prices
  - Unforeseen site conditions
  - Incapability of contractor in site management
  - Insufficient construction details
  - Labor shortage
  - Client change order
  - Late payment to contractor
  - Incremental bad weather
- All of the respondents agreed that deficiency in PM practices is the main factor that contributes to the low performance in housing development. Without the proper implementation of PM practices, a lot of development issues such as disruption and delays to construction work, budget and cost exceeded, poor quality and standard of work, damage to plant/equipment and/or injury to construction personnel and contractual or technical disputes might arise.
- Various opinions have been given by the respondents in applying effective PM to resolve the above mentioned issue. Generally, effective PM is essential in planning, organizing, coordination, monitoring and control of every project activity from inception to completion to ensure client satisfaction and achieve the project objectives. Effective PM enables the project manager to foresee, identify and manage the project risk. Systematic strategy, method and proactive approach can be taken in identifying, assessing, mitigating and managing the risk to eliminate or reduce its exposure to the parties concerned. Meanwhile, coordination, collaboration and cooperation among the project team members are the key components in solving project development issues.
- Project manager roles and project management practices in housing development
- According the respondents, the project manager needs to be an all-rounded person. He has to equip himself with PM knowledge, technical skills and expose himself to practical operations. He should possess a positive attitude, be responsible, possess clear thinking and focus on project development. Meanwhile, he needs to be able to lead, organize, coordinate, motivate, monitor and control the project team in achieving the project goal.
  - The project manager needs to be fully involved in every project development stage, from inception to completion and act on behalf of clients in ensuring the client need and requirement is fulfilled in terms of building functionality, utility, quality, aesthetically and completed within the schedule time and budget. He needs to play all the important roles in planning, organizing, managing, coordinating, motivating, leading, monitoring and controlling in the housing development process and leading the project team toward successful project completion.
  - According to the respondents, comprehensive planning and scheduling during the pre-construction phase is the main constitution of effective PM that leads to success of the project. A comprehensive PM Plan as the key agreed document in the overall planning, implementation, monitoring and controlling of a project which include objectives, strategies, programs, policies, etc, is essential to work as a guideline for overall project operation. Meanwhile, close monitoring and controlling throughout the development process is important to ensure the project is executed as planned. Establishment of clear and explicit communication channel is another key component for coordination and collaboration among project team member.
  - With the application of effective PM, all the respondents hope to achieve the project objectives, improve the project performance and increase productivity by ensuring timely delivery with quality products, within the scheduled budget and eventually increase the project profitability.
  - All the respondents agreed that application of effective PM is the main contributor to the success of the company or development project. However, other vital elements such as financing, marketing, material procurement are essential in leading the project to success in completion.
  - From the respondents' points of view, project manager is the key person in implementation of effective PM. His major roles in PM is predominantly about leading, managing, delegating and motivating the project team and the workforce, in addition to advising his client and liaise with other parties in connection with the project.
  - All of the respondents stated that they did not refer to existing codes of practice such as PMBOK or CIOB. Neither do they refer to any institutional source to base their PM practices. Indeed, they prefer to base their PM practice

on their experience and expertise gained in the context of the local construction industry. In the case of Company D, the respondent added they gauge their performance with other reputable developers such as IJM and Sunway Group.

**The Necessity for a Project Manager:**

- Most of the respondents agreed that either an architect, civil and structural (CandS) engineer or other profession in the construction industry can play the role of the project manager in housing development projects on the condition that he must possesses the necessary PM knowledge, technical skill and have enough practical experience. The project manager also needs to have the leadership and management skills in order to lead the whole project team to achieve project objectives. However, he should be not involved in the design work to avoid conflict of interest. Meanwhile, the type of

contract, type and scale of project, project procurement and client preferences has great influence in assigning the suitable personnel to be the project manager in the housing development project.

- All the respondents agreed that a project manager is necessary in PM in the housing development process in Penang. In order to enhance the success of the housing development process, the Project Manager needs to be aggressive and get enough exposure to the project management environment, knowledge, skill and technical aspects. He needs to have a good understanding of the client needs and requirements, deliver the project within the stipulated time period, spend within budget, meeting the required quality standard or functional requirement, as well as ensuring customer satisfaction. In addition, he should possess the positive attitude, be able to accept change and advice from others, be responsible, focus and practice continuous improvement in his profession.

Table 4: Summary of the interview results

Respondents						
Ans.	Company A	Company B	Company C	Company D	Company E	Company F
1	Limited free hold land and high cost of land in Penang Island.	Scarcity of suitable land for housing development. No significant impact from OSC.	Increasing of housing and land cost. Design competitive among developers.	Rise in construction material costs. Scarcity of suitable land Red tape encountered (authorities approval).	Land scarcity. Rising of housing and land cost.	Lack of aggressiveness and confidence among Penang housing developer.
2	Yes, it is a more positive environment for housing development.	Government incentive will boost the housing development market.	It is an encouraging environment for housing development.	Current economy might face a random slowdown that affects the housing development.	Yes, current government policies will encourage housing development.	Uncertainty of economy and political condition. Fluctuation of material price might slow down industry growth.
3	Timely delivery and product quality.	Market demand and public response.	Project sale ability, timely delivery and product quality.	Project sale ability and gross sale value.	Project sale ability, profitability, product quality and timely delivery	KPIs such as profitability, time, cost, quality and safety.
4	No, all projects completed on time and budget.	No, do not come across such issue.	No, do not facing such issue.	No, do not encounter either of the issues.	Yes, but the impact is not significant.	No, but the fluctuation material cost and shortage in labor will.
5	Design change, lack of manpower in consultant firm and unpredictable site condition.	Fluctuation of material cost, shortage of construction material, lack of construction workers, bad weather conditions and inefficient site management.	Fluctuation of construction material price, unforeseen site condition, incapability of site management, inexperience of design team, insufficient design detail and coordination problem.	Incompetent contractors, poor site management, slow in VO approval and delay in payment by client.	Fluctuation in construction material cost particularly in steel bar and cement.	Deficiency in project development practice, design change by client order, labor shortage, cash flow problem, incremental bad weather.
6	Yes.	Yes.	Yes	Yes.	Yes.	Yes.
7	It helps in future planning and to identify possible issue and risk.	It serves as integration management for housing development.	It helps in comprehensive planning, monitoring and control of project.	It helps in getting the right personnel to the right job and increases project efficiency.	It helps in project planning and project integration.	It helps in project planning, delegation, implementation, monitoring, control and project review.
8	To be an overall-runner, possess technical knowledge, leadership and management skill and positive attitude.	To be an overall-runner, possess all PM skill and fully involved in all project stage.	To be all-rounded in managing project, possess related project experience, technical knowledge and management skills and have positive attitude.	Need to possess relevant technical knowledge, management skill and gather enough experience, be flexible, able to adopt to change and have positive attitude.	Well versed in all types of housing guidelines, rule and regulations.	Possess positive attitude and get enough exposure to latest PM knowledge, skills and gather relevant knowledge.

Table 4: Continued

Respondents						
Ans.	Company A	Company B	Company C	Company D	Company E	Company F
9	Fully involved in every project development stage.	To be an overall-runner, possess all project management skills and fully involved in all project stage.	Ensure all the project details, requirement and contract are well defined before handing to the contractor and deal with authorities.	Fully involved in site management, quality management and material purchasing process.	Coordinating, monitoring and project progress control, dealing with authorities and carry out feasibility study.	Fully involve in overall project development process.
10	Comprehensive planning in pre-construction stage.	Cooperative and competent team member lead by experience PM.	Comprehensive planning, positive attitude and clear thinking.	Clear communication channels and cooperation among team member.	Monitoring and controlling of project cost and quality.	Comprehensive planning that includes all the project needs and requirements.
11	Deliver on time, within budget and achieve targeted quality.	Complete on time with good quality.	Deliver on time and spend within the budget.	Achieve zero defect products with timely delivery and improve total project sale ability.	Develop a systematic management technique.	Increase in profit and achieve customer satisfaction.
12	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
13	As a Chief Coordinator in project development.	Yes, it is a must for involvement of project manager.	Serve as Chief Coordinator in the project team.	Essential in leading, coordinating and collaborating team member.	Important in monitoring and control of project development.	Essential throughout the project development process.
14	Only based on company practices and guidelines.	Only based on company practices and pass experience.	Based on company practice, team work and team support.	Gauge the company performance with reputable developer	Based on company practice and management.	Based on company practice and experience.
15	Yes.	Yes.	Yes.	No.	Yes.	Yes.
16	Yes, he needs to equip himself with relevant PM knowledge, skill and experience and keep track with authorities requirements.	Yes, he needs to ensure that he is knowledgeable, experienced and possesses the necessary PM skills.	Yes, he needs more exposure about PM fields, keep track with the latest development and practice continuous learning and be ready to accept advice.	Yes, he needs to take the initiative in learning and practice the PM knowledge and skill and be exposed to different type of housing project development.	Yes, he must be exposed to all new housing development knowledge, skill, rules, guidelines and regulation.	Yes, he must be aggressive, get enough exposure to various management skills, technical knowledge and gain practical experience in the field.

**Findings:** In this section, we discuss this research finding according to the research objectives as listed below:

Objective (i)-factors that caused the time and cost overrun of a housing project.

Uncertainty in country politics, changes of foreign labor employment policy and rising of land cost in Penang Island has exerted great pressure on housing project budget and schedule. However, among all the identified factors, deficiency in PM practices is the main factors that contribute to the housing development issue.

Objective (ii)-current PM practices in housing development project and its effectiveness in solving the housing development issue.

The analysis result shows that all the respondents do not refer to any standard code of practices, as PMBOK or CIOB code of practices, for their PM practices. Indeed, they are based on their own practices and experiences that mainly focus on planning, organizing, coordinating, monitoring and control of the whole project development process. Comprehensive planning, systematic strategy and proactive approached help in managing and reducing the project risk. On top of that, coordination, collaboration and cooperation among the project team members are the key components in solving the project development issues.

Objective (iii)-role of project manager and application of effective PM practices to the housing development project.

With the application of effective PM practices, improvement of project performance, increase in productivity and profitability and reduction in unnecessary waste of time and cost is expected. Hence, the role of project manager in planning, organizing, managing, coordinating, motivating, leading, monitoring and controlling in the housing development process is important in leading the project team in achieving the project aim and fulfilling the client need and requirement.

Objective (iv)-the necessity of project manager in effective PM in the contribution of achieving project objectives.

Throughout the research study, the analysis result has confirmed the necessity of the project manager in effective PM in the contribution in achieving the project aim. The results agree that the involvement of the project manager in PM practices is indispensable, necessary and a paramount factor in leading the project to the success path. On top of that, the project manager needs to be aggressive and equip himself with enough exposure to the PM environment, knowledge, skill and technical aspects in order to enhance the success of housing development process. Positive thinking and attitude, willingness to accept advice and change and lifetime learning process is necessary to promote continuous improvement in PM practices.

## DISCUSSION AND CONCLUSION

The housing development industries in Malaysia suffer from numerous setbacks and problems, in particular those associated with the construction process. Though the government has taken initiative in housing provision and introduced policies and incentives to boost up housing development, there are still threats and challenges that form barriers to the growth of the industry. Thomas and Mengel [5] have stated clearly that a number of factors that caused time and cost overrun of a housing project have been identified. They stress that deficiency in PM practices are main contributors in causing such issues. Over the past 10 years, various standards have emerged and helped to increase the degree of professionalism of PM.

Furthermore, various success factors of PM practices in housing development and the necessity of the project manager in effective PM has been identified and discussed in order to study the current PM practices in housing development projects and its effectiveness in solving the housing development issues. Edum-Fotwe and McCaffer [13] verify that developing the requisite competency to ensure efficient performance on the part of the managers who run projects is essential to its success. Paton *et al.* [11], also provide evidence that the increasing contemporary necessity of the PM role relies in part on a broader post-bureaucratic discourse; as it is the need for flexibility, for delivering change and the restructuring of organizations around the project form, which legitimize the project manager and the discipline that she embodies.

This result provides important implications for the construction industry in Malaysia specifically the housing development industries. In line with [5,13 and11], the result of this research has shown the agreement of the necessity of project manager in carrying out effective PM in achieving project objectives in Penang housing development. The essential quality and characteristics of project manager and the vital roles that the project manager should carry out in the housing development have been discussed in detail. Besides, the result has confirmed the application of effective PM as the main contributor to the company or project success. Vision such as delivery within the scheduled duration, targeted budget and meeting the required quality standard or functional requirements, as well as ensuring customer satisfaction is expected to achieve with the implementation of effective PM. This research also ascertain that most housing development companies prefer to manage their project based on their experiences

and expertise in managing project in local property and housing development context, without referring to the code of practices. As another important contribution, this research finding can be based for the industries players (developers, contractor, consultant and) and academicians, either for the benefits of the industries or for the knowledge enhancement.

However, the data collected only representing the current housing development industry in Penang state. On top of that, due to the constraint of confidentiality of the development firms, some projects information was not available for this research. Due to that the findings of this research may not be applicable to serve as an overview for housing development industry throughout the whole country. Hence, it is important to note that there are many interrelated aspects of PM such as the impact of procurement and application of ICT in effective PM, etc. that must be understood by a prospective project manager in order for him to practice effective PM, especially for large complex project such as mixed housing development schemes.

In order to have a better understanding and advancement in the area of the necessity of project manager, future research must be undertaken to incorporate the various important aspects mentioned earlier. Research work in areas that have not been covered in this research is encouraged to carry out for knowledge enrichment and contribution to the discipline improvement and advancement.

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