

MODEL OF PROACTIVE PREVENTIVE SOLUTIONS FOR IMPROVING LATE
PAYMENT AND UNDER-PAYMENT ISSUES IN THE MALAYSIAN
CONSTRUCTION INDUSTRY

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DEDICATION

This thesis is dedicated to my family, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my father and late mother, who taught me that even the largest task can be accomplished if it is done one step at a time.

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ABSTRACT

Payment delays and financial difficulties are major factors that indirectly jeopardise construction projects in Malaysia and therefore their overall success. Payment problems are a sensitive issue that must be addressed from their root causes to ascertain completion of projects within stipulated times, cost, and quality. Issues related to payment occur not only in the construction industry, but in other industries too. This study seeks to identify the major factors/dire determinants and causal components that contribute to payment problems, by devising viable preventive solutions for each major factor/determinant for late payment and under-payment issue from further potential disputes. The research questions were addressed by adopting a mixed-method approach, through survey and interview sessions, conducted with the Private Client and G7 Contractor representatives involved in payment claim settlements. Descriptive statistical outcomes formed a basis for the selection of interviewees. Interview sessions were carried out with four clients and four G7 contractor representatives, that were experienced in handling and resolving payments, for the development of a Proactive Preventive Late payment and Under-payment Issues Solutions Model for Payment Settlement in the Malaysian Construction Industry. Seven major factors/dire determinants were identified as main components of the model, which included slow processing and delay in finalizing variation orders, shortage of funds, disagreement of the valuation of work done, delays in valuation and certification, bureaucratic procedures of payment processes, deficiencies in client management capacity and involvement of too many parties in the process of honouring the interim certificate. These major factors/dire determinants were derived from quantitative analysis. Eight causal components were identified from the qualitative analysis of the semi-structured interviews, consisting of lack of trust, contractor's lack of knowledge in VO's document submission, problems in the provision of claim documents, lack of competent staff, insufficient financial resources, no participation in payment joint valuation, problems in selecting the type of contract and hierarchy problems, and were chosen as the main components of the developed model. Next, six proactive preventive solution components i.e., provide quality staff, develop trust between parties, use appropriate contracts, enhance financial management, benchmark from the outside, and improve payment procedures, were derived from the qualitative analysis and were adopted as main components of this research model. The outcomes of this research serve as a basis to develop a Proactive Preventive Late Payment and Under-payment Issues Solutions Model for payment settlement across the Malaysian construction industry. The formulated model was validated by an experienced panel through an online questionnaire survey. The survey attracted positive feedback from most of the experts, who agreed with the practicality offered by the conceptual model initiated in this research. The contribution of this research can be seen in terms of early understanding of the risk of delay in making payments and prevent issues of potential related disputes. This research provides a model for identifying causal components and appropriate proactive preventive solutions for each major factor/dire determinant, which can be incorporated into Client and Contractor standard operational procedures (SOPs).

ABSTRAK

Kelewatan di dalam pembayaran dan kesulitan kewangan dilihat sebagai faktor utama yang secara tidak langsung akan menjejaskan projek pembinaan di Malaysia dan secara tidak langsung akan menjejaskan kejayaan projek-projek pembangunan keseluruhannya. Masalah pembayaran adalah isu sensitif yang harus ditangani dari akarnya untuk memastikan projek disiapkan mengikut jadual, kos dan kualiti yang ditetapkan. Isu yang berkaitan dengan pembayaran tidak hanya berlaku di industri pembinaan, tetapi di industri lain juga. Kajian ini bertujuan mengenal pasti faktor/penentu dan komponen penyebab utama yang menyumbang kepada masalah pembayaran dengan merangka penyelesaian pencegahan yang dapat dilaksanakan untuk setiap faktor/penentu utama isu pembayaran lewat dan kurang bayar supaya ia tidak berpotensi menjadi pertikaian yang berlanjutan. Soalan-soalan kajian ditangani dengan menggunakan pendekatan kaedah campuran yang merupakan tinjauan dan sesi temubual yang dijalankan dengan wakil-wakil pelanggan swasta dan kontraktor G7 yang terlibat dalam penyelesaian tuntutan pembayaran. Hasil statistik deskriptif menjadi asas untuk pemilihan peserta yang akan ditemubual. Sesi temubual dijalankan dengan empat wakil pelanggan swasta dan kontraktor G7 yang berpengalaman dalam menangani dan menyelesaikan isu berkaitan pembayaran untuk membangunkan *Proactive Preventive Late Payment and Under-Payment Issues Solutions Model for Payment Settlement in the Malaysian Construction Industry*. 7 faktor/penentu utama dikenal pasti sebagai komponen utama model ini, termasuk pemprosesan bagi perubahan kerja yang perlahan dan penangguhan dalam melaras bagi perubahan kerja, kekurangan dana, perselisihan berkenaan penilaian kerja yang dibuat, kelewatan dalam pentaksiran dan pensijilan, pemprosesan bayaran yang menggunakan prosedur birokratik, kekurangan kapasiti pengurusan klien dan terlalu ramai orang yang terlibat dalam proses pensijilan interim. Faktor/penentu utama ini diperolehi daripada analisis secara kuantitatif. 8 komponen penyebab dikenal pasti melalui analisis kualitatif temubual separa struktur terdiri daripada kurang kepercayaan, kontraktor kurang pengetahuan mengenai penyerahan dokumen bagi perubahan kerja, masalah berkaitan dengan penyediaan dokumen tuntutan, kekurangan kakitangan yang kompeten, sumber kewangan yang tidak mencukupi, tiada penyertaan dalam penilaian pembayaran bersama, masalah dalam memilih jenis kontrak dan masalah hierarki, dipilih sebagai komponen utama model yang dibangunkan. Seterusnya, 6 penyelesaian pencegahan secara proaktif, menyediakan kakitangan yang berkualiti, membentuk kepercayaan antara pihak, menggunakan kontrak yang sesuai, meningkatkan pengurusan kewangan, menanda aras dari luar dan memperbaiki prosedur pembayaran, telah diperolehi dari analisis kualitatif dan diguna pakai sebagai komponen utama model penyelidikan ini. Hasil penyelidikan ini berfungsi sebagai asas untuk membangunkan model penyelesaian secara proaktif berkaitan isu lewat dan kurang bayar dalam penyelesaian pembayaran di dalam industri pembinaan Malaysia. Model yang dirumuskan telah disahkan oleh panel berpengalaman melalui tinjauan soal selidik dalam talian. Tinjauan tersebut menerima maklum balas positif daripada kebanyakan para pakar, yang bersetuju dengan kepraktisan yang ditawarkan oleh model konseptual yang diperkenalkan dalam penyelidikan ini. Sumbangan penyelidikan ini dapat dilihat dari segi pemahaman awal mengenai risiko kelewatan pembayaran dan mencegah isu-isu berpotensi pertikaian yang berkaitan. Penyelidikan ini menyediakan model untuk mengenal pasti komponen penyebab dan penyelesaian pencegahan yang proaktif untuk setiap faktor/penentu utama, yang dapat dimasukkan ke dalam prosedur operasi standard (SOP) Pelanggan dan juga Kontraktor.

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LIST OF ABBREVIATIONS

AIAC	Asian International Arbitration Centre
CCMGD	Certificate of Completion of Making Good Defect
CEO	Chief Executive Officer
CIDB	Construction Industry Development Board
CIMP	Construction Industry Malaysia Plan
CIPAA	Construction Industry Payment and Adjudication Act
CITP	Construction Industry Transformation Plan
CPC	Certificate Practical Completion
CSFs	Critical Success Factor(s)
EFA	Exploratory Factor Analysis
GDP	Gross Domestic Product
KLRCA	Kuala Lumpur Regional Centre for Arbitration
MBAM	Master Builders Association Malaysia
NS	Nominated Supplier
NSC	Nominated Sub Contractor
PAM	Persatuan Akitik Malaysia
PWD	Public Work Department
RCM	Rational Choice Model
REHDA	Real Estate Housing & Developers' Association
S.O.	Superintending Officer
TCA	Thematic Content Analysis

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Tabulation by the Department of Statistics Malaysian Economic Report in 2018 showed that the construction industry is one of the prominent economic divisions in Malaysia with a Gross Domestic Product (GDP) growth forecast of 7.5%. Considering its economic significance, the Construction Industry Malaysia Plan (CIMP 2006-2015) was introduced, which outlined the vision, mission, critical success factors (CSFs), seven (7) strategic thrusts, and twenty-one (21) strategic recommendations for the development of the construction industry in Malaysia. With respect to the 2nd strategic thrust in the Construction Industry Malaysia Plan hereinafter referred to as (CIMP), which is to strengthen the image of the construction industry, Construction Industry Development Board hereinafter referred to as (CIDB) Malaysia introduced the Construction Industry Payment and Adjudication Act hereinafter referred to as (CIPAA). This was gazetted by Malaysia's Attorney General in June 2012. The CIPAA primarily assists to improve the problems associated with cash flow in the Malaysian construction industry.

Thus, in 2016, CIDB Malaysia launched the Construction Industry Transformation Programme hereinafter referred to as (CITP) 2016-2020 with the main purpose for improving the quality of the standard in the Malaysia construction industry (Q1) and to highlight the issue on low productivity (P1) facing in the Malaysian construction industry (Mohd Fateh and Mohammad, 2017; Dzulkalnine *et al.*, 2017). Apart from making improvements with issues in quality of construction, the CITP also helps in reducing and overcoming the problems in payment claims (Abdul Rahman *et al.*, 2015).

From a broader perspective in the context of construction industry, payment refers to a monetary received in the form of consideration for the performance or completed work of the appointed contractor. Referring to the situation, CIPAA (2012) under Section 4 from a view of the legal perspective, payment is recognised as: -

“The payment for work done or services rendered under the express terms of a construction contract”.

(Attorney General Malaysia, 2012)

Most of construction contracts contain provisions for payment to be made against interim certificates, which are typically issued by the Architect namely for private construction project and the Superintending Officer hereinafter referred to as (S.O.) for a government construction project. According to Amoako (2011), periodic schedule during construction period, phase payment, advance payment and payment after completion are various payment methods in the construction industry. Ramachandra and Rotimi (2015) stated that problems in payment are considered critical, not only in Malaysia, but in developed countries such as Singapore, New Zealand and the United Kingdom.

The problems of payment and other financial predicaments are major factors/dire determinants that obstruct the completion progress of construction projects in Malaysia, which, in turn, jeopardise the overall accomplishment of these construction projects (Hasmori *et al.*, 2018; Abdul Rahman *et al.*, 2009). However, the Malaysian construction industry is seemed to be plagued with problems associated to payment (Ishak *et al.*, 2019; Azman *et al.*, 2014) and the issue of payment has long been dealt by the construction players especially contractors. The construction players tend to receive late payment, under-payment and non-payment from the Client (Dzulkalnine, 2015; Mohd.Ali *et al.*, 2015). Payment plays a vigorous role in the construction industry, most importantly for the main contractor who must ensure that all involved parties (e.g., subcontractors, suppliers, and workers) of a project have a solid cash flow to work smoothly. It is so significant that payment has always been the main subject in the Malaysian construction industry (Mohd Badroldin *et al.*, 2016; Azman *et al.*, 2014) and payment problem is also a key barrier to realizing the second (2nd) strategic thrust of CIMP (Hasmori, Ismail, *et al.*, 2012; Sahab and Ismail, 2011).

Apart from various challenges with delay in payment, the inconsistencies in the contract document and slow decision making process also contributed to the project delay and can possibly create disputes (Mohamad Ibrahim *et al.*, 2012; Odeyinka and Kaka, 2005; Alaghbari *et al.*, 2007; Sambasivan & Soon, 2007). The culture of delaying payments has become a main cause of disputes in the construction industry; and the Malaysian construction industry is of no exception (Mohd Badroldin *et al.*, 2016; Ramachandra & Rotimi, 2011; Lian, 2005; Zainal Abidin, 2006; Isa *et al.*, 2009; Barough, Shoubi, & Preece, 2013). As an unavoidable consequence, the culture of delay in payment in the Malaysian construction industry has created a negative impression to foreign investors who want to invest in our construction industry.

Payment is a crucial element for all parties involved in the construction industry as it is a vital component for the completion of a project. Unfavourable circumstances, such as project delays, poor quality of end products and construction cost overruns, may occur without a proper and systematic financial management. According to Loosemore (2000) as cited in Chua (2012), a construction project requires substantial amount of financial resources, which affects most of the contractors since they have to bear high construction expenses on a daily basis, especially if there are delays in payments. As such, Chambers (2006) can be quoted as saying that when there are problems in delivering the obligation pertaining to payment, it reflects a primary breach of contract. Therefore, this research was carried out with the aim of developing a proactive preventive late payment and under-payment issues solution model for payment settlement in the Malaysian construction industry.

1.2 Problem Statement

The delay in payment has become a communal problem in the construction industry globally, especially in the developing countries including Malaysia (Che Munaaim *et al.*, 2007; Abdul Rahman *et al.*, 2015; Mohd Badroldin *et al.*, 2016; Hou *et al.*, 2011; Azman *et al.*, 2014; Falamarzi & Suliman, 2018; Mohamad *et al.*, 2018; Ishak *et al.*, 2019). Some of the main attributes causing delay in payment include the client's poor financial status, inadequate capital to finance the project in case of

problems arising and the contractor's poor cash flow. Additionally, late payment has been an ongoing issue in the construction industry for many years. The problem in payment have caused cash flow problems, project delays and in extreme circumstances, liquidation to the project (Azman *et al.*, 2014; Abdul Rahman, *et al.*, 2013; Mohd Badroldin *et al.*, 2016; Ramachandra & Rotimi, 2011).

Nearly all construction projects require substantial amount of financial resources. Thus, most contractors or subcontractors are not able to bear the financial responsibilities with the daily construction expenses that include the cost of materials, labours, and other necessary construction needs when there is delay in payments from the clients. As a result, the problems in payment eventually causes construction time overrun, construction cost overrun, disputes, litigation, or in a worst-case scenario, total abandonment of the project (Shah, 2016; Aftab, 2014; Memon *et al.*, 2014). In fact, the late payment and under-payment, which are rather delicate, have intensified over the years. There were several studies that are attentive towards the disputes matters in the Malaysian construction industry. Barough *et al.* (2013) revealed that the late payment and non-payment from client to main contractor has been identified as the main origins of disputes in the Malaysian construction industry as tabulated in Figure 1.1 below. In view of the above, it is evident and without a doubt that issues related to payment are the major causes of the cash flow problems in the construction industry.

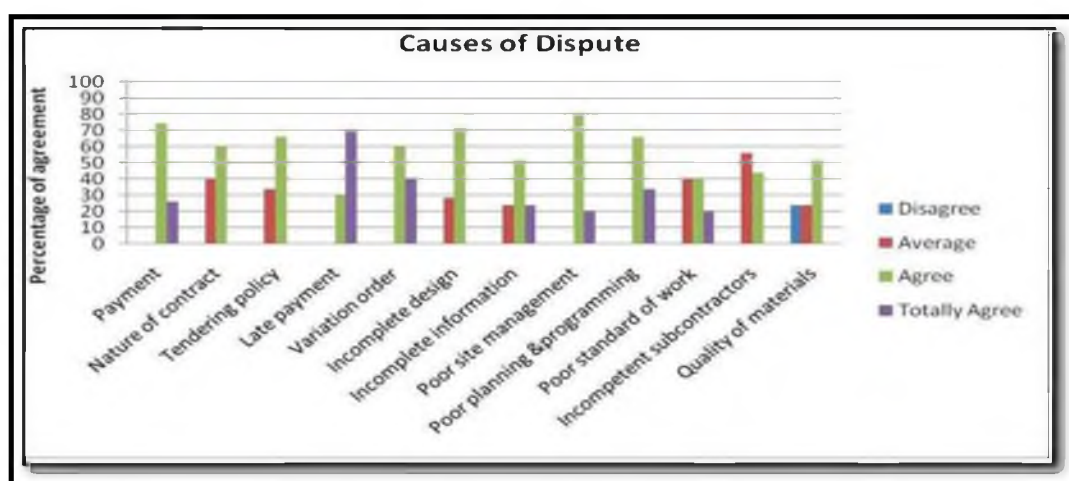


Figure 1.1 Percentage of Agreement on the Causes of Dispute in the Malaysian Construction Industry (Barough *et al.*, 2013)

On the other hand, Nee *et al.* (2014) as depicted in Figure 1.2 below, documented that the most critical parameters on the causes of disputes from disputes cases in the Malaysian construction industry and based on the quantitative analysis done, the most critical parameter causes of disputes are the following:-

- (a) Payment Issue (44%)
- (b) Variation Order Issue (26%)
- (c) Delay or Time Issue (22%)
- (d) Defect Issue (8%)
- (e) Performance Bond Issue (1%).

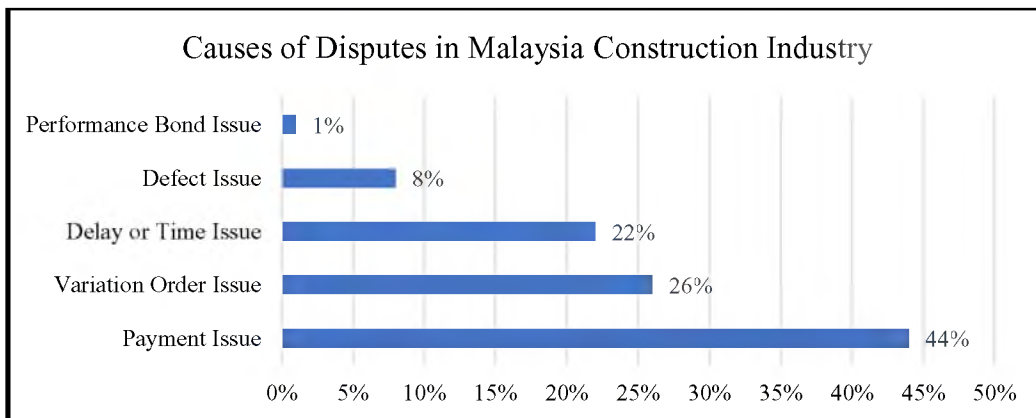


Figure 1.2 Nature of Construction Disputes in Malaysia Construction Industry (Nee *et al.*, 2014)

The Malaysian construction industry has confirmed the importance on time overruns compared to cost overruns. In 2014 for example, a research was carried out on the risk level for factors which disturbing time and cost overrun along the project lifecycle in Malaysian construction projects. The findings from the study shows that during construction period, delay in progress payment by the owner was “*moderate in risk*” and the effect of the delayed in progress payment into construction industry was “*high risk*” because it was affecting the delay in payment to the suppliers and to the subcontractors (Ismail *et al.*, 2014). A study done by Ramanathan *et al.* (2012) deduced that delay in progress payments by the owner contributed towards cost overrun of the project. This is supported by another research done by Shehu, Endut & Akintoye (2014) that proved the main factors contributing to time overrun in the

Malaysian construction sector are due to cash flow problems faced by the contractors. It can be summarized that when payment problems arise, they will adversely affect not only cost, but the completion time taken is also affected.

Furthermore, issues related to payment have occurred in the Malaysian construction industry since year 2005. One of the associations related in construction industry in Malaysia, The Master Builders Association Malaysia, hereinafter referred as to (MBAM) is responsible to handle with the problems in the construction industry, has reaffirmed the prevalence of delay in payment between year 2005 till 2014. MBAM propelled the need to address issues of delay in payment, which have persisted in the Malaysian construction industry (Barough *et al.*, 2013). Aside from MBAM, CIDB Malaysia is also one of the corporate bodies which is responsible for developing the capacity and capability of the construction industry through the enhancement of quality and productivity by placing great emphasis on professionalism, innovation and knowledge in the endeavour to improve the quality of life also actively conducting research on payment problems. Many scientific researchers have been conducted to take a closer look at the current situation on payment and identified what are the root causes of these payment issues in the Malaysian context (Mohd Badroldin, 2015; Mohd.Ali *et al.*, 2015; Azman *et al.*, 2013).

Issues related to payment have a huge impact on many aspects. One of the implications is when a contractor is delayed in receiving progress payment from a client, indirectly causing delays in completion of the works by the contractor (Shehu *et al.*, 2014; Sambasivan and Soon, 2007; Mohamad Ibrahim *et al.*, 2012). Many research done have been proven that if the result of the contractor's delay in receiving progress payment are not resolved promptly, it may allow disputes between parties in the contract (Mohd Badroldin *et al.*, 2016; Barough *et al.*, 2013; Hassan *et al.*, 2019; Nee *et al.*, 2014; Zainal Abidin, 2006; Cakmak and Irlayici Cakmak, 2014) and an entail the project being abandoned or and in a worst-case scenario, their organisation have to face bankruptcy (Abdul Razak, Mohammed & Md.Tarique, 2015; Md.Dahlan and Mariappan, 2012; Ayudhya and Israngkura, 2012; Akinsiku and Ajayi, 2016; Hoe, 2013).

Proactive is defined as creating or controlling a situation by causing a specific scenario to occur rather than responding to the situation only after it occurs. Preventive on the other hand is defined as keeping something from happening or arising and becoming a dispute. Likewise, solution is defined as an action or process of solving the problem for each issue arising. Therefore, in order to mitigate disputes related to the issue on payment between the contracting parties especially to the main contractual parties i.e. Client (act as a payor) and Main Contractor (act as payee), element of proactive preventive approaches should be emphasized with the aim to provide the contractual parties with an understanding of the need and the importance of early actions taken in preventing disputes in payment related issues to ensure a project is able to be completed within the client's budget without any cost involved in order to refer to third parties to resolve the payment disputes and within a reasonable time of completion .

1.3 Research Questions

With respect to the objectives of this research, the following research questions have been addressed in this research:

- 1) What is the current scenario of late payment and under-payment issues in the Malaysian construction industry?
- 2) What are the major factors/dire determinants of late payment and under-payment issues in the Malaysian construction industry?
- 3) Why do late payment and under-payment issues ascend in the Malaysian construction industry?
- 4) What are the appropriate proactive preventive solutions able to overcome the identified major factors/dire determinants of late payment and under-payment issues in the Malaysian construction industry?
- 5) What is the appropriate model that serves as a guideline proactive preventive solutions for payment settlement in the Malaysian construction industry?

1.4 Research Objectives

This research aims to develop a Proactive Preventive Late payment and Under-payment Issues Solutions Model for Payment Settlement in the Malaysian Construction Industry. The specific objectives of this research are presented in the following: -

- 1) To assess the current scenario of late payment and under-payment issues in the Malaysian construction industry,
- 2) To identify the major factors/dire determinants of late payment and under-payment issues in the Malaysian construction industry,
- 3) To examine the causal components for each major factor/dire determinant in late payment and under-payment issues,
- 4) To evaluate the proactive preventive solutions for each major factor/dire determinant in late payment and under-payment issues in the Malaysian construction industry,
- 5) To develop and validate a Proactive Preventive Solutions for Improving Late payment and Under-payment Issues Model for Payment Settlement in the Malaysian construction industry.

1.5 Scope of the Research

The scope of this research is only between the Client (*payor*) the Main Contractor (*payee*). This is in view that both parties are the key players (main stakeholders) of the business transaction with privity of contract between them in the construction industry. Both parties are equally important in obtaining the right information in this research because, frequently payment problems occur between these two parties (Mohd.Nazir, 2006; Mohd Isa *et al.*, 2009).

In line with the above, this research also targeted large-scale contractors (G7 contractors) in Malaysia who are registered with CIDB Malaysia and the selection of

the respondents from database provided by the organisation and choose randomly using convenience sampling. The justification for the selection of G7 contractors is because they have been conveyed the large and structured organisations compared the other coding of class contractors (G1-G6) and unlimited contract amount can be involved by G7 contractors (Mohd Yusuwan, 2016). When a contract is unlimited in amount and involve in various types of projects, there are many factors that can be looked through in detail on late payment and under-payment issues that have occurred in the Malaysian construction industry.

Whereas, for private client, the list is based on the information given by REHDA. This research has focused strictly on private-funded project only since recent study done by (Mohd Badroldin *et al.*, 2016) from their research deduced that more than fifty percent (50%) of respondents said that private client always caused to the payment problems compared to government funded projects. Opinions and experiences from clients are needed in this research with objective to get a better view from their side in related to payment problems. With that, this research has been able to assess the level of knowledge of these targeted respondents on the late payment and under-payment issues and their awareness and experience in handling the late payment and under-payment issues in the Malaysian construction industry.

Other than that, this research does not cover for payment related issues in Advance payment, because it is typically applicable in government-funded projects only. When the contractor fulfils the criteria to apply for an Advance payment, the contractor will be submit an application to the Employer (Government) and if the requirement of application is fulfilled, the Employer (Government) will be paid on the amount of Advance payment in lump sum basis to the contractor before he or she starts the work.

Other than Advance payment, Final payment is also excluded in this research even though this type of payment is applicable in private funded project and government funded project, but the mode of payment is based on lump sum basis. The other reason why Final payment is excluded in this research is because the process in finalising on final contract sum is not straight forward and takes time compared to

Advance payment and Interim payment. At Final payment stage, the contractor is required to finalise many related factors such as defects for the whole of the project and make an adjustment for Prime Cost Sums and Provisional Sums (PC and Provisional Sums) elements.

Another scope of this research which need to be highlighted is that, this research only focused on two (2) types of payment problems which comprises of late payment and under-payment issues. By the definition, late payment is illustrated in a situation when “a contractor late in receiving his payment from the Client” and for under-payment it can be illustrated when the contractor “receives lesser amount of payment claim from the Client”. From the above definitions, it is dissimilar in nature i.e. for late payment, a contractor receives his payment claim late for that particular month but for under-payment, the Contractor still receive some amount but not in full amount of claim from the Client for that particular month. In the context of this research, it may be summarised that problems may be categorised under late payment and under-payment group because the contractor will still receive payment for the claim from the Client without it being referred to a third party to resolve the problem. These scenarios are different with a situation of non-payment. In this research, non-payment will not be discussed together with late payment and under-payment issues because when a contractor faces non-payment problem, the Contractor is required to refer the issue to another avenue to resolve the problem for examples Arbitration, Adjudication, Litigation, Tribunal (for consumer claims) to obtain the amount of payment claims from the Client.

1.6 Research Methodology

The main research approach is based on a mixed method, consisting of a quantitative approach to the achievement of objective one (1) and objective two (2), and a qualitative approach to the achievement of objective three (3) and objective four (4). The main steps in research method adopted in this research. The literature review has been carried out to establish the background of the research in order to understand the issues, trends and gaps. An extensive literature review was done and compiled in

Chapter 2 which highlighted the nature on disputes and discusses in depth on payment related in the Malaysian construction industry.

Through literature reviews, there are eight (8) major factors/dire determinants which have been identified namely; slow processing and delay in finalizing variation order, shortage of fund due to variation order, disagreement on the valuation of work done, delay in valuation and certification of interim payment, bureaucracy procedures of payment process, deficiencies in client management capacity and involvement of too many parties in the process of honouring interim certificate. These major factors/dire determinants will be adopted as one of the components in the conceptual model development.

Then, interview sessions with experienced practitioners were conducted. During the interview sessions, respondents were asked on what are the root causes (causal components) for each major factor/dire determinant (established through questionnaire survey) and also what are the proactive preventive solutions for each major factor/dire determinant in a way to mitigate problems in payment. From the interviews, eight (8) causal components have been identified (established through thematic content analysis) namely; lack of trust, contractor's lack of knowledge in VO's documents submission, problems in the provision of claim documents, lack of competent staff, insufficient financial resources, no participation in join payment valuation, problem in the selection type of contract and hierarchy problem. This causal component has been adopted as one of the components in conceptual model. Through these interviews, six (6) proactive preventive solutions have been found (established through thematic content analysis) which namely consist of; required to provide quality staffs, develop trust between parties, used appropriate contract, enhance financial management, benchmarking from outside and improve payment procedure. These findings will be adopted as one of the main components for this research and embedded in the conceptual model development.

The results obtained from the questionnaire surveys and semi-structured interviews have been used to develop the conceptual model for the proactive preventive solutions for improving late payment and under-payment issues for

payment settlement in the Malaysian construction industry. Chapter 6 (Model Development and Validation) explains in detail on what are the foundation used in developing the model, the components involved for the model developed and the process to develop the model. After it has been developed, the model needs to be validated. This model is validated through online questionnaire survey (using Google Form) and distributed to experienced respondents who are practitioners from G7 Contractors and Clients (Private and Government-Linked Companies) who are involved in payment claims settlement in the Malaysian construction industry.

1.7 Significance of Research

This research provides an enhanced understanding for the key industry players on the current situation in late payment and under-payment issues in the context Malaysian construction industry. Adding to that, this research would also significantly extend the existing knowledge based on the major factors/dire determinants for late payment and under-payment issues in order to facilitate the project planning and organisation by the Main Contractors and Clients in the construction industry. Besides that, this research offers a proactive preventive solutions model for improving late payment and under-payment issues in the efforts of minimising the number of dispute cases in payment related i.e. by providing a proactive preventive solutions for each major factors/dire determinant in late payment and under-payment issues.

1.8 Definition of Key Terms in Research

In order to better understand the research conducted for this research, the key terms adopted are explained here. The CIDB (2012) and Abdul Rahman *et al.* (2015) categorised payment problems in the context of the Malaysian construction industry into three (3) types: -

- (1) Late payment (*also known as delay in payment*),
- (2) Under-payment, and
- (3) Non-payment.

According to Harris & McCaffer (2003) as cited in Rahman *et al.* (2013), the Late payment (or delay payment) defined as the failure of a client to pay the contractor within the period of honouring of certificates, as provided in the contract. For under-payment, Mohd. Ali *et al.* (2015) define defined as a payment to be made which is lesser than the proposed money or amount that should be received after the work has been completed either following phase per phase payment or at the full completion of the works. For non-payment, the Oxford English Dictionary (OED Online, 2015) defines the term as the failure to pay an amount of money that is owed. Another discussion by Ameer Ali (2005), viewed non-payment as the failure to acquire payment or a specific sum of money and not being paid in the subsequent claim, or in other words, non -payment can be expressed as not being paid at all. Meanwhile, based on the Malaysian construction industry context, Table 1.1 below presents the definition of other key terms used in this research.

Table 1.1 Definition of Key Terms Used in Research

Terms	Definitions
Proactive	Creating or controlling a situation by causing a specific scenario to occur, rather than responding to the situation only after it occurs.
Preventive	Corresponding to “prevent” (i.e., keep (something) from happening or arising).
Solution	An action or process of solving problem
Late Payment	The failure of a client to pay within the period of honouring of certificates, as provided in the contract.
Under-payment	Payment to made which is lesser than the proposed money.
Non-payment	The failure to pay an amount of money that is owed.

This research only focuses on Late payment and Under-payment **Only

1.9 Thesis Organisation

Referring to Figure 1.3 below, the design of this research is structured in seven (7) chapters.

Chapter One provides an overview of the research by describing the background of research and problem statement as well as outlining the objectives and questions of the research. It also details its scope and significance of the research and presents the definitions of the key terms used.

Chapter Two reviewed studies which have been conducted before and are related to the current research which is, specifically on payment. This chapter described the issues related on disputes, causes and the implication of disputes. Then, in this chapter will be elaborated the concept and definition of payment, the types of payment and explanations on late payment and under-payment issues in the Malaysian construction industry. In detail, an understanding on types of payment cover its definition, procedures involved in getting payment, factors/determinants explained in this chapter. Gap of the research, overview of the model in decision making theory and conceptual framework for this research present in this chapter.

Chapter Three discussed the justification for the selection of such approaches in the research. This chapter started with the description of the philosophical position of the research. Research methodologies adopted for data collection and the justification for using those methods are then explicated. In the subsequent section, the process of the research has been graphically illustrated. This chapter explains the correlation between the research questions, objectives, data collection methods and data analysis techniques. This chapter also explains in detail an overview of the survey, design of instruments for questionnaire and interview for this research. Process of model development and method of validation model have also been explained in this chapter.

Chapter Four presented the quantitative results via questionnaire survey. This chapter explains in detail an overview of the survey, result for pilot survey, sampling and lastly the results obtained to answer the first and second of research questions and to achieve Research Objectives One and Research Objective Two of the research. This chapter examined the current scenario of late payment and under-payment issues in the Malaysian construction industry and identified the major factors/dire determinants of late payment and under-payment issues in the Malaysian construction industry. It ends with a summary of findings as the attainment of Objective One (1) and Two (2).

Chapter Five reports on the results obtained from the qualitative survey and to answer the three and fourth research questions. In the first section, it provided a brief description about the background of the selection of respondents, how they were selected and the number of people who have been interviewed. The second section presented the method of analysis, coding of the collected data and how the analysis process was conducted via Atlas. Ti as a tool. This chapter then presented the findings from the analysis of the interview.

Chapter Six tabulate the compilation of findings from Chapter Four (4) and Chapter Five (5) and clarified the relationship between the findings and the research questions. Development of the model and the implications of the Proactive Preventive Payment Solutions Model are also explained. The steps and processes in validating the model via online survey (*Google Form*) including the findings from the experienced respondents in handling payment claim were tabulated in this chapter. This chapter shows how the model can help parties involved in the contract to prevent and minimise any late payment and under-payment issues from becoming a dispute and indirectly for prompt payment claim settlement.

Chapter Seven presents the outlines a summary of the major findings for each objective, discusses the general conclusions of the research, and describes the contribution of the research towards knowledge and industry. This chapter also presents the significance of the research and recommendations for future research projects’.

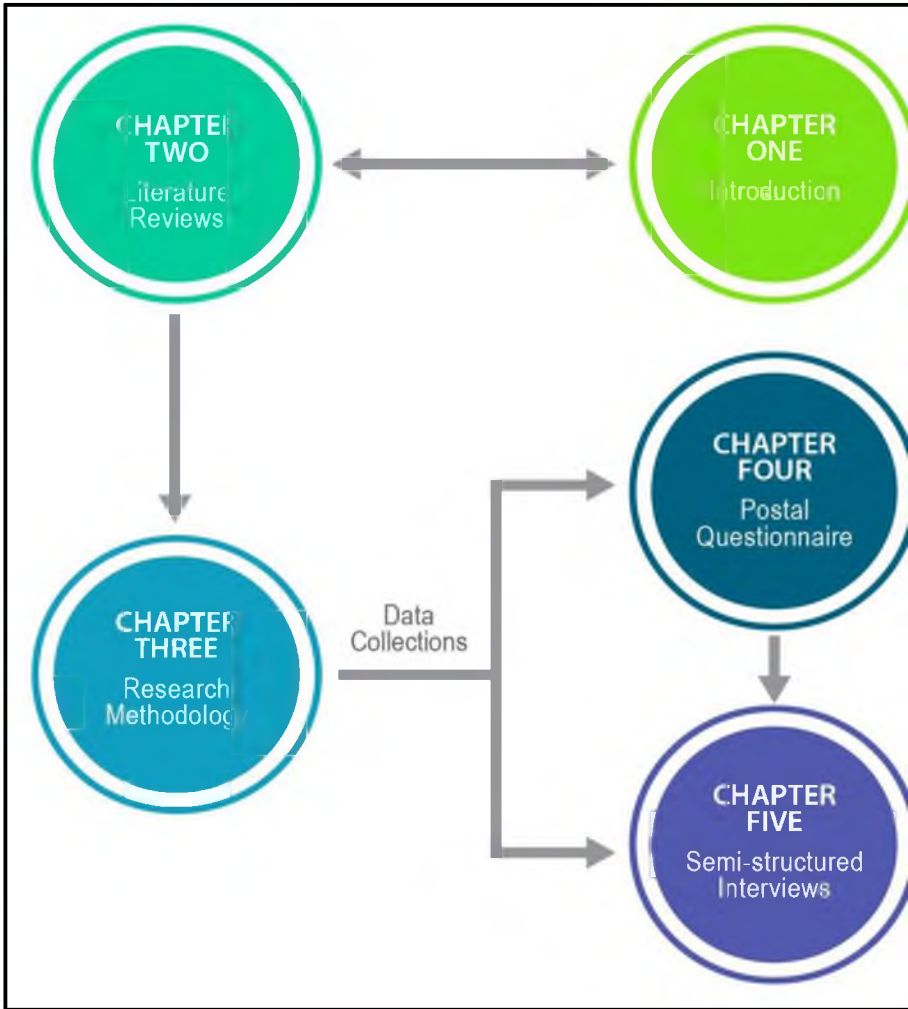
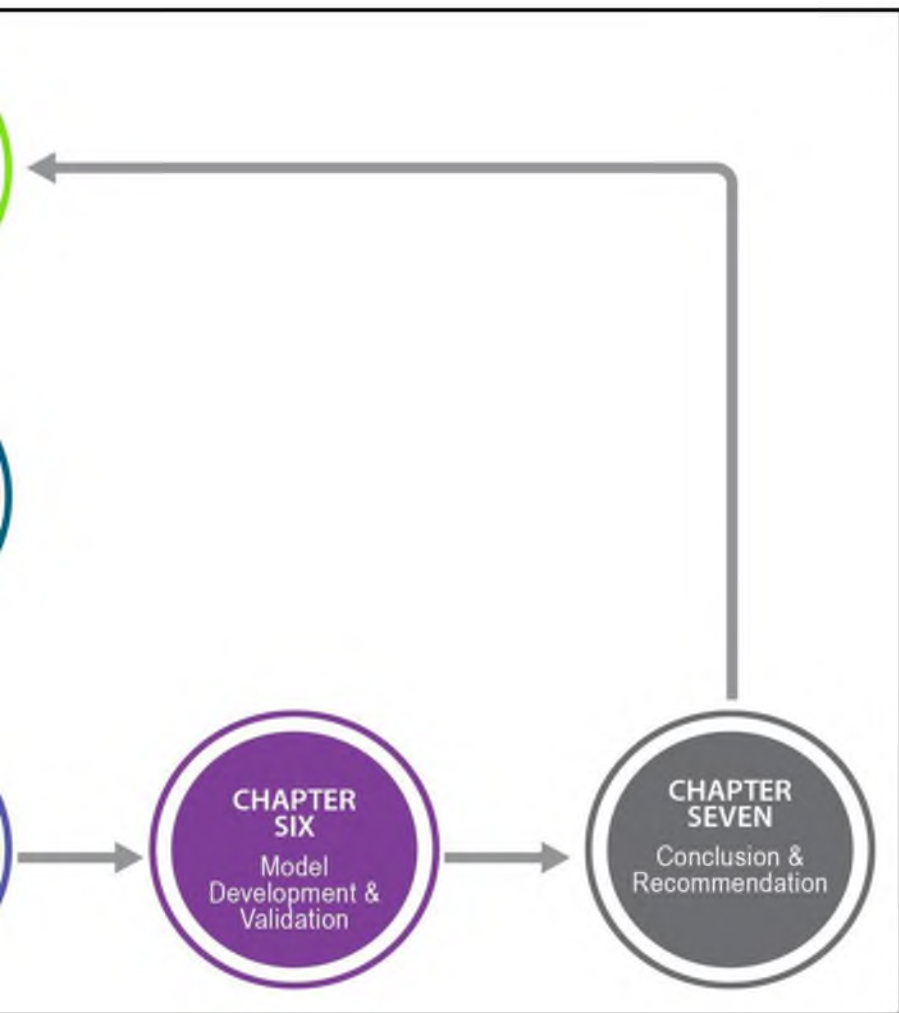


Figure 1.3



Chapters Flow

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