Develop a Framework for Successfully Managing Public Transport Development Projects in Vietnam

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Declaration

The candidate confirms that the work submitted is his own and the appropriate credit has been given where reference has been made to the work of others.

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Abstract

Despite having incentives and generous investments from the government, many public infrastructure projects in Vietnam have been poorly finished with time delays, cost overruns and improper quality standard. These adversely influence the country's socioeconomic development and modernisation process. However, there has not been an appropriate strategy to cope with and a lack of research into how to do so. The aim of this thesis is to develop and propose a sound solution to manage and deliver public transport development projects in Vietnam more successfully.

There are five main elements which have very strong influences on the achievement of project success, namely: Critical Success Factors, Success Criteria, Key Stakeholders, Project Process and Severe Problems. Nevertheless, previous studies looked at them individually or as a pair only, while discretely recognised their connections during the management and implementation process. This research argues that those elements and their links should be viewed holistically and combined together in order to achieve a complete picture of project success. Having established this, a lifecycle based framework is developed and used to serve as a lens for the empirical analysis.

The thesis has found out that traditional delivery route is still widely used and favoured in Vietnamese public transport development projects with complicated involvements of many parties. The government still plays a dominant role which has the greatest influences on project outcomes. Meanwhile, the most severe problems which project participants in the VCI have been struggling to deal with relate to finance and human. As a result, the most critical factors which can cope with those problems and achieve success also relate to finance and human. On another hand, a set of criteria for measuring overall performance and result of those projects are binding to the success of the final product and project management.

In this thesis, it is the first time a framework, which simultaneously encompasses all elements of project success, has been developed. As an obvious result, it changes the way people perceive project success and how to achieve. The framework helps to fill the knowledge gaps in the literature of project management in transitional and emerging markets. It provides a clear picture of the key stakeholders involved with related activities which need to be carried out across the different phases of the project process,

identifies the severe problems which need to be addressed, and provides a better understanding of the standards which are required in safeguarding project success. The validity of the framework and empirical findings of this research contribute new insights into the developing world as Vietnam is the case study. Therefore, the thesis significantly contributes to the body of knowledge of project success and construction project management.

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Abbreviations

ADB	**Asian Development Bank**
BOT	**Build, Operate, Transfer**
BSC	**Balance Score Card**
DB	**Design and Build**
DBB	**Design, Bid, Build**
FDI	**Foreign Direct Investment**
GDP	**Gross Domestic Product**
INGO	**International None-Governmental Organisation**
MOC	**Ministry of Construction**
MOF	**Ministry of Finance**
MOT	**Ministry of Transport**
MPI	**Ministry of Planning and Investment**
ODA	**Official Development Assistance**
PEST	**Politic, Economic, Social, Technology**
PFI	**Project Finance Initiative**
PMU	**Project Management Unit**
PPP	**Public Private Partnership**
RD	**Research and Development**
SWOT	**Strength, Weakness, Opportunity, Threat**
VCI	**Vietnamese Construction Industry**
VRA	**Vietnam Roads Authority**
WB	**World Bank**
WTO	**World Trade Organisation**

CHAPTER I INTRODUCTION

1.1 Introduction

The purpose of this chapter is to present the introduction to this research project. It presents the research background, motivation of the research, aim and objectives of the research, outline methodology adopted for the research, besides specifying scope of the research and contribution to knowledge. Eventually, it describes the structure of the thesis.

1.2 Background of the research

The construction industry is the one which contributes greatly to the development of a country, especially in the developing world. In fact, the development of the construction sector also accelerates the development of other sectors in a national economy. National economic growth is usually measured by many factors including the development of construction industry like infrastructure and transport sectors. The successful achievement of these construction development projects plays a vital role for governments and communities (Do and Tun, 2008).

However, it is difficult to achieve success on construction projects in developing countries (Vickridge, 2002). According to Clarke (1999), the management of construction projects is sophisticated and contains the planning, organisation and control of many complicated factors, activities and their interrelations. Moreover, Vickridge (2002) notes construction and engineering projects in the developing world are significantly different from those in developed countries. The significant issues are related to the business culture, political issues, finance and economic issues, human resources, materials, technology and other social factors.

In addition, Kwak (2002) points out that the environment of international development projects is far more complex than domestic projects in developed and industrialised countries. There are many factors which are internal and external, visible and invisible, that influence project environment and create high risk in achieving project objectives. Moreover, Wang et al. (2004) point out that performing well in the international construction market, especially in developing countries, will not be easy due to the risk of working in a foreign/international environment.

According to Chua et al. (2003), the East Asian construction market is one of the most dynamic construction markets internationally with huge demands for infrastructure investment and economic development. In addition, they identified that the obstacles which are usually met in the East Asian construction industry normally originated from five aspects: contractual arrangements, regulatory restrictions, business environmental risk, differences in standards and differences in culture. For example, Kwak (2002) identifies that differences in socio-cultural background between project participants could cause conflict of interests, pressure and frustration, and other sophisticated issues which restrain the progress and lead international development projects to failure. Sometimes unstable political regimes can also cause interruption and delay in those projects. Hence the ability to recognise and understand these differences is an integral part of the successful management of projects in developing countries.

In practice, construction development projects such as energy (oil and gas, power generation and supply), telecommunications, transportation (roads, bridges, tunnels, ports, airports and light rail systems), water (sewerage, supply and waste treatment), and social infrastructure (buildings, hospitals, and education institutes) (Watson et al., 2009 and Nguyen et al., 2009) contain different work stages and phases implemented by the public and private sectors with the same goal to deliver the projects to a successful completion (Takim, 2009).

However, because of many significant differences in characteristics such as the business culture, knowledge and skills, political regimes and the complex relationships of stakeholders involved (Chua et al., 2003 and Do and Tun, 2008), construction development projects need further research in order to find out a solution for improving the chances of achieving success. Do and Tun (2008) identify that there has been a lack of studies which pay adequate attention to those projects, especially in the public transport sector. Therefore, this research will investigate them further as an important project management application area.

Vietnam is a poor and developing country which needs infrastructure and transport facilities for socioeconomic development (World Bank, 2009), where Nguyen et al. (2004) identify that Vietnamese construction industry (VCI) is one of the most dynamic markets in the Southeast Asian region. However, there are many problems in Vietnamese large construction projects which have been determined by Truong et al.

(2004) and Le et al. (2008) such as time delays, cost overruns, poor project quality, health and safety issues and lack of stakeholders' satisfaction (Nguyen et al., 2009). Therefore, it can be seen that those projects were not successfully finished and as a result, they restrict the industrialisation and modernisation process of the country. This implies that it is necessary to improve the success of future projects.

In recent years, there have been several efforts to identify problems which led many large construction projects to fail, or critical factors which can help to achieve better success of those projects. Nevertheless, proposals from previous studies are not consistent to effectively cope with the current perspective in Vietnam (detailed discussions can be found at the end of Chapter 2). Thus, it is necessary to find out a new solution, especially for public transport development projects where there is a lack of proper concerns and focuses.

In the construction industry, because of issues such as complexity, risks and uncertainty of projects, there is a great barrier for even the best project managers as well as other participants (Nguyen et al., 2004). During construction time - from the feasibility study to the completion of the project - there are many problems which badly impact quality and delay the project despite it is being carefully and logically planned. Torrington and Weightman (1994, p.61) claim, 'no matter how carefully they are prepared, plans are never the same as reality; dealing with the unexpected is an essential part of effective management'. Hence, Barry and Randolph (1988) say managing a project from beginning to completion successfully can be a challenge. Despite efforts to managing risks, anticipating the outcomes or tools for management, projects are still completed with poor results such as cost overruns, time delays and compromised specifications (Meyer et al., 2002). Thus the motivation to deliver a construction project successfully has stimulated many researchers for a long time.

For many years, researchers have been attempting to explore and find suitable solutions to cope with complicated activities in construction projects for successfully achieving project aims and objectives (Chan and Chan, 2004). This trend has widespread in many developed and developing countries with a goal to use budgets and other resources efficiently in order to decrease the length of constructing time and enhance the quality of final product and services provided (Atkinson, 1999 and Diallo and Thuillier, 2005).

Munns and Bjeirmi (1996) identify that for the last 30 years, project management has become an useful and effective concept to cope with complicated activities. The purpose of project management is to achieve successful project performance (Shenhar et al., 1996). Although understanding key factors and criteria will not guarantee the success of a project, it will enhance opportunities to avoid or prevent the project from failure. Sanvido et al. (1992) agree with this statement and argue if project participants are able to understand and predict the possibility of success better, they might determine issues and problems on existing projects and make corrective action, determine good projects worth pursuing, and avoid unsuccessful outcome of future projects. In addition, Truong et al. (2004) also point out that understanding problems will avoid project failure and achieve more successful results.

De Wit (1988), on another hand, states that critical factors are useful for evaluating and appraising the success or failure of a project while success criteria set standard for the levels of success. He says the identification of factors for success and causes of failure are critical for project participants like owners-clients, contractors and other stakeholders in order to prevent repeating mistakes while simultaneously focusing on factors which confirmed success in other projects. However, although there have been many attempts to find out and identify criteria for measuring success and critical factors for project success, there is still no final agreement because researchers or stakeholders have different views about project success (Baccarini, 1999, Shenhar et al., 2002, Chan and Chan, 2004, Do and Tun, 2008, Toor and Ogunlana, 2010 etc.).

There are different critical success factors proposed for different types of construction project in order to help managers and organisations achieve high performance. However, previous studies reveal that it is difficult to apply ‘too general or too specific success factors’ in practice, particularly in developing countries where managerial skills and knowledge are not available (Nguyen et al., 2004).

In addition, project stakeholders usually have different view about project success (Freman and Beale, 1992, Shenhar et al., 1997, Westerveld, 2003, Toor and Ogunlana, 2010), thus a lack of agreement from those stakeholders could lead projects to different outcomes. It is therefore necessary to explore from stakeholders involved in those projects how they measure success and which critical success factors are being used by them in order to deliver projects to the final success. In the context of the VCI, the

criteria are yet to be identified as well as relevant critical success factors which need to be applied in public transport development projects.

1.3 Motivation of the research

According to Phan and Luu (2012), over the past 50 years the VCI has demonstrated itself as an instrument for national industrialisation and modernisation with the fast urbanisation seen across the country. Construction was one of the booming sectors during an extended period of growth and amazing poverty reduction. In addition, after fully accessing and integrating into the WTO in 2007, there has been enormous investment in infrastructure development projects across Vietnam and this area has been offered incentives by the government (Nguyen et al., 2009).

Moreover, because of the flood of ODA loans and FDI flow into the country, there is a greatly increasing demand in the construction and transport sectors (Truong et al., 2008). Nogales (2004) and Pham (2008) note that government is still the biggest client in Vietnam and the public sector is expected to play an important role in order to improve the effectiveness and efficiency of the construction industry. Most of the public infrastructure and transport projects in the country continue to be mainly budgeted, constructed and operated by the public sector (Nogales, 2004). Ling and Bui (2010) point out that the VCI provides many opportunities for engineering, construction and architectural firms due to economic growth and that leads to the need for building more facilities.

Nevertheless, IB (2008, p.47) identifies that ‘transport infrastructure is a huge problem in Vietnam and so far there is no evident solution’. In fact, Vietnam is the country which has the most motorbikes in the world (World Bank, 2009). During recent years, with the very fast growing of the national economy, there is a booming of number of cars in most cities throughout the country which leads to traffic jams and overstressed roads (IB, 2008). However, the roads and infrastructure in those cities are inadequate for coping with the increased traffic. Government has tried many ways to resolve the problem. Yet, due to the weakness of planning and management as well as strategic management for urbanisation, the results are very poor. The motivation for this research, therefore, is how to cope with the above problems and help future projects to achieve more successful outcomes.

In this research, public transport development projects are defined as road projects which including roads, bridges, highways, motorways and tunnels. It does not focus on ports, airports or railways. The purposes of those projects are to support the socioeconomic development process of the country by connecting cities or economic zones, while tackling severe traffic problems in big cities. They are usually generously funded by both the government and international donors.

Actually, public transport development projects are regarded as construction projects in every aspect. However, they possess significantly different characteristics compared to other types of construction projects in terms of scale, purpose, technology required and the complex of stakeholders' involvement. More importantly, literature reviews show that little research has been done in this significant area. Considering the unique environment in the VCI, to find an appropriate management strategy for those projects to be successfully completed is extremely important for the sustainable growth of the country. However, existing literature does not provide a sound solution to cope with the research problem and to fill the knowledge gap.

Do and Tun (2008) identify that the critical factors identified in literature reviewed were mainly focused on either the overall success of a project or the success of construction management as a whole, so that previous studies failed to explicitly list the factors which are relevant to the different phases during the project lifecycle. Zwikael and Globerson (2006) point out that critical success factors are rarely specific enough for project managers and other stakeholders to adopt and act on. Therefore, they cannot be used to progressively improve project success. In addition, in the mainstream study of project success, authors usually focused on criteria or critical success factors and very few of them focused on both, but most of them ignored other important elements which also have strong influences on the achievement of project success.

The goal of this research is to identifying and understanding problems which potentially and severely impact project results, identifying criteria for measuring success, identifying critical success factors which need to be applied during the project lifecycle to cope with problems and to enhance the achievement of project success, identifying and understanding the most important stakeholders and their influences on project outcomes, and finding out the most relevant methods to implement and construct those projects. This will help to overcome the problems and prevent public transport

development projects in Vietnam from failure. In addition, it will provide useful information and guidance for stakeholders (especially foreigners) who work in the VCI to know how to avoid failure and deliver future projects more successfully.

The purpose of this research is to contribute to the body of knowledge of general project management by addressing public transport development projects that take place in the developing countries with Vietnam as the case study. It focuses on the development of a framework for successfully managing future projects. The reasons for this choice are because of the following advantages: Firstly, a framework can be used for planning, implementing, managing and evaluating projects; Secondly, it presents the key elements of project success in a clear, concise, systematic and logical way; Thirdly, it provides a handy summary to inform project managers, management team and other stakeholders, which can be referred to during the project lifecycle; Finally, it provides a complete picture of project success with details so that it is easier and more comfortable for managers and other key stakeholders to comprehend then employing and applying to practices.

A lifecycle based (management process) approach and a logical framework approach have been used to develop a success framework that takes into account both frameworks developed for general (construction) projects and specific characteristics and context of public transport development projects in Vietnam. Because the success framework supports the whole project lifecycle, it can be useful for all key stakeholders by identifying and understanding different sets of critical success factors at each stage of a project. The application of those factors will help to predict and achieve project results which will be measured and evaluated by a set of specific criteria.

In order to avoid any disadvantages of the application of critical success factors in future projects, this research focuses on the concept of success which includes both criteria and factors from project stakeholders rather than concentrating on any specific type of project (e.g. DBB, DB, CM etc). As noted by Nguyen et al. (2004), specific set of factors might not be applied and transferred to another project where differences lie within environment, nature, participants, and project aims and objectives. The research is based in Vietnam, and this seeks to have application in other developing countries which have similar conditions.

1.4 Aims and objectives of the research

The aim of this research is to *develop a framework for successfully managing public transport development projects in Vietnam*.

In order to achieve this aim, this research is about to solve two fundamental questions:

- What constitutes project success?
- How can public transport development projects in Vietnam be successfully achieved?

To answer the two research questions, a set of specific objectives should be achieved:

(i) To review the current perspective of the VCI and analyse the influences of the environment (in terms of politic, economy, society and technology) on project outcomes;

(ii) To identify elements, factors and methods which have strong influences on the achievement of project success, especially in the construction industry;

(iii) To develop, verify and validate a framework for successfully managing public transport development projects in Vietnam.

1.5 Outline of research methodology

In order to achieve the aim and objectives of the research as stated above, a three-stage strategy is adopted and carried out in this study as follows:

Stage one involves an in-depth review of existing literature to provide a complete picture of the VCI with existing problems and issues in current practice. In addition, current theory of project management and project success is also extensively reviewed in a multidimensional approach, in order to specify the elements which have strong influence on project outcomes. These elements are then integrated in a framework, which is underlined by a coherent and appropriate theory, in order to assist stakeholders in the VCI managing and implementing public transport development projects more successfully.

Stage two covers data collection by using a survey with questionnaires as an instrument. Both qualitative and quantitative techniques are employed for data analysis in this

research. Findings from the survey are used to revise and develop a final framework for managing public transport development projects in Vietnam.

In stage three, the framework is verified and validated by interviewing selected experts to gain their opinion regarding its practical application and usefulness in live projects.

The research design and methodology are discussed in Chapter 4.

1.6 Scope of the research

This research discovers how Vietnamese public transport development projects are currently managed and implemented as well as successfully achieved in current practice. It is essential because as abovementioned, de Wit (1988) determined that the recognition of critical success factors, success criteria and identifying reasons for failure are vital for project participants. Therefore, the scope of this study will be:

- The construction industry is a big sector which contains sub-markets and smaller sub-sectors with many construction firms competing. In addition, it covers areas such as commercial, industrial, housing and non-residential etc. This research only focuses on public transport development projects, especially on road projects such as roads, bridges, highways, motorways and tunnels.
- There are many stakeholders in the construction sector as well as construction projects. Because of the nature of the research, it focuses on stakeholders (both native and foreigners) who are involved and active in public transport development projects only.
- This research focuses on the public transport sector in Vietnam. Nevertheless, it is expected that the success framework will be relevant to be applied in other developing countries with similar conditions to Vietnam.

1.7 Contribution to knowledge

The original contribution of this research to the body of knowledge of project management and project success is:

- This is the first time a framework which encompasses all elements of project success simultaneously has been developed.

- It shifts the traditional way of perceiving and achieving project success by just not only identifying criteria and applying critical factors, but also by identifying and understanding other three elements and their strong influence on success achievement such as: severe problems, key stakeholders and project process. A complete picture of project success has been established the first time in this study.
- The validity of the framework and empirical findings contribute new insights into project management and project success in the developing world as Vietnam is the case study. These will assist stakeholders in improving success of future public transport development projects.

1.8 The thesis structure

There are nine chapters in this thesis. Inclusive of this Introduction Chapter, the other chapters are detailed as follows:

Chapter 2 presents the current perspective of the VCI with the problems and issues within. This chapter will give readers a clear picture of the Vietnamese scenario and what is happening in construction projects. It also presents and discusses previous studies which relate to the VCI and critically analyses how the findings from those studies are not consistent for applying to managing public transport development projects.

Chapter 3 provides an in-depth review of literature about current theory of project success with related issues such as critical success factors, criteria for measuring success, and methods for improving success of project outcomes. This chapter will give readers a comprehensive view about project success under a multidimensional approach. The common criteria and factors which are proposed in previous research are identified and adopted for integrating in the framework

Chapter 4 provides an in-depth review of the research methods and specifies the methodology adopted in this study in order to achieve the research aim and objectives. It will explain why survey technique with questionnaires and interviews are the most relevant method to collect data and validate the proposed factors of the success

framework. Also it will explain why the mixed method approach is the most relevant technique to be employed in this study.

Chapter 5 discusses the development of the framework of this research in order to cope with the serious problems in the VCI and improve the success of public transport development projects. It will explain how to conceptualise the framework with specific key elements which interrelate and contribute to the final success.

Chapter 6 discusses and analyses the data collected from the questionnaire survey. The purpose of this study is to test and validate the proposed factors in the framework as described in Chapter 5. After the research findings are specified and confirmed, the final framework is modified and developed by the validated factors to meet the needs of current practice.

Chapter 7 is all about the verification and validation of the final framework. It discusses the feedback collected from interviewing the experts. The Success Framework is achieved and validated in this research.

Chapter 8 discusses empirical findings from the research and their implications when compared to existing theories.

Chapter 9 is the conclusion chapter. It summarises the whole thesis with the achievement in terms of aims and objectives, acknowledges the limitations, clarifies contributions to knowledge and makes recommendations for future research.

CHAPTER II THE VIETNAMESE CONSTRUCTION INDUSTRY

2.1 Introduction

The aim of this chapter is to provide a general picture about Vietnam and insights of the VCI with an understanding of how a public transport development project is initiated, reviewed, approved, financed, implemented and managed. Issues such as political, economic, social, and technological (PEST) will be reviewed and analysed to create a comprehensive view of Vietnam and find out how these issues having impacts on the construction industry and project outcomes.

This chapter will provide a clear sense of how and why many projects in the VCI are delayed in time, overrun in cost and finished in poor quality standard whilst lacking satisfactions from participants by:

- Firstly, looking at the VCI with the complication of project administration between Ministries and governmental departments;
- Secondly, looking at the focused areas of investment in the VCI with the market shares between construction firms and sectors;
- Thirdly, looking at the political regime and its inherent problems, particularly barriers created for international players who want to join the VCI;
- Fourthly, looking at the unique economic environment in Vietnam which is steadily integrating into the global market and its influence on the VCI;
- Fifthly, looking at the social perspective in Vietnam, especially the education and training system which is struggling to supply quality human resources;
- Sixthly, looking at the obsolete equipment and technology which Vietnamese construction firms are possessing and how these adversely influence many projects;
- Finally, reviewing and analysing previous studies about the VCI and identifying why they are not consistent to provide a sound solution to cope with problems and enhance project success.

2.2 The background of Vietnam

In 1986 Vietnam started a transformation process which is known as Renovation by reforming from a centrally planned economy to a free market economy. The prime

purpose of the transformation is to overcome many problems which hinder the socioeconomic development and modernisation process of the country (Pham, 2008). As a result, Vietnam has achieved many significant improvements in economics, agriculture and other sectors. The standard of living of Vietnamese people has changed gradually from poverty to basic quality with the very fast development of the national economy (World Bank, 2009). In addition, Vietnam has been moving from an agricultural country to an industrialised country. In order to catch up with and adequately support the socioeconomic development process, infrastructure and transport facilities in Vietnam also need to be simultaneously and urgently built up.

However, like many other developing countries, Vietnam is still poor and needs investments and assistance from the developed world. Moreover, the country has many problems which need to be sorted out in order to improve its attractiveness in foreign sponsors/investors' eyes, besides improving the performance of the national economy. On another hand, according to Ofori (2000), the economies of many developing countries are confronted by severe difficulties owing to a combination of lower commodity prices, higher energy costs, falling exchange rates and rising inflation. At the same time, developing countries face immense social problems - including a rising urban population and unemployment - that put pressure on a nation's resources and capabilities. As a result, all those issues have negatively influenced the construction industry and outcomes of many projects. In this chapter, the general context of Vietnam and the construction industry will be detailed in the following section.

2.3 The VCI and the current environment

2.3.1 The VCI

There are two departments which directly control and manage transport and construction projects in the country: Ministry of Construction (MOC) and Ministry of Transport (MOT). In Vietnam, the MOT is mainly responsible for projects such as: roads, bridges, highways, motorways, tunnels, ports, airports and railways; besides developing and implementing policy, planning, programming, setting standards and funding and monitoring the transport sector. There are five separate administrations which have been formed for each major sub-sector of transportation. For the rest of

construction projects, legislation and programmes are controlled and managed by the MOC (Watson et al., 2009).

However, Nogales (2004) points out that administration of the Vietnamese transport sector is complicated and managed by many agencies. For example, a proposal for investing in building a new highway or bridge is conducted by the MOT and the Ministry of Planning and Investment (MPI), and the approval is decided by the Prime Minister or the National Assembly. Furthermore, the implementation and management of the project are carried out by an appointed Project Management Unit (PMU) that works on behalf of the MOT, but the maintenance of the infrastructure/building is the responsibility of the Vietnam Roads Authority (VRA), while the Ministry of Finance (MOF) is the channel for funding. Because of this complicated involvement, this creates a slow decision making process for many projects especially in terms of approval or payment. This should be reduced as much as possible to enhance the attraction and competitiveness of the country to foreign investors whose countries do not see a mechanism like this at home or elsewhere.

According to Pham (2008), the construction industry in Vietnam includes all types of work which are dominant by infrastructure development projects which are both small and large, and consists of activities such as: industrial construction, engineering construction, building construction, transport construction and so on. Nogales (2004) identifies that roads and bridges, railways, aviation, inland waterways and sea shipping play significant roles in the construction sector. In addition, the Vietnamese public investment priority is to focus on the maintenance, upgrade and building of new roads, bridges, highways and ports while small amounts of money have been allocated to the others. In fact, the needs for the Vietnamese transport sector are huge and growth in demand has been significant. It can be seen that public transport development projects in Vietnam are playing an important role in the construction industry and receiving enormous investment. Therefore, the success of those projects is vital for the country and socioeconomic development purposes.

Truong et al. (2008) determine that the Vietnamese construction market is mainly dominated by medium and large construction firms. The proportions of these firms are as follows: small (74%), medium (20%), and large (6%). However, the contribution to the total revenue of the construction sector mainly comes from the medium and large

construction firms. In addition, according to Nogales (2004) and Raftery (1998), despite the number of private domestic contractors increasing dramatically since the introduction in 1989 of the Private Business Law, it is still difficult for them to participate in large public development projects. This indicates a big difference from Vietnam and the developed world where the market is mostly dominated by private enterprises.

According to World Bank (2009), because of the power and position in the domestic market which are accompanied by close relationships with the Vietnamese government, state-owned contractors gain many large and important projects and occupy a large section in the construction industry. Thus, they are slowly overwhelming the market and force small and medium private contractors back. The opportunity of doing business for these companies, therefore, has been getting narrower. It could be hard for them to develop and improve their competency; so that they cannot play an important role in the national economy.

As a result, the domination of the state-owned enterprises has already threatened the stability of the market and creates unfair competition with other private firms in important and large construction projects in the country. It can be seen that this is a characteristic of a transitional process from a centrally planned market to a free market economy, when state-owned corporations are being given so much priority and privileges but using those improperly. Truong et al. (2004) state that bidding processes have been blamed publicly in the country's media as being unfair and unhealthy. In addition, Chua et al. (2003) identify that it is possible under the local preference policy for the government to assign contracts to designers and contractors although they are not the lowest bidders or having adequate experiences. This has led to contracts being awarded to incapable people which eventually lead to a failure of many projects.

On the other hand, with the wide and intensive integration into the international market after joining the WTO, it is a clear trend towards the participation of foreigners in the Vietnamese domestic construction market. Vietnamese firms which are both state-owned and private have to face new competition from foreign companies in the construction sector. Meanwhile, the plan for the VCI suggests that the private sector (both domestic and foreign players) will need to contribute a significant share toward overall investment in infrastructure. For instance, it is expected that more than 40% of

investment in transportation will be privately funded. This appears to be an effective strategy (MGI, 2012).

Also, the Vietnamese government has recognised the importance of foreign capital, technology transfer and management know-how which is brought in by foreign corporations. In fact, Vietnamese infrastructure development projects and the construction industry are heavily dependent on foreign assistance because the government does not have enough money for funding whilst domestic firms do not possess sufficient supply capability and modern technology (Truong et al., 2008). However, there is still a lack of consistent policies for maintaining, attracting and motivating foreigners to stay in Vietnam and keep doing business after their projects are completed (Pham, 2008).

This could strongly influence the socioeconomic development process of the country when those investors leave Vietnam and take everything with them to a new destination, while Vietnamese contractors and the government are not competent enough to handle large infrastructure development projects on their own. Therefore, it is necessary to improve the effectiveness and efficiency of those projects by achieving more successful results. By doing so, this will inspire and motivate foreign investors to maintain their interest and investment in the domestic market.

The following sections will discuss the Vietnamese current perspective, its influence on construction projects, and existing problems within the VCI.

2.3.2 Politics and influences on the VCI

Vietnam is a socialist country and ruled by the Communist Party with a stable political regime which makes it a favourable place for foreign investments (IB, 2008). In recent years, according to Nogales (2004) and Pham (2008), the Vietnamese government is attempting to create a warm and hospitable environment - "*rolling the red carpet*" - for attracting foreign investors. Achievements of this effort are significant and present in many projects between Vietnam and other donor/sponsor countries, particularly with a huge amount of money spent on the infrastructure and public transport development projects and more FDI flows into the country. In the year 2007, the new president of World Bank visited Vietnam and claimed that Vietnam is a good and right destination

for investment (Vietbao, 2007). This contributed to the status of Vietnam as an emerging and favourable economy worldwide.

In addition, IB (2008) argues that after joining the WTO in 2007 and fully implementing the commitments in fair trade and following international rules about doing business with international companies, Vietnam has provided a better and more stable business environment for foreign investors. According to Vardy (2007), besides China, India, Russia, Brazil, countries from the Gulf and Canada, Vietnam is one of the hottest construction markets in the world. In addition, as a consequence of fully integrating into the WTO, the government has promulgated a Law on Foreign Investment in Vietnam and this helps to quickly contribute to the economic development (Pham, 2008).

However, Ling and Bui (2010) point out that as a member of the WTO, Vietnam has to allow WTO member countries' construction corporations to operate in the VCI. This means that opportunities are also being created for foreign players in the domestic market. Therefore, as a result, it creates a new dimension of competition for Vietnamese construction firms in the globalised environment. Nevertheless, Chua et al. (2003) argue that foreign companies are vulnerable to the political risk which is associated with changes in government policies, laws or regulations which directly influence their operation in the context of international business.

In addition, Kwak (2002) points out that inevitable political interference coupled with bribery and corruption, lack of transparency and lack of regulation are widespread in international development projects. Moreover, the interference and involvement of powerful beneficiary-groups in a project usually create political corruption and this issue is regarded as 'an unavoidable fact of life' on projects in developing countries, especially in Vietnam and China (Chua et al., 2003).

Therefore, Le et al. (2008) and Brown (2009) identify that doing business in Vietnam is not easy for foreign investors and corporations because of many restrictions, especially in the infrastructure and real estate market (Le et al., 2008). Chua et al. (2003) identify those obstacles such as a complicated legislative system; and the laws of the construction industry which can create unpleasant surprises to foreigners who are not familiar with the legislative framework. Meanwhile, the government directly influences the VCI through policies and legislation. In practice, the project approval and payment

process are slow and normally prolonged in Vietnam due to many agencies involved (Nogales, 2004).

There have been large amounts of money lost in public projects due to political corruption and poor management. Also, the lack of transparency in bidding process and financial accountability is threatening the potential investment from foreigners in Vietnam (World Bank, 2009). These issues could prevent the knowledge and technology transfer process which are brought about from foreign partners, therefore negatively impacting on the process of development and modernisation in Vietnam. Clearly, political issues in Vietnam have strong influences on the construction industry and on the results of many projects. These need to be properly concerned by all parties and professionals when doing business here.

2.3.3 Economic and influences on the VCI

During the last twenty years, Vietnam has been one of the fastest developing economies in Asia (Pham, 2008). According to VE (2008), GDP growth hit 7% and recorded the fastest economic growth in Southeast Asian countries in 2002, and in the year 2007, the GDP reached 8.46%. World Bank (2009) identifies that during the period of transformation and development which started in 1986, annually, the average GDP of Vietnam has been around 7.1%. With the shift from centralised subsidy-based to market economy (Raftery et al., 1998), Vietnam now gradually moves towards industrialisation and modernisation (Pham, 2008).

Figure 2.1 Vietnam GDP Growth Rate between 2000 - 2008

In fact, Vietnam is having a socialist-oriented market economy (Pham, 2008) which makes the country unique around the globe. Phan and Luu (2012) point out that the Vietnamese economy remains dominated by state-owned corporations which produce about 40% of GDP. Nevertheless, Vietnamese authorities have confirmed and restated their commitment to economic liberalisation and international integration. They have moved to carry out necessary structural reforms in order to improve the performance of the economy and to create more competitive export-driven industries.

According to MGI (2012), the significant growth in Vietnam in recent years reflects a movement from agriculture to more productive industries and services, which is considered a typical route for a developing economy and can be understood as the transitional process. Meanwhile, Vietnam has benefited from a growing and young labour population, and from the policy reforms that have opened up the domestic economy to the global market after many years of isolation. Both the new flows of foreign investment and rising domestic private investment generated substantial transformations in the manufacturing and service sectors. Together with relatively low-wage labour, these factors have allowed the broad-based and strong economic growth of Vietnam in recent years. The liberalisation of services has created prospects for a fast expansion across the ranges of transportation, retail, and tourism. At the same time, increased investment has helped to increase Vietnam's capital stock. As reported by Vardy (2007), the Vietnamese Stock Market had increased a spectacular 500% since 2003, and attracting a flood of FDI giving business access to more, and better, machinery and equipment and infrastructure that has helped to boost productivity growth.

There was a view that Vietnam was on the way to becoming industrialised and ready to join the group of developed countries within the next 50 years. All the results which Vietnam had achieved until 2008 were excellent and tremendous. However, the future of Vietnam became more difficult when the economic crisis occurred in early 2008 in Vietnam and in mid-2008 in the USA and then quickly spread all over the world. The Vietnamese government also had to struggle with high inflation at the same time. At the end of June 2008, Vietnam's inflation hit 26.8%, the highest rate during the last previous 20 years. Vietnamnet (2008) pointed out that the high inflation rate was threatening the macroeconomic stability by affecting foreign investment capital flow and interrupting the expenditure of FDI - the progress for economic growth.

The following figures show the inflation in Vietnam during the period from 2000 to 2008.

Figure 2.2: Vietnamese inflation and GDP growth
Source by DBS Group Research (13.03.2008)

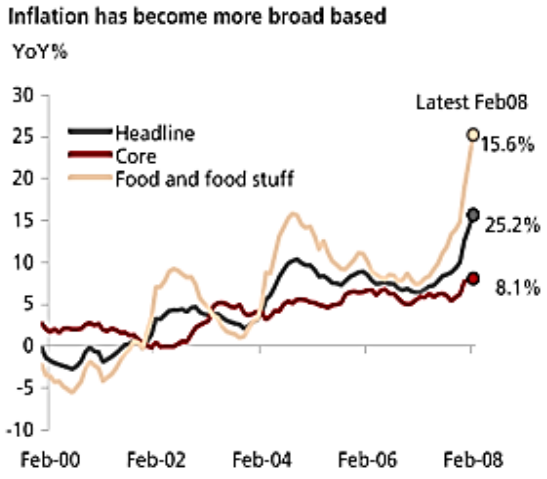

Figure 2.3: Vietnamese inflation spreads

From the diagrams above, it can be seen that inflation growth in Vietnam was much higher compared to the real GDP growth for the same period of 2007 – 2008, which contained a big threat for the balance of the economy. According to Phan and Luu (2012), in early 2008, Vietnam was challenged with the overheating economy which resulted from massive capital inflows. Efforts to sterilise these inflows could not stop a boom in banking credit, a ballooning trade deficit, an acceleration of inflation and asset price bubbles. MGI (2012) states the first priority, for Vietnamese officials, was to restore calm in the macro economy and guarantee that Vietnam maintained the trust and enthusiasm of investors, both national and international. Yet, a deteriorating trade balance, surging inflation, rising interest rates and repeated devaluations of the Vietnamese currency have challenged the confidence of investors in recent years.

Nevertheless, a determined reaction by the Vietnamese government from March 2008 onwards was successful in stabilising the economy and decreasing the trade deficit to controllable levels (Phan and Luu, 2012). World Bank (2009) also confirmed that Vietnam was successful in coping with the crisis and controlling high inflation as well as proposing suitable and effective solutions such as emergency acts and stimulus packages to stabilise and accelerate the economy. As the director of World Bank in Vietnam said, Vietnam had done very well everything which was needed to sustain and survive in the crisis, and once again become a trusted destination for World Bank (E-

Finance, 2009). These achievements gained credit and optimistic views from both domestic and international investors.

From the period of 2008 – 2012, Phan and Luu (2012) report that the average GPD growth rate of Vietnam was 5.5% which was quite lower when compared to the previous period of very fast development. In addition, the real GDP annual growth of Vietnam eased from 5.9% in 2011 to 5.0% in 2012 – which was the slowest rate since 1999. It was expected that the Vietnamese economy would grow in the future and the growth was expected to be supported by a decrease in interest rates and increases in export demand (RnR, 2013).

Figure 2.4. Vietnam GDP Growth Rate between 2008 - 2012

The industrial and construction sectors in Vietnam, on another hand, are the main contributors to growth and accounted for 39% of GDP in 2002 and up to 42% in 2007 (Bloomberg News, 2003 and 2008). According to Phan and Luu (2012), the industry sector, including construction, which represented 42% of the total GDP in 2012, rose by 4.52% annually. Sectors such as: power, water, transportation, oil and gas, and telecommunication have been the greatest for investment by foreign investors (Watson et al., 2009). During the period from 1989 to 2008, investment in the Vietnamese construction sector had been increasing every year (Pham, 2008).

Nguyen et al. (2009) report that between 10% and 20% of national budget has been allocated to infrastructure development in recent years, and this number shows that Vietnam has been spending well above the average expenditure in this sector among

other developing countries in the world (Watson et al., 2009). However, this amount of money was still insufficient to catch up with increasing demands of a 7.5% plus expanding GDP every year. In other words, having a limited domestic and national funding pot for investing in construction development projects, the country has to depend mostly on foreign aid like other developing countries.

After joining the WTO in 2007, there has been more and more capital from foreign investors as well as donors spending on the VCI (Pham, 2008, Le et al., 2008, and Nguyen et al., 2009). In fact, MGI (2012) identifies that Vietnam has already made substantial investment to develop and improve infrastructure in recent years. For example, the road density in Vietnam surpasses those of the Thailand and Philippines and investment in new ports and airports such as in Da Nang and Can Tho has improved the connections of the country to the rest of the world. Yet, interviews with executives and international assessments of infrastructure both strongly suggest that more investment in infrastructure will be needed to support the transition of the Vietnamese economy to more productive activities (MGI, 2012).

Le et al. (2008) state that many large construction projects in Vietnam are now delayed because of insufficient funds; and the difficulty in finance is always ranked as the first problem which directly involves owners and contractors. Truong et al. (2004) claim that high cost of financing and difficulty in getting loans are adverse factors which greatly contribute to the problem. Moreover, interference in owner's decisions and funding shortages are other common problems attributed to financial issues.

In addition, Pham (2008) reports that after a long period of very fast development, the VCI had to cool down by 2008. This was due to the global and national financial crisis – as previously discussed – as well as the rocketing prices in construction materials. Prices in the category that include construction materials jumped 23.7% in June from 2007 and kept rising 1.9% month-on-month, while transportation prices climbed 14.9% year-on-year (Bloomberg, 2008). Furthermore, because of the explosion of the real estate bubble in 2008, while interest rates were escalating due to the economic stabilisation policy with the high price of cement, steel and so on, this made the GDP of the construction sector decline, and there was almost no increase compared to 2007 when the construction sector grew by 12%. This was considered as the lowest growth of

the VCI since the beginning of the East Asian financial crisis in the 90s (Phan and Luu, 2012).

Nonetheless, the financial crisis revealed weaknesses of Vietnamese players in the VCI in many aspects which related to macroeconomic, investment and strategic management. For instance, the wrong investment of state-owned corporations in real estate besides the banking and finance sectors had caused the country many problems (Pham, 2008). It was reported that billions of US dollars which mostly came from the ODA loans and national budget had been wasted by those corporations because of wrong decisions and lack of understanding of market demands and trends. In fact, the money should have been invested in building new and completing recent infrastructure and transportation development projects which were, actually, insufficiently funded and resulted in delays (Le et al., 2008). Moreover, during the crisis period, the VCI had to import construction materials with very high prices. The domestic suppliers could not meet the demands and stabilise the market during the difficult period (Pham, 2008). This shows the weakness in manufacturing and supplying materials for the construction market although Vietnam is considered a rich country and having many different minerals.

After the financial crisis in Vietnam in 2008, which strongly influenced the VCI as discussed above, the context of the VCI during the period of 2009 – 2011 has been reported by Phan and Luu (2012) as followings:

Table 2.1. The context of the VCI during the period of 2009 – 2011

Year	Growth and Context
2009	**Growth**: 11.36% compared to 2008 and contributed to 6.7% of the GDP. **Context**: construction materials prices dropped and interest rates were low, so this was a good time for the ongoing construction projects including FDI. Furthermore, World Bank (2009) identifies that the recovery of Vietnamese economy in 2009 had been brought about by the construction industry.
2010	**Growth**: 11.06% compared to 2009 and contributed to 7.03% of the GDP.

	Context: the real estate sector continued to be on top in attracting FDI with the total newly registered capital of $6.71 billion, down 9% compared to 2009 capital. The construction sector was the fourth of attracting FDI with 141 projects and a total capital of over $ 1.7 billion, an increase of 4.4 times compared to 2009.
2011	**Growth**: By sectors, construction and manufacturing made up a large proportion of about 76.4%, much higher than 54.1% in 2010. Proportion of real estate in FDI fell strongly from 34% in 2010 to just 5.8% in 2011. **Context**: There were nearly $14.7 billion FDI registered in Vietnam, dropping by 21% over the previous year, while $11 billion of FDI was disbursed which equivalent to the same figure in 2010. Although the disbursed FDI was not as high as targeted, its structure was positively improved.

In general, it can be seen that the Vietnamese economy was developing very fast since the Renovation process started in 1986 until 2008. The construction industry is regarded as one of the largest sectors in the national economy, which contributes greatly to the GDP of Vietnam (Nguyen et al., 2009). In addition, plenty of money has been spent in the construction industry every year, but nonetheless project outcomes are very poor or unsuccessful (Truong et al., 2004 and Le et al., 2008). According to Ling and Bui (2010), although many construction projects have been initiated and completed in Vietnam, there are defects found in major buildings and transport facilities such as highways and bridges.

Moreover, like other developing countries, Vietnam has been struggling with finding sources for funding infrastructure and transport construction projects. Most of large construction projects in Vietnam are funded by ODA Loans from the World Bank (WB), the Asian Development Bank (ADB), and other donors whilst other projects are supported by national budget which directly contribute through civil tax collection or other sources. The aim of these projects is for utility purposes where there is very urgent

need for socioeconomic development (Do and Tun, 2008). Therefore, if these projects are not completed on time and budget and do not achieve quality standard, the consequences will be severe.

Clearly and strongly, it can be seen that economic issues have influenced the construction industry and results of many projects in Vietnam. Having sufficient funding throughout the project lifecycle seems to be the most influential factor to the successful completion those projects. This must be properly addressed by the government, investors and project developers when doing business here.

2.3.4 Social and influences on the VCI

IB (2008) identifies that Vietnam has a young population and a labour force which is normally regarded as cheap for any sector of the national economy. On the other hand, these large work forces are willing to relocate to any place. As a result, this creates attraction to foreign investors. In addition, according to Nogales (2004), most of population in Vietnam lives in rural areas (76%) while the rest (24%) are located in cities. However, with the trend of industrialisation and modernisation, there are more people moving from the countryside to industrial areas looking for jobs and they decide to settle down in those cities. This trend is expected to grow up to 35% in 2020 (World Bank, 2003).

Nonetheless, the current conditions in urban areas cannot support high demands from immigrants, thus there is a need for more facilities to deal with this situation resulting in building more infrastructures. In the countryside, many industrial areas or factories have been built up in recent years by both domestic and foreign enterprises. This development has accelerated to build more transport projects such as highways and roads for regional and national connection, besides supporting the socioeconomic development of local areas (Truong et al., 2004). As a result, Phan and Luu (2012) argue that poverty has declined significantly and the Vietnamese government has been working hard to create jobs in order to meet the challenge of a labour force that is growing by more than one million people every year.

MGI (2012) identifies that over the past ten years, the share of agriculture in national employment has fallen 13% in Vietnam. Simultaneously, the share of workers

employed in services and in industry has increased by 3.4% and by 9.6% respectively. This shift of workers from agriculture to services and industry has made a significant contribution to the expansion of the economy in Vietnam because of the large differences in productivity between these sectors. Average labour productivity in services today is four times as high as in agriculture, and industry productivity is almost six times as high. As a result, the share of industry in GDP has risen by 7.2% while the share of agriculture has dropped by 6.7%. Based on the above information, it can be seen that there is a clear trend of the labour market moving from the agricultural sector to the industrial and services sectors in Vietnam, and this significantly results in improved GDP growth in recent years.

However, IB (2008) identifies that the Vietnamese economy is lacking of technological competency and skilled workers throughout all sectors. In addition, the education and training system in the country is not adequate to supply quality human resources and meet the increasing skills demands from the construction industry (Le et al., 2008). Truong et al. (2004) determine that low quality and productivity of workers has had a bad influence on the progress of construction projects, especially when projects are large and complex as well as requiring modern technology. Workers normally do not have or lack knowledge about health and safety issues while the Health and Safety Law is not adequately applied (Le et al., 2008). The consequences are many accidents and fatalities. This creates a great concern for many contractors and site managers in Vietnamese construction projects.

Moreover, MGI (2012) argues that the low-wage, labour-abundant model which many firms have tended to count on in recent years may be no longer successful. In order to achieve higher productivity activities, low-wage labour needs to be substituted with new sources of comparative advantage. Vietnam has already been recognised as an attractive investment destination for foreign investors. Nevertheless, it lags behind many Asian countries in overall international competitiveness rankings. It has been reported that two specific categories where Vietnam scores poorly on the competitiveness index of the World Economic Forum are infrastructure and education.

In fact, it is not difficult to explain this because, firstly, according to Phan and Luu (2012), the income of construction labour is always lower than general average income of all sectors in Vietnam. That is why the construction sector has a lack of skilled

workers, even semi-skilled workers. MGI (2012) identifies that many employers have been reporting a shortage of properly trained workers and managers. Yet, the government has not had a stimulus policy of wages and salaries to attract people to join the construction industry (Phan and Luu, 2012).

Secondly, RnR (2013) points out that, Vietnamese families place a high focus on education which is regarded as a means of advancement and despite the economic crisis, the government maintained educational spending at 20% of the state budget; Thanhnien (2013) identifies that Vietnamese students are being trained by a poor education system, which is heavy in theory and not practical. This is a serious issue not only for the VCI, but also for every sector in Vietnam for teaching and training then supplying quality human resources that have skills and ability to work after graduation. As a result, despite the massive number of unemployed people in the domestic construction market, it remains difficult to find relevant candidates who can work in this sector (Pham, 2008).

In many construction projects which have been considered unsuccessful or failed, the reasons usually come from: designers who are responsible for impractical design; lack of project management assistance and involvement through project life time; contractors who are responsible for their financial difficulties; and project teams and project managers who are incompetent and responsible for poor site management (Le et al., 2008). Belout (1998) and Belout and Gauvreau (2003) identify that the human resource function is one of the most critical elements for the success of any organisation or project, and effectively managing people influences the results of many projects. Moreover, project manager, according to Bedingfield and Thal (2008) and Dvir et al. (2006), is the core factor in the success of a project by effectively managing his team and other stakeholders. Therefore, the lack of quality human resources is causing VCI many problems in managing and implementing public transport development projects.

Another problem which contributes to the failure of many construction projects in Vietnam is site clearance with related issues (Truong et al., 2004). Slow site clearance, unsatisfactory site compensation, and site management are the core reasons for time delays and cost overruns (Truong et al., 2004 and Le et al., 2008). Truong et al. (2004) note that project site clearance usually faces many conflicts both internal and external between project teams and communities. This is a major cause of interruptions in large

public transport development projects which creates a big threat by not only prolonging the project progress but also usually raising the cost due to high inflation and compensation for the land's owners.

In addition, corruption and lack of top management support in Vietnam have caused many problems not only for the construction sector but also for many others, and threaten the national economy (Vu, 2006). In Vietnam, 'it is well known that many contracts are signed because there has been an extra commission' (IB, 2008 p.46). Kwak (2002) clarifies that corruption is usually based on using unlawful influence to extract additional costs to give a favoured consideration in connection with awarding a project developer. Truong et al. (2004, p.560) point out that it was estimated 'from 20% to 40% of capital investment in construction is lost due to poor management for which bureaucracy and briberies are mainly responsible'.

According to World Bank (2000), nearly one third of Vietnam's public investment expenditure in 1998 – equivalent to 5% of GDP at that time – was 'squandered' without explanation or report. Furthermore, IB (2008) notes that the Vietnamese business culture has been formed based on the rule of the communist government for years. Vietnamese people put a significant level of importance on personal relationships with their business partners. Hence issues like corruption or collusion are inevitable in the country daily business.

In the Vietnamese perspective, it can be seen that social issues clearly have strong influences on the construction industry and on the results of many projects. The delivery process is severely impacted by many problems which are related to and created by human. These must be properly addressed and studied by investors and project developers when doing business here.

2.3.5 Technology and influences on the VCI

Truong et al. (2004) state that possession of modern technology is one of the most critical factors for success in today's business environment and the construction industry is not an exception. However, it is widely reported that construction firms in the VCI possess obsolete technology and equipment thus poor labour productivity is an obvious consequence (Pham, 2008). Also, there are limited numbers of people working

in the VCI who can manipulate and adopt new modern technology in large and complicated projects. These deficiencies can cause problems in engineering, while the construction methods and the capability to push the work ahead are really limited (Truong et al., 2004). As a result, Ling and Bui (2010) identify that defects were found and reported in many projects that were completed solely by Vietnamese construction firms.

Truong et al. (2004) argue that a serious challenge to the construction sector in developing countries is the inability to adopt or adapt established practices which have already been being used in other countries. It is also noted that although public sector in developing countries usually supports technology transfer from foreign counterparts, there are many problems involved in this transfer process. In Vietnam, large construction development projects often purchase and use technologies from other countries. However, knowledge on whether or not the technologies are suitable to the country's conditions is missing. This indicates that it is a big risk of wasting time and money in importing unfamiliar technologies when project participants do not possess or be able to manipulate those technologies.

Moreover, Le et al. (2008) suggest, in Vietnam, stakeholders should spend more time to focus on design-related problems which are normally seen in many large infrastructure projects. These problems have been constituted by three factors namely mistakes in design, design changes and additional works. As such, mistakes in design or poor design are the most common problems which come from low-competence designers. Moreover, lack of realism in designs leads to design changes, and owners are usually not clear about the scope and objectives of projects.

Chua et al. (2003) identify that in some developing countries such as Indonesia and Vietnam, there are no single local standards for design. Foreign companies, therefore, may adopt the standards prevailing in their own country which may differ from the ones assumed by the local companies. As a result, designs may be incompatible while unnecessary rework with cost growth can be caused by such differences in standard.

On the other hand, Truong et al. (2004) point out that inadequate and ineffective coordination and communication between parties are major causes of poor estimation and change management in the VCI. For instance, designs are normally unclear or not detailed enough to guarantee precise evaluation by contractors. In addition, unnecessary

change orders can create interruption to construction projects and, as a result, cause changes in the designed timetables, raise costs through rework and reduce efficiency of labour. Because of owners' unclear project scope and objectives, unexpected design changes occur while issues of constructability of designs cause many changes in the stages of construction. It can be seen that management of construction projects in Vietnam has faced various problems due to many causes, controllable and otherwise.

Like other developing countries, current managerial skills are not fully utilised for construction management in Vietnam (Le et al., 2008). Pham (2008) argues that weakness of management, leading to problems in almost all Vietnamese construction projects, has caused low productivity and therefore leads to the weakness of competition in both domestic and international market. Truong et al. (2004) point out that the lack of capability in decision making contributes greatly to cost overrun and time schedule changes. Consequently, the effectiveness of many projects has not been easy to determine. The capital loss ratio in basic construction accounts for 30% of the total construction capital due to poor management (Uyen, 2003).

In general, it can be seen that technology is a big issue not only in Vietnam but also in the VCI and negatively influences the results of many projects. All those issues need to be properly addressed by project developers, especially the Vietnamese government, because of their impacts on the delivery process.

2.4 Studies about the Vietnamese Construction Industry

The context of the VCI under current perspective of Politic, Economic, Social and Technology in Vietnam has been presented in the previous section. It can be seen that Vietnam has a great potential to accelerate its development and modernisation process by the huge investment from both outside and inside the country. It is also necessary to invest more in transport and infrastructure projects in order to catch up with this process. However, there are many problems in the VCI which threaten the country in achieving its target of socioeconomic development; it is, therefore, necessary to resolve these problems as soon as possible. The motivation to investigate and find solutions for resolving the above problems has encouraged several Vietnamese researchers to commence the work.

There have been few studies looking at the problems in Vietnamese construction projects, conducted by Truong et al. (2004) and Le et al. (2008). The papers are based on large construction projects which have been executed in Vietnam in the last decade. The researchers identify the most serious problems which exist in the VCI, especially ones which contribute to time delays and cost overruns, and argue that if participants understand the problems, they can avoid these leading large construction projects to fail in the future.

However, it is argued that although the presence of success factors cannot ensure success, their absence is possibly a cause of failure (de Wit, 1988), thus studying only about project failure cannot guarantee success of projects. Although the participants and practitioners should improve the capacity to forecast potential problems to cope with them in current and future projects (Truong et al., 2004), it is necessary to look at success factors contributing to project success and criteria to measure the success. There is a lack of deeper investigation about project success in these studies.

There are very few studies about project success for managing large construction projects in Vietnam. Nguyen et al. (2004) identified the critical success factors while Truong et al. (2008) used a benchmarking approach as a tool for improving project management performance of Vietnamese large contractors. Nevertheless, these studies have not looked at the problems which have been present in Vietnamese construction projects for years – regarded as the core issues for causing project failure and preventing projects from success (Truong et al., 2004). Moreover, these authors also did not investigate criteria for measuring success while identifying key stakeholders and their influencing role on project success. Eventually, there has been no framework or model proposed to effectively manage and deliver those projects to success by these authors.

Nguyen et al. (2009) analysed the impact of stakeholders on infrastructure project management in order to identify the important role of stakeholders in achieving project success. However, this study has not concentrated on other elements, because stakeholders' satisfaction and human related factors are among many critical success factors for project success (Nguyen et al., 2004).

Truong et al. (2008) studied effective methods by applying the balanced scorecard (BSC) and SWOT analysis (strengths, weaknesses, opportunities and threads) to improve the strategic performance of large Vietnamese construction companies. But the

study by Truong et al. (2008) has very limited scope because they used one construction company as a typical case for collecting data and validating their research.

Do and Tun (2008) conducted their research in Southeast Asian countries under ODA and INGO projects – international development projects – and did not fully concentrate on the VCI specifically. These authors focused on different sets of success criteria and critical success factors applied for different phases of the project lifecycle, which were integrated into a framework. The detailed discussions of their study can be seen in the Appendix B of the thesis to identify and explain flaws in their work.

In fact, none of the above researchers has investigated relationships between success and failure both internally and externally within the same project. As Zwikael and Globerson (2006) argue, despite the fact that critical success factors or problems are well-known, many projects are poorly finished with very high rate of failure. Therefore, only with the combination of applying critical success factors and understanding the causes of failure will the management of projects overcome the problems and achieve final success.

Among the studies about the VCI, only Ling and Bui (2010) have conducted research regarding factors affecting project results and this has taken place in Vietnam as a case study. Indeed, they identified three critical factors to project success and three severe problems to project failure. However, they limited themselves to six construction projects only – three have been claimed successful and three not – and clearly stated in their research that it is difficult to get more project team members to participate in their study while the implemented practices are not quantitatively evaluated. Therefore, their results cannot be considered consistent to really help stakeholders in Vietnam to successfully manage construction projects. They also have not identified criteria for evaluating success besides key stakeholders who have strong influences on project results.

It can be seen that the previous studies about the VCI are not effective or consistent to be fully adopted to cope with the problems and bring future public transport development projects in Vietnam to success. Reviewing literature (Chapter 3) has also identified that in the mainstream study, there lacks a complete picture about project success, while a sound solution to really assist project stakeholders to successfully

manage projects has not been achieved. Therefore, it is necessary to find another approach to fill these gaps.

2.5 Summary

The most fundamental aspects of Vietnam and the VCI have been reviewed and analysed in this chapter. It can be seen that Vietnam is having a great opportunity to significantly improve its current status by moving from a poor and developing country to a more modern and industrialised state with full access to the international market. Despite the aftermaths of the financial crisis, Vietnam has survived with drastic actions and now it is on the right course to achieve a better outlook for the economy. However, with increasing money flow into the country, the Vietnamese government has been struggling to cope with corruptions whilst to create a more transparent environment with much less intricate documents to maintain trust, attractiveness and investment from their foreign counterparts.

State owned enterprises are still being given so much powers and privileges due to mutual benefits gained and close relationships with senior officials whose decisions can strongly influence results of many projects. The government does know about those beneficiary groups but it is quite unlikely that the current status will be changed soon because of the inherent problems within the governmental mechanism.

In addition, there is a fact that Vietnam is lacking money and heavily dependent on foreign investment or aids to build public development projects. Meanwhile, there are huge demands for skilled workers in the construction sector where the Vietnamese education and training system fails to sufficiently supply. As a result, there are great concerns that how the government make sure that money is being put into the right projects with the right people who are capable of successfully delivering those.

Moreover, issues which are related to site clearance, design, technology and management have been reported as causing serious problems to project results. Thus, it can be seen why it is urgent to overcome all the above problems in order to assist the socioeconomic development and modernisation process in Vietnam.

In this chapter, the previous studies about the VCI have been reviewed, discussed and it has been argued why they are not able to cope with those problems and deliver future

projects successfully; especially in the public transport sector where usually there is complicated involvement of many parties and stakeholders, requiring modern technology with a large number of staff and workers, and enormous funding by the government and foreign donors/investors. This research argues that it is necessary to find another approach to meet the needs of improving success for Vietnamese transport development projects. It is, therefore, vital to intensively review current theories of project success and construction management in order to find out how success is evaluated and achieved. The following chapter will discuss the literature review of project success.

CHAPTER III PROJECT SUCCESS

3.1 Introduction

As previously analysed in the Chapter 2, there are many existing problems in the VCI which need to be resolved in managing current and future projects. Therefore, in order to find a consistent solution/approach, the aim of this chapter is to review literature about current theories of project success, success criteria, and critical success factors. The chapter will give a comprehensive view about project success, different measurement approaches to it as well as critical success factors which have been proposed to apply to (construction) projects. In addition, methods which are considered relevant to improve project success will be reviewed.

As defined in the Introduction Chapter, public transport development projects are also regarded as construction projects by every aspect, yet they have their own characteristics compared to other types of construction projects; whilst there are little focuses and research about those projects which can be found in the existing literature. Therefore, reviewing literature of project success will cover studies about projects in general and construction projects in particular.

3.2 Project and Project Management

Traditionally, the terms project and project management are used interchangeably but in fact they are different. Therefore, before going to investigate project success with related issues it is necessary to differentiate and define clearly project and project management (de Wit, 1988).

PMI (2008) defines a project as a temporary effort to make a product, result or service and it has a specific beginning and end. Munns and Bjeirmi (1996) argue a project can be regarded as an achievement of a specific purpose and objectives, which contain serial activities and tasks consuming resources. It needs to or has to be finished to a set of specifications, within a time scale with definite start and end dates and within a limited budget (Pinto and Slevin, 1987).

Shenhar and Wideman (2002) define a project as ‘a unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or organisation to meet specific objectives within defined time, cost and performance parameters’.

Shenhar et al. (2002) identify that a project is started for a unique purpose in order to set up new manufacturing processes and develop new products. A project will come to an end if its objectives have been achieved, or it will be terminated if the objectives cannot be or will not be met or the project is no longer needed (PMI, 2008).

On the other hand, project management can be considered a process of carrying out and controlling resources to achieve the project aim and objectives (de Wit, 1988 and Baccarini, 1999). PMI (2008) defines project management as 'the application of knowledge, skills, tools and techniques to project activities to meet the project requirements' and 'in order to meet or exceed stakeholder needs and expectations from the project' (PMI, 1996). Project management uses resources and organisational structures to manage the project by applying and manipulating management tools and techniques, but not disturbing or having impacts on the operation of the organisation. Its function contains activities including: define the need and requirement of work, set up work-extension, allocate the required resources, plan work-execution, monitor the working progress, and adjust deviations from the plan (Munns and Bjeirmi, 1996).

According to Lipovetsky et al. (1997), a project is concerned with the organisational benefits such as: financial, marketing, technical, or social-cultural profit; and these benefits 'will tend to be of a long-term nature, oriented towards the expected total lifespan of the completed project' (Munns and Bjeirmi, 1996). On the other hand, project management is concerned about the aspects of planning and control, which involve on-time completion, on-budget expenditure, to meet the quality standards and appropriate performance. Moreover, in the context of management, it is looking at a short-term period of delivery and project development (Munns and Bjeirmi, 1996 and Lipovetsky et al., 1997).

It can be seen that there is a clear difference between project and project management. In short, on one hand, a project is initiated because of a specific purpose within a limited time scale and budget. Project management, on the other hand, is a tool, and normally considered a process of planning and control, which needs to be employed in order to achieve the aims and objectives of a project – the purpose. Thus, these imply that the success of a project and project management are different, yet interrelated. These differences and interrelations will be discussed in the next sections.

In the Vietnamese context, public transport development projects are initiated by the government or local authorities to serve socioeconomic development purposes. They are normally funded by FDI, ODA loans or national budget. Those projects are managed and implemented by a complicated system, as described in Chapter 2, with the involvement of many parties and individuals known as project stakeholders.

3.3 Stakeholders in Construction Projects

A construction project is initiated to meet the aims and objectives of a client (Gameson, 1991). It is noted that the client is the only reason for the project to be carried out and is the key to explaining why the project is needed, procured, operated and achieved. In addition, Munns and Bjeirmi (1996) identify that a project is originated from the client's need and this need must be focused on by all project participants. Kometa et al. (1994) define clients as public clients, private clients and developers. In the context of developing countries in general and Vietnam in particular, clients for the public transport construction development projects are usually the government, the MOT, and local authorities – known as public sector clients.

Including the client, there are many participants and numerous parties involved in a construction project and they are known as project stakeholders (Love et al. 1998). De Wit (1988), Parfitt and Sanvido (1993), Shenhar et al. (1996), Atkinson et al. (1997), Chan and Chan (2004) and Nguyen et al. (2009) identify that stakeholders' involvement plays a vital role for the success of any project. In addition, the concept of project success also pays attention to and concerns the satisfaction and effective management of project stakeholders (Bourne and Walker, 2004).

Atkinson et al. (1997) argue when stakeholders individually and collectively meet their requirements, a construction project is considered to be successful. Thus, it is necessary to identify key stakeholders in construction projects and investigate their perceptions and influence on project success (Takim, 2009). In the Vietnamese context and public transport development projects, that information is missing and to be investigated in this research.

Atkinson et al. (1997) define construction project stakeholders as groups or individuals who can be outside or inside the project, having direct or indirect benefits from it, or can

have impact on the construction performance. PMI (2004) identifies project stakeholders as organisations or individuals who are actively participating in the project and their interests might be affected as a result of the project completion or execution. McElroy and Mills (2000) describe project stakeholders as organisations or people whose interests are strongly focused on the project outcomes. Baccarini (1999) considers project stakeholders as organisations and individuals who are directly and actively involved in the project, or whose interests and concerns might be negatively or positively influenced as a result of successful project completion or execution of the project.

To successfully deliver a construction project from inception to completion is a challenge which requires all project participants to deploy considerable effort and high commitment towards achieving project goals and objectives (de Wit, 1988 and Munns and Bjeirmi, 1996). Especially, in the context of public development projects in Vietnam where there are usually large numbers of stakeholders whose impact can be positive or negative, project managers usually face remarkable challenges in effectively managing stakeholders (Nguyen et al., 2009). Thus, to cope with this difficulty, it is essential to understand and incorporate the viewpoint about project success from all interest groups.

3.4 Measurement of success

The common perception of success remains ambiguously defined due to various reasons, and the definition of success normally changes from time to time and project to project (Parfitt and Sanvido, 1993). This issue has encouraged many efforts to find a suitable approach to measure project success. Baccarini (1999) identifies there is no consistent definition and interpretation of the term project success beside the lack of comprehensive research about success criteria. Even though there are many researchers attempt to explore this concept, they have not achieved an unique agreement (Chan and Chan, 2004).

De Wit (1988, p.165) defines an overall successful project as one where ‘the project meets technical performance specification and/ or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people in the parent organisation, key people in the project team and key users or clientele of the project effort’. There are three aspects of project performance which are regarded as

benchmarks for measuring success or failure of a project: the process of implementation, the project's perceived value and satisfaction of the client with the final outcome (Pinto and Mantel, 1990).

Lim and Mohamed (1999) suggest looking at project success in different macro and micro viewpoints. Here, the macro viewpoint will try to answer the question if the original project concept has been achieved or not and, if yes, the project will be considered a success; if no, the project is a failure or less successful. However, people only know the original project concept at the operational phase of the project which has been achieved or not, because (users and) project stakeholders will have impacts on this achievement. That is the reason why many researchers relate a project success to the satisfaction of the stakeholders, when it has been met. On the other hand, the micro viewpoint of project success will cope with the achievement of the project in smaller component levels. It is often related to the construction phase and participants working on the construction.

Belout (1998), Atkinson (1999) and Phelan (2004) on the other hand argue that success corresponds to the efficiency and effectiveness of the project. According to Phelan (2004), by applying the constructs of effectiveness and efficiency, a project manager can know how to concentrate on the right things, at the right place, at the right time, in order to enhance the competitiveness and achieve project/ organisation success. OGN (2007) clarifies that effective project management helps to guarantee projects are delivered to the standard of quality, within timescale and budget, to achieve at best whole-life value. Understanding thoroughly key stages in a construction project's lifecycle are critical and vital to improve and achieve its success.

Nevertheless, Davies (2002) and many other researchers such as Baccarini (1999) and Shenhar et al. (1996, 1997, 2000, 2002) believe that the success of project management, the final product, and the success of the project are not the same. Therefore, according to de Wit (1988), when trying all efforts and attempting to measure success, it should make a clear distinction between project success, project product success and the success of project management as they are, although related, very distinct.

Traditionally, successful project management has been regarded as one completed on time and within its expected budget with efficient execution of activities and project tasks (Phelan, 2004). Whilst some different definitions about 'what is project

management' have been stated, the criteria for evaluating its success such as time, cost and quality (the "iron triangle") are integrated in the actual explanation (Atkinson, 1999). In many cases, if the end product cannot meet criteria such as quality standards, time, cost and functionality; clients will not be satisfied and may consider the project as a failure (Atkinson et al., 1997).

Naturally, many projects have to set time and costs as the prime objectives. Failure to achieve those targeted objectives will result in many unexpected negative impacts on the project (Sambasivan and Soon, 2006). A project is assumed to be a failure if its completion fails to meet the due date, its expenditures overrun the budget, or the outcomes do not satisfy a company's predetermined performance criteria (Belassi and Tukel, 1996).

In fact, the above arguments come from the project management perspective while people usually consider the success of project management is the final success of the project. This approach is valid only in cases when the project is in urgent need with restricted funding, and time is critical. For example, rebuilding or repairing an important national road or highway after devastation by an earthquake is very important in terms of time, cost and quality regarding the high density of vehicles passing by every day.

Apparently, there are many factors that could affect the failure or success of a project and these factors are outside the control of project management (Belassi and Tukel, 1996). Therefore, it is inadequate to use the success of project management only to judge the overall success of a project (Baccarini, 1999).

Despite failure in project management, a project might be announced successfully achieved due to its higher and long-term objectives being met (Shenhar et al., 2002). The short-term orientation of project management could be one of failure; however, the long-term project result could be a success due to the larger set of goals being met and satisfied instead of the narrow subset which constitutes project management (Munns and Bjeirmi, 1996).

According to Shenhar et al. (2002), the traditional concept of project success is no longer relevant, particularly in large construction projects. It is, therefore, necessary to avoid considering the management aspect as the end goal to judge project outcomes

(Clarke, 1999). Experience and empirical practices show that it is possible to achieve a successful project despite the failure of management (Munns and Bjeirmi, 1996).

Clearly, many projects are initiated and carried out with business perspective, and usually with a specific goal which is concentrated and focused to achieve better outcomes and organisational performance which includes more benefit, profits, extra growth, and enhanced market position (Shenhar et al., 2002). Therefore, a project which is considered a success in those cases should be based on the evaluation of the product or business perspective as well as the achievement of the outcomes.

From a project management perspective, project success is considered on time, within budget and meeting requirements; but from a product perspective, a project is successful when its customer ends up with satisfaction (Shenhar and Wideman, 2002). Moreover, project management can achieve strategic value when connection is clearly made between how effectively and efficiently a project is finished and how the project services and product provide business value. In addition, because of the 'simultaneous pressure' to achieve a project's aims and objectives, this tension forces many firms to view success as a combination of project management and product success (Huang et al., 2009).

The success of a project is perceived as a strategic management concept, where efforts of the project must be associated with the strategic long-term goals of the unique organisation, which the project's product is intended to serve (Shenhar et al., (1997). Therefore, it is necessary to incorporate the product related dimensions into the success of project management to provide a better model of project success; instead of separating them. Based on this point of view, Baccarini (1999) considers project success under two separate core components: project product success and project management success. He identifies them as the following:

Project Management Success mainly concentrates and focuses upon the process of project, and especially on the management aspect as a successful completion with regard to being on time, on budget, delivering quality objectives and satisfying project stakeholders' requirements and needs.

Project Product Success on the other hand, pays great attention and emphasis on the effects, benefits, and profits of the final product. A project is not considered success if

the product does not meet the organisational objectives of the project owner (goal) or satisfies the needs of stakeholders (purpose).

Even though there are differences between the two above components – project management and project product – the successful outcomes of both of them cannot be separated; yet the causal relationship between them is weak (Westhuizen and Fitzgerald, 2005). It is easy to understand because the aim and objectives of project management and product are different. In practice, the success of project management can help to create a good quality product such as roads, bridges or highways for example, and meet predetermined specifications; but it cannot guarantee the success of the final product such as meeting users' needs, providing tangible or intangible benefits, meeting stakeholders' satisfaction, and vice versa.

Furthermore, product success is subordinated by the success of project management, because the successful achievement of criteria such as time, cost, and quality are subordinate to the project's objectives and purposes. In addition, product success is influenced by project management success - because 'a good management of a project can contribute to the final success of the product - but it is unlikely to prevent a product failure' (Baccarini, 1999).

In general, it can be recognised that there are clear differences between the success of a project, a project product, and project management. Nevertheless, an overall success of a project is achieved when both the management and final product are successfully accomplished. Looking at the Table 3.1, all the most common criteria for measuring success which have been collected from previous studies fall in those three categories and their potential applications in the VCI (which will be discussed in detail in the next sections/chapters) also underpin this statement. Therefore, in this research, the concept from Baccarini (1999) has been adopted and project success is defined as: '*the overall success of a public transport development project in Vietnam is only achieved, and contributed, by the success of project management and the success of its final product*'.

The reason for this adoption is: in the Vietnamese context, public transport development projects play a vital role for the socioeconomic development process. If those projects fail in management, for instance in terms of time and cost, the consequences will be extreme. They are built to cope with serious traffic jams or a need to have connection between two regions with economics booming. Moreover, they are funded by loans

from foreign countries or the limited national budget which is contributed from civil taxes. Here, it can be seen why the success of project management is critical in those projects. On the other hand, if the final product of those projects fails, for instance in terms of quality and benefit to the community, the consequences will be even more extreme. A lot of money has been invested to build those projects during a long period of time, and now if the final product does not meet the quality standard and is not safe to use, it becomes a wasted building or brings dangers to the end users. In addition, if the final product is not used by and brings benefit to the community as expected, it also becomes an expensive waste. Therefore, only both the success of management and final product will guarantee an overall success for those projects in Vietnam.

3.5 Success Criteria and Critical Success Factors

Collins and Baccarini (2004) used the logical framework method to develop a conceptual framework for project success, and they state it is important to identify the differences between success criteria and success factors. In this case, they define criteria as applied to evaluate and appraise success, while factors contribute to the achievement of success. In other words, Marwanga et al. (2006, p.2311) explain project success criteria 'correspond to the measures on which gauging the success of the project is based' while the success factors are vital elements on which success of the project will depend.

Lim and Mohamed (1999, p.243) determine that criteria are 'the set of principles or standards by which project success is or can be judged; they are conditions on which judgement can be made'. While critical success factors are 'the set of circumstances, facts, or influences which contribute to the project outcomes. These are the influential forces which either facilitate or impede project success. They contribute to the success or failure of a project, but do not form the basis of the judgement'. In addition, Diallo and Thuillier (2005, p.238) define 'success criteria correspond to the dimensions or measures on which the success of the project is judged whereas success factors are key variables that explain the success of the project'.

Adopting from Davies (2002), this research defines: *criteria are the standards by which success or failure of a project or business will be judged, and factors are inputs to the system of management that directly or indirectly lead the project or business to success*.

3.5.1 Success Criteria

It is argued that criteria for measuring success should be established at the beginning of the project (Baccarini, 1999). Because the criteria are an integral part of project management and determining project success criteria at the beginning of a project also helps distinguish the project in terms of benefits, profits and risks (Huang et al., 2009). Moreover, it is also stated that success can only be measured or assessed when the criteria are clearly defined (Diallo and Thuillier, 2005).

If people consider success in relation to the achievement of objectives, regarded as the success criteria (Griffin and Page, 1996), a project will be confirmed a success when all the objectives met or achieved (de Wit 1988, and Chan et al. 2002, and Marwanga et al. 2006). These involve a variety of elements which are financial, technical, educational, social and professional issues (Parfitt and Sanvido 1993, and Pinto and Slevin 1994). Measuring success in this case involves an analysis of the degree to which the objectives have been achieved, and during this process, the objectives become success criteria. In fact, projects are formed in order to achieve objectives, and 'success is measured in terms of how well these objectives have been met' (Baccarini, 1999 p. 26).

Typically, project success is normally regarded as the achievement of some pre-set parameters such as safety, quality, cost, time and performance (Lim and Mohamed, 1999 and Rad, 2003). Shenhar and Wideman (2002) argue that a project is conceived as successful when its customer ends up satisfied and the organisation achieves its expected goals in market and long-term profit. In addition, project success is achieved when results are much better than expected (Ashley et al., 1987). The following figure will illustrate how project goals and objectives relate to project success and its evaluation.

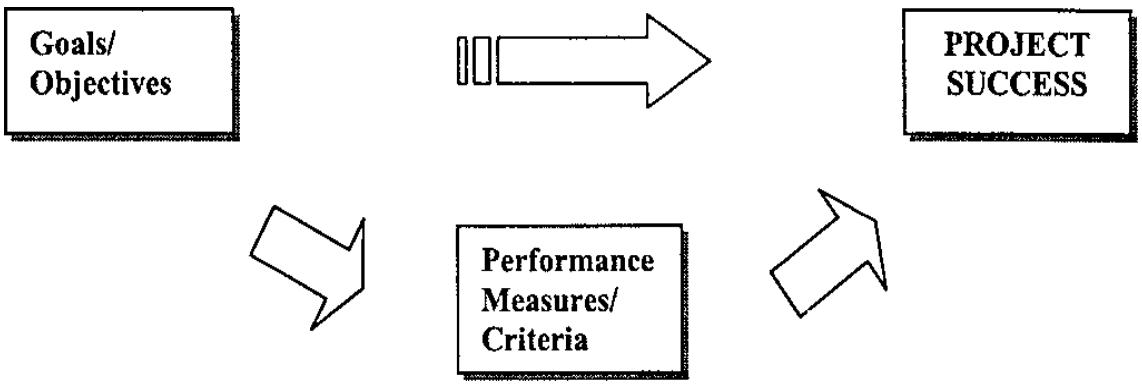

Figure 3.1: Project Success (Chan et al., 2002)

Based on the previous studies, it can be seen that success criteria should be clearly identified and agreed by stakeholders before implementing and constructing any project. It is essential to establish and achieve a specific set of criteria for evaluating success of a specific project. Based on these, the project can be judged if it meets expected standards (successful) or not (failure or less successful). Lessons learned will be critical for future projects. In fact, the ability to identify key measurements of project success is important to stakeholders because understanding these will contribute to the efficient execution of construction projects (Hughes et al., 2004).

In the mainstream study of project success in general, there are many authors who proposed different sets of success criteria for measuring success. In fact, there are common criteria which are repeated or overlapped from one study to another. This implies that those criteria are important and being used widely in various fields and types of project. Alongside the 'iron triangle' which contains time and cost and quality which almost every author suggested to evaluate project success, the Table 3.1 presents the most common criteria cited from literature.

This table has two columns, the left one is listing criteria whilst the right one is listing authors who proposed those criteria in their study. Although the degree of importance of each criterion is differently reported in previous studies, based on the frequency of appearance, it can be recognised which criteria are theoretically the most important ones compared to the others. For some criteria which were proposed by the same number of authors, they are equally ranked (e.g. Minimum of risk and Effective problems solving are both ranked 7th and therefore, the next rank is 9th).

Actually, Table 3.1 is essential and considered as references for the analysis of those criteria in this thesis, especially when being applied in the VCI and see if they are relevant to effectively evaluate success of public transport development projects. Moreover, when the data collected from the fieldwork is done, results will identify the most important criteria with their actual hierarchy of importance. Based on that, conclusions will be drawn (including whether the thesis's definition of success is valid) and project success with related issues in Vietnam will be revealed (detailed discussions in Chapters 6, 7 and 8).

Table 3.1 Success criteria collected from literature for measuring project success

Criteria for measuring success	Authors
Satisfaction (1st)	Gorsha (1983), Ashley et al. (1987), De Wit (1988), Pinto and Mantel (1990), Sanvido et al. (1992), Freeman and Beale (1992), Shenhar et al. (1996, 1997, 2002), Belassi and Tukel (1996), PMI (1996), Songer and Molenaar (1997), Lim and Mohamed (1999), Atkinson et al. (1997), Baccarini (1999), Cheng et al. (2000), Levy (2002), Chan et al. (2002a), Chan et al. (2002b), Shenhar and Wideman (2002), Davies (2002), Westerveld (2003), Chua et al. (2003), Diallo and Thuillier (2004), Collins and Baccarini (2004), Nguyen et al. (2004), Chan and Chan (2004), Collins and Baccarini (2004), Westhuizen and Fitzgerald (2005), Le et al. (2008), Do and Tun (2008), Takim (2005, 2009), Ling and Bui (2010)
Consensus (9th)	Munns and Bjeirmi (1996), Shenhar et al. (1997), Chua et al. (1999), Atkinson (1999), Chan et al. (2002a), Shenhar et al. (2002), Chua et al. (2003), Levy (2002), Chan and Chan (2004), Do and Tun (2008), Takim (1005, 2009), Toor and Ogunlana (2010)
Health and Safety (5th)	Ashley et al. (1987), Sanvido et al. (1992), Lim and Mohamed (1999), Sawacha et al. (1999), Baccarini (1999), Cheng et al. (2000), Chan et al. (2002a), Chan et al. (2002b), Rad (2003), Fang et al. (2004), Truong et al. (2004), Chan and Chan (2004), Hughes et al. (2004), Do and Tun (2008), Takim (2005, 2009)
	Ofori (2000), Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and

Fast decision making (14th)	Tun (2008), Le et al. (2008), Truong et al. (2008), Takim (2009), Nguyen et al. (2009),
High quality of workmanship (4th)	Sanvido et al. (1992), Songer and Molenaar (1997), Lim and Mohamed (1999), Bacarrini (1999), Chan et al. (2002a), Chan et al. (2002b), Chua et al. (2003), Chan and Chan (2004), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Diallo and Thuillier (2005), OGN (2007), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009),
High quality of materials (9th)	Lim and Mohamed (1999), Frimpng et al. (2002), Chua et al. (2003), Rad (2003), Nguyen et al. (2004), Truong et al. (2004), Chan and Chan (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Ling and Bui (2010)
Minimum of changes (17th)	Cheng et al. (2000), Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Minimum of wastages (18th)	Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Minimum of risk (7th)	Ward and Chapman (1995), Radujkovic (1996), Akintoye and MacLeod (1997), Ofori (2000), Raz et al. (2002), Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
	Pinto and Slevin (1994), Ofori (2000), Chua et al.

Minimum of affect from external environment (14th)	(2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Ling and Bui (2010)
Minimum of disputes (13th)	Sanvido et al. (1992), Songer and Molenaar (1997). Levy (2002), Chan et al. (2002a), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Maximum of utilisation (18th)	Lim and Mohamed (1999), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Effective problems solving (7th)	Sanvido et al. (1992), Shenhar et al. (1996), Levy (2002), Chan et al. (2002a), Chan et al. (2002b), Chan and Chan (2004), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Product is accepted and used by the public (9th)	Shenhar et al. (1996, 1997), Chan et al. (2002a), Chan et al. (2002b), Diallo and Thuillier (2004), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009)
Benefit to community (3rd)	Cooper and Kleinschmidt (1987), Lipovetsky et al. (1997), Shenhar et al. (1996, 1997, 2002), Atkinson (1999), Cheng et al. (2000), Chan et al. (2002a), Chan et al. (2002b), Chan and Chan (2004), Diallo and Thuiliier (2004), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), OGN (2007), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),

Value for money (5th)	Cooper and Kleinschmidt (1987), Shenhar et al. (1996, 1997), Pylkas et al. (2002), Shen and Liu (2003), Leung and Liu (2003), Chan and Chan (2004), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Huang et al. (2009),
Meet project's aim and objectives (2nd)	De Wit (1988), Pinto and Mantel (1990), Gameson (1991), Freeman and Beale (1992), Sanvido et al. (1992), Munns and Bjeirmi (1996), Lipovetsky et al. (1997), Shenhar et al. (1997, 2002), Baccarini (1999), Lim and Mohamed (1999), Cheng et al. (2000), Shenhar and Wideman (2002), Chan et al. (2002a), Chan et al. (2002b), Rad (2003), Diallo and Thuillier (2004), Nguyen et al. (2004), Truong et al. (2004), Collins and Baccarini (2004), Marwanga et al. (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Takim (2005, 2009), Nguyen et al. (2009), Ling and Bui (2010)
Meet social obligations (9th)	Parfitt and Savindo (1993), Chan et al. (2002a), Chan et al. (2002b), Diallo and Thuillier (2004), Nguyen et al. (2004), Truong et al. (2004), Kendra and Taplin (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Environmental sustainability (14th)	Chan et al. (2002a), Chan et al. (2002b), Chan and Chan (2004), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),

Looking at the above table, it is not surprised when Satisfaction is the one which received the most recommendations from researchers (34) then following by Meet

project aim and objectives (28). The two criteria are considered as basis for the achievement of success in any projects. If being applied in the Vietnamese context, they would guarantee the socioeconomic development purpose of public transport developments project achieved, whilst maintaining good relationships between stakeholders, particularly foreigners, as satisfaction is achieved among parties.

It is interesting to see the criterion Benefit to community has the third largest numbers of authors (20) who believe in its importance to measure project success; whilst High quality of workmanship (19) and Health and Safety (16) are ranked fourth and fifth respectively. In fact, it can be recognised that many authors who highly recommended those criteria based their research on developing countries or emerging economies. Thus, it is not difficult to understand why it has come up with these results. If being applied in Vietnam, these criteria would potentially help to ensure that: There will be no projects initiated for private gains but ignore their prime purpose is to serve the community, there will be no lack-of-skill workers and incompetent staff employed, and there will be no inadequate and improper health and safety system approved.

Looking at the rest criteria presented in the Table 3.1 and given the current perspectives in Vietnam, it is argued that those criteria might also be consistent to be used and adopted as standards for evaluating success of public transport development projects. For instance, criteria such as minimum of changes, minimum of wastages, meet social obligations, and minimum affects from external environment can be employed to confront the consequences generated by the severe problems such as corruption, bureaucracy, poor project management and lack of responsibility from parties, as previously discussed in Chapter 2.

Moreover, it is difficult for any project goes exactly 100% as planned due to conflicts might raise from any phase of the project (Barry and Randolph, 1988). Indeed, those conflicts are more visible in public transport development projects where many people involved with complicated relationships among parties. Therefore, the criterion ‘effective problems solving’ might be important when applying in the Vietnamese context.

Among studies about project success, it can be seen that regardless of projects in general or construction projects in particular, some researchers recognised the

importance of the project lifecycle and believe that success should be evaluated during this process. Detailed analysis can be seen in the Appendix A of the thesis.

Nevertheless, when splitting criteria across specific phases of the project lifecycle, it creates a flaw in measuring success. In fact, as previously discussed, all criteria might be achieved during the management phase but a project might fail in the end if its product fails in not generating benefits. Vice versa, although some criteria might be missed during the process but a project can still be successful in the end with its final product. Therefore, it is not necessary to split the criteria but combine them as a whole standard for measuring success of a project which is contributed by both the success of project management and final product. Also with the help of frameworks which few of previous studies could develop, it is easier to present those criteria. The following section will discuss critical success factors.

3.5.2 Critical Success Factors

Similarly to studies about criteria, in the mainstream study of critical success factors, it can be seen that regardless of projects in general or construction projects in particular, some of the previous studies recognised the importance of the project lifecycle and believed that critical success factors should be presented in specific phases during this process regardless type of projects or procurement methods employed (Pinto and Prescott 1998, Pinto and Covin 1989, Lim and Mohamed 1999, Quiao et al. 2001 etc.)

More importantly, some authors have developed a framework or a model which contains relevant information to present their results in a logical way and it is therefore easier to comprehend and apply in practical projects (Belassi and Tukel 1996, Westerveld 2003, Chan et al. 2004a, Fortune and White 2005, Do and Tun 2008, Toor and Ogunlana 2008). Nevertheless, there are flaws and inconsistences in those which cannot be fully adopted to apply in the current Vietnamese perspective. Detailed analysis can be found in the Appendix B of the thesis.

Reviewing literature has also indicated that there are many authors who identified and proposed a specific set of critical factors in their own work for improving project success which many of them overlapped from one to another. The factors which have been mostly cited in previous studies are presented in Table 3.2.

This table has two columns, with the left one is listing factors whilst the right one is listing authors who proposed those factors in their study. Although the degree of importance of each factor is differently reported in previous studies, based on the frequency of appearance, it can be recognised which factors are theoretically the most important ones compared to the others. For some factors which were proposed by the same number of authors, they are equally ranked (e.g. Smoothly transfer the asset and Strong ownership and maintenance are both ranked 37th and therefore, the next rank is 39th).

Table 3.2 is essential and considered as references for the analysis of those factors in this thesis, especially when matching them to the problems in the VCI and see if they can cope with and help achieve successful outcomes for public transport development projects. Moreover, when the data collected from the fieldwork is done, results will identify the most critical factors with their actual hierarchy of importance. Based on that, conclusions will be drawn and project management practice with related issues in Vietnam will be revealed (detailed discussions in Chapters 6, 7 and 8).

Table 3.2 Critical Success Factors collected from literature

Critical Success Factors	Authors
Define clearly project aim and objectives (6th)	Morris and Hugh (1986), Slevin and Pinto (1986), Pinto and Slevin (1987), Pinto and Prescott (1988), Barry and Randholph (1988), Pinto and Covin (1989), Tiong et al. (1992), Belassi and Tukel (1996), Dvir et al. (1998), Clarke (1999), Qiao et al. (2001), Westerveld (2003), Poli and Shenhar (2003), Nguyen et al. (2004), Fortune and White (2005), Takim (2005), Yang (2006), Do and Tun (2008), Toor and Ogunlana (2008), Kulatunga et al. (2009)
Project is feasible and viable	Ashley et al. (1987), Tiong et al. (1992), Munns and Bjeirmi (1996), Dvir et al. (1998), Qiao et al. (2001), Chua et al. (2003), Westerveld (2003),

(21st)	Chan et al. (2004a), Takim (2005), Zhang (2005), Yang (2006), Truong et al. (2008), Nguyen et al. (2009), Kulatunga et al. (2009)
Identify correctly targeted beneficiaries (36th)	Tiong et al. (1992), Chua et al. (2003), Truong et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Kulatunga et al. (2009)
Having clear procurement strategy (16th)	Love et al. (1998), Dvir et al. (1998), Dissanayaka and Kumaraswamy (1999), Qiao et al. (2001), Luu et al. (2003), Chua et al. (2003), Westerveld (2003), Truong et al. (2004), Kumaraswamy et al. (2004), Chan et al. (2004a), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Having competent project manager (2nd)	Slevin and Pinto 1986), Pinto and Slevin (1987), Barry and Randholph (1988), Pinto and Mantel (1990), Sanvido et al. (1992), Belassi and Tukel (1996), Dvir et al. (1998), Lim and Mohamed (1999), Qiao et al. (2001), Levy (2002), Chua et al. (2003), Westerveld (2003), Chan et al. (2004a), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Yang (2006), Toor and Ogunlana (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Ling and Bui (2010)
Having competent and multidisciplinary management team (6th)	Slevin and Pinto (1986), Pinto and Slevin (1987), Pinto and Mantel (1990), Sanvido et al. (1992), Belassi and Tukel (1996), Lim and Mohamed (1999), Qiao et al. (2001), Shenhar et al. (2002), Chua et al. (2003), Westerveld (2003), Chan et al. (2004a), Truong et al. (2004), Nguyen et al. (2004), Takim (2005), Yang (2006), Toor and Ogunlana (2008), Le et al. (2008), Truong et al. (2008),

	Nguyen et al. (2009), Ling and Bui (2010)
Having support from community (29th)	Belassi and Tukel (1996), Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Diallo and Thuillier (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Do and Tun (2008), Nguyen et al. (2009)
Having competent and experienced consultant (33rd)	Qiao et al. (2001), Chua et al. (2003), Truong et al. (2004), Takim (2005), Yang (2006), Toor and Ogunlana (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Having high motivation from stakeholders (29th)	Sanvido et al. (1992), Qiao et al. (2001), Chua et al. (2003), Chan et al. (2004a), Truong et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Kulatunga et al. (2009)
Having competent designers and engineers (33rd)	Lim and Mohamed (1999), Tam (1999), Chua et al. (2003), Truong et al. (2004), Nguyen et al. (2004), Takim (2005), Yang (2006), Do and Tun (2008), Toor and Ogunlana (2008),
Having adequate design with specifications (27th)	Sanvido et al. (1992), Tam (1999), Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Chan et al. (2004a), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Carefully forecasting risks (10th)	Sanvido et al. (1992), Ward and Chapman (1995), Radujkovic (1996), Akintoye and MacLeod (1997), Dvir et al. (1998), Lim and Mohamed (1999), Chan et al. (2001), Qiao et al. (2001), Raz et al. (2002), Davies (2002), Westerveld (2003), Chua et al. (2003), Truong et al. (2004), Zhang (2005), Takim (2005), Yang (2006), Le et al. (2008), Truong et al.

	(2008), Nguyen et al. (2009)
Carefully planning and scheduling project implementation (6th)	Ashley et al. (1987), Barry and Randholph (1988), Pinto and Covin (1989), Sanvido et al. (1992), Belassi and Tukel (1996), Tam (1999), Clarke (1999), Levy (2002), Dvir et al. (2003), Truong et al. (2004), Thomas-Cain (2004), Chan et al. (2004a), Nguyen et al. (2004), Takim (2005), Yang (2006), Toor and Ogunlana (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Huang et al. (2009)
Having strong consultation among parties (24th)	Pinto and Prescott (1988), Belassi and Tukel (1996), Pinto and Covin (1989), Chua et al. (2003), Truong et al. (2004), Chan et al. (2004a), Takim (2005), Yang (2006), Do and Tun (2008), Toor and Ogunlana (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009)
Setting priorities (33rd)	Chua et al. (2003), Truong et al. (2004), Chan et al. (2004a), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Having competent contractors (16th)	Tiong et al. (1992), Lim and Mohamed (1999), Tam (1999), Chan et al. (2001), Qiao et al. (2001), Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Toor and Ogunlana (2008), Ling and Bui (2010)
Having commitment from parties to complete the project	Barry and Randholph (1988), Belassi and Tukel (1996), Tam (1999), Cheng et al. (2000), Chan et al. (2001), Chua et al. (2003), Chan et al. (2004a), Chan et al. (2004b), Truong et al. (2004), Nguyen et al. (2004), Takim (2005), Yang (2006), Do and

(15^{th})	Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Toor and Ogunlana (2008), Kulatunga et al. (2009)
Having sufficient funding and adequate financial support (2^{nd})	Ashley et al. (1987), Tiong et al. (1992), Belassi and Tukel (1996), Dvir et al. (1998), Lim and Mohamed (1999), Cheng et al. (2000), Qiao et al. (2001), Levy (2002), Westerveld (2003), Chua et al. (2003), Chan et al. (2004a), Chan et al. (2004b), Truong et al. (2004), Nguyen et al. (2004), Zhang (2005), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Kulatunga et al. (2009)
Having top management support (4^{th})	Slevin and Pinto 1986), Ashley et al. (1987), Pinto and Slevin (1987), Pinto and Prescott (1988), Belassi and Tukel (1996), Tam (1999), Cheng et al. (2000), Davies (2002), Chua et al. (2003), Truong et al. (2004), Chan et al. (2004a), Chan et al. (2004b), Nguyen et al. (2004), Zhang (2005), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009),
Having up-to-date project management plan (16^{th})	Pinto and Prescott (1988), Barry and Randholph (1988), Pinto and Mantel (1990), Dvir et al. (1998), Qiao et al. (2001), Levy (2002), Westerveld (2003), Truong et al. (2004), Chan et al. (2004a), Nguyen et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Having cost control mechanism (10^{th})	Ashley et al. (1987), Belassi and Tukel (1996), Lim and Mohamed (1999), Qiao et al. (2001), Pylkas et al. (2002), Levy (2002), Chua et al. (2003), Shen and Liu (2003), Truong et al. (2004), Chan et al.

	(2004a), Kelly et al. (2004), Nguyen et al. (2004), Takim (2005), Dallas (2006), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Having quality control mechanism (10th)	Slevin and Pinto 1986), Ashley et al. (1987), Pinto and Slevin (1987), Spekknink (1995), Arditi and Gunaydin (1997), Love et al. (2000), Qiao et al. (2001), Levy (2002), Chua et al. (2003), Truong et al. (2004), Chan et al. (2004a), Nguyen et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009), Keng and Hamzah (2011)
Materials are sufficiently/effectively supplied (10th)	Pinto and Slevin (1987), Belassi and Tukel (1996), Dvir et al. (1998), Qiao et al. (2001), Levy (2002), Chua et al. (2003), Westerveld (2003), Truong et al. (2004), Chan et al. (2004a), Chan et al. (2004b), Nguyen et al. (2004), Fortune and White (2005), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009), Kulatunga et al. (2009)
Tools and equipment are ready and meet techs requirement (27th)	Ashley et al. (1987), Dvir et al. (1998), Qiao et al. (2001), Levy (2002), Chua et al. (2003), Westerveld (2003), Truong et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009)
Strictly applying H&S (21st)	Carl (1994), Sawacha et al. (1999), Jones (2000), Qiao et al. (2001), Rad (2003), Chua et al. (2003), Fang et al. (2004), Truong et al. (2004), Nguyen et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009)
	Ashley et al. (1987), Belassi and Tukel (1996),

Strictly applying superintendence and monitoring (19th)	Dvir et al. (1998), Lim and Mohamed (1999), Levy (2002), Davies (2002), Chua et al. (2003), Westerveld (2003), Truong et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),
Having good communication between parties (1st)	Slevin and Pinto 1986), Ashley et al. (1987), Pinto and Slevin (1987), Barry and Randholph (1988), Pinto and Covin (1989), Belassi and Tukel (1996), Dvir et al. (1998), Clarke (1999), Levy (2002), Steward and Mohammed (2003), Westerveld (2003), Chan et al. (2004a), Chan et al. (2004b), Nguyen et al. (2004), Murray et al. (2004), Fortune and White (2005), Takim (2005), Harris and McCaffer (2006), Yang (2006), Herford (2008), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Having cooperation between stakeholders (4th)	Slevin and Pinto 1986), Pinto and Slevin (1987), Barry and Randholph (1988), Sanvido et al. (1992), Belassi and Tukel (1996), Raftery et al. (1998), Levy (2002), Love et al. (2002), Westerveld (2003), Dulami et al. (2003), Chan et al. (2004a), Chan et al. (2004b), Jeffrey (2004), Thomas-Cain (2004), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009), Kulatunga et al. (2009)
Having fast decision making (24th)	Green (1999), Ofori (2000), Chua et al. (2003), Leung and Liu (2003), Chan et al. (2004a), Murray et al. (2004), Truong et al. (2004), Fortune and White (2005), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009)
	Pinto and Prescott (1988), Pinto and Covin (1989),

Having fast and effectively problems solving (6th)	Sanvido et al. (1992), Belassi and Tukel (1996), Shenhar et al. (1996), Cheng et al. (2000), Chan et al. (2001), Levy (2002), Chan et al. (2002a), Chan et al. (2002b), Chua et al. (2003), Chan and Chan (2004), Truong et al. (2004), Chan et al. (2004b), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Absence of bureaucracy (21st)	Belassi and Tukel (1996), Tam (1999), Ofori (2000), Qiao et al. (2001), Davies (2002), Chua et al. (2003), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Approved technology used (19th)	Ashley et al. (1987), Belassi and Tukel (1996), Dvir et al. (1998), Qiao et al. (2001), Levy (2002), Raz et al. (2002), Chua et al. (2003), Westerveld (2003), Truong et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Having adequate employees training programme (29th)	Dvir et al. (1998), Ofori (2000), Chua et al. (2003), Truong et al. (2004), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Hertford (2008), Nguyen et al. (2009),
Comprehensive review and feedback (24th)	Dvir et al. (1998), Qiao et al. (2001), Wasterveld (2003), Chan et al. (2004a), Nguyen et al. (2004), Truong et al. (2004), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
	Pinto and Mantel (1990), Ogunlana et al. (1996), Munns and Bjeirmi (1996), Dvir et al. (1998), Tam

Lessons learned from past projects (10th)	(1999), Ofori (2000), Chua et al. (2003), Westerveld (2003), Truong et al. (2004), Nguyen et al. (2004), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009), Shehu and Akintoye (2010),
Maintaining good relationships between parties (29th)	Lim and Mohamed (1999), Chua et al. (2003), Truong et al. (2004), Chan et al. (2004a), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Smoothly transfer the asset (37th)	Qiao et al. (2001), Takim (2005), Yang (2006), Le et al. (2008), Do and Tun (2008), Truong et al. (2008), Toor and Ogunlana (2008), Nguyen et al. (2009)
Completing financial settlements (39th)	Lim and Mohamed (1999), Takim (2005), Yang (2006), Le et al. (2008), Truong et al. (2008), Do and Tun (2008), Nguyen et al. (2009)
Strong ownership and maintenance (37th)	Qiao et al. (2001), Takim (2005), Yang (2006), Do and Tun (2008), Le et al. (2008), Truong et al. (2008), Nguyen et al. (2009),

Looking at the above table, it can be seen that the results collected from reviewing literature are interesting, particularly the top factors which received the most recommendations from researchers such as: Having good communication between parties (25) is ranked 1st, Having sufficient funding and adequate financial support (22) and Having competent project manager (22) are equally ranked 2nd. Firstly, it is not surprised when the factor relate to communication has appeared in most previous studies due to its special role throughout a project. In fact, effective communications between parties can help to avoid misunderstandings, unnecessary conflicts whilst to improve collaboration and teamwork. These, in overall, will contribute to the achievement of success.

Nevertheless, when being compared to the other two factors relating to finance and project manager, whom have been usually ranked as the most critical in previous studies and considered as vital inputs for project success, it is both surprising and compelling to see the communication factor is ranked 1st. As previously mentioned, the above factors all have their different degree of criticality in different studies; thus when using cross case analysis to identify how many times they appeared in those studies, to theoretically identify their hierarchy of importance, leading to unexpected but understandable results.

Apart from the top three factors mentioned above, it can be seen that Having top management support (21) and Having cooperation between stakeholders (21) are equally ranked 4th, while Define clearly project aim and objectives (20), Having competent and multidisciplinary management team (20), Carefully planning and scheduling project implementation (20), and Having fast and effective problems solving (20) are equally ranked 6th. Those are considered as the top ten most critical factors which have been collected from literature.

Taking into account the current perspectives in Vietnam, the above factors might be critical and consistent if being applied in public transport development projects. For instance, as previously analysed and discussed in Chapter 2, the VCI has been facing many problems such as: lack adequate support from the government, lack trust and effective cooperation between project participants, project aim and objectives are usually not clear, lack competent and skilled people, poor project planning and management and so on. Therefore, those factors would potentially cope with the problems to improve project success.

In addition, there are other problems such as poor design, mistake in design, design changes and additional work which normally contribute to the failure of many projects in Vietnam. Those problems are originated from incompetent designer/engineer and lack of support from top management regarding the consultation and approval between government and other key stakeholders. Thus, the factors such as having competent designer/engineer with design according to standards and specifications will help to overcome these problems.

Moreover, applying strict health and safety regulations can help reduce risks in accidents or damages which can be met in those projects. Superintendence and monitoring also have to be strictly applied from the inception to the completion of the

project in order to avoid poor quality of the construction. Potentially, it can be recognised that factors which have been collected from literature (presented in Table 3.2) can help to resolve problems and to improve success when applying in the Vietnamese context.

In fact, the selection of critical success factors is significant for any project development and should be initiated at the beginning of a project (Takim, 2005). It is particularly essential to identify specific sets of factors for specific phases during the lifecycle of a project as some researchers suggested for better recognition, application and manipulation in practice. Nevertheless, there are very few of them who could group their proposed factors into specific phases of a project (within a framework) whilst including criteria as targeted standard for evaluating success.

Also, there are extremely few of the previous studies presented key stakeholders in their work although many of them recognised the importance, required skills and influences of stakeholders on project implementation and project success. It has been previously confirmed that stakeholders play a vital role and having strong influences on a success or failure in any project. In addition, there is a specific set of stakeholders for a specific type of project. Therefore, it is necessary to identify key stakeholders within the context of the project being studied and present them alongside other elements of success such as critical factors and criteria.

The following section will discuss methods which are believed potentially relevant to be applied in the VCI in order to improve success of public transport development projects.

3.6 Methods for improving project success

Reviewing literature has identified that there are also other methods which can be learned and (somehow) adopted during the management and implementation process in order to improve performance and success of a project. More importantly, there is very limited information about those methods reported in the previous studies about the VCI and their practical applications are missing. In this research, given the current perspectives of Vietnam, it is believed that the following methods will significantly contribute to success achievement if being applied in future projects.

3.6.1 Strategic planning and strategic management

Not only for construction projects, but also for any project, strategic planning and management are extremely important, because they play a decisive role in quality of those projects. Huang et al. (2009) argue that evaluation of project success is an integrated part of strategic planning and strategic management of any organisations. In addition, Torrington and Weightman (1994) claim that 'strategy is what is to be achieved and policy is the framework within which the activities will be conducted. The management process is then the implementation of the strategy within the framework of the policy'.

Poli and Shenhar (2003) argue that project success depends on the ability to adapt to the changing environment, therefore, project strategy is a 'must have' to guide the project. Dvir et al. (2003) identify that the relationship between project planning and the overall success is positive and significant.

On the other hand, strategic management is a logical approach to major and increasingly significant responsibility of general management to locate and relate the firm to its environment in a way that will make sure its continuous success and make it secured from surprises. Strategic management is concerned with the decision of strategy, and planning how that strategy is to be put into effect (Langford et al., 2001).

In fact, the objective of strategic planning is to put every task with a set up order into practice to achieve the best outputs with the tool is strategic management. As aforementioned, there has been no project, which goes exactly as the plan set for it. However, good strategic planning and strategic management during construction process can help to achieve the project aim and objectives as Thomas-Cain (2004) pointed out:

- Finished building – or infrastructure, roads, bridges and so on - will deliver maximum functionality, which includes delighted end users.
- End users will benefit from the lowest optimum cost of ownership.
- Inefficiency and waste in the use of labour and materials will be eliminated.
- Specialist suppliers will be involved in design from the outset to achieve integration and build-ability.

- Design and construction of the building will be achieved through a single point of contact for the most effective co-ordination and clarity of responsibility.
- Current performance and improvement achievements will be established by measurement.

In summary, it can be seen that strategic planning and management are very important in order to achieve success of any construction project. In the Vietnamese perspective, those are vital because the substantial influences from the external environment on project implementation, as previously discussed in Chapter 2, usually creates changes during the project lifecycle then severely affecting project quality and progress. Strategic planning helps clearly define the process of achieving project objectives and setting priorities for the task. It helps set up workable strategies and provide appropriate control during the process. On the other hand, strategic management helps to cope with surprises or unnecessary/inevitable changes during the project process and be considered a tool to bring strategic planning into practice. There are more likely to successfully achieve project aim and objectives when applying strategic planning and management into the implementation of construction projects.

3.6.2 Total quality management (TQM)

According to Rounds and Chi (1985), because of the lack of or the non-existence of quality management procedures, great expenditures of time, money, materials and human resources have been wasted. Ahmad and Sein (1997) point out that total quality management (TQM) has become more and more important in the construction industry. When TQM applied, the results collected from practice have been confirmed positive with the increase of productivity, reduction of product cost while improving product reliability. Keng and Hamzah (2011) identify that quality management is critical to any construction firms to sustain in the market which is highly challenging and competitive.

Not similarly to other manufacturing process, the construction is not a repetitive process therefore any rework will be very costly and time consuming (Ahmad and Sein, 1997). Arditi and Gunaydin (1997) point out that TQM is an effort that involves every organisation in the construction industry working for the improvement of project performance. TQM focuses on the process improvement, customer and supplier involvement, team work, education and training with great efforts in order to achieve

customer satisfaction, cost effectiveness and detect-free work. Moreover, TQM provides culture and climate essential for technology advancement and for innovation.

In addition, Love et al. (2000) argue that TQM plays a vital role in guaranteeing and achieving quality standards of construction projects, whilst satisfying project stakeholders, improving effectiveness and efficiency of resources utilisation during the project process. Arditi and Gunaydin (1997) identify that there is great potential for quality improvement when applying TQM in the construction industry. In fact, the quality is vital for any projects while time delays and reworks are not acceptable. Therefore, it is clear that TQM is a valuable tool for applying in construction projects in order to improve project quality and success.

It can be seen that in the Vietnamese context where quality of project is always concerned and usually reported as poor or not up to standards, the application of TQM can significantly improve the quality and the overall success of many projects.

3.6.3 Selecting the right procurement routes for construction projects

According to Dissanayaka and Kumaraswamy (1999), along with the increasing complications of construction projects, for example financial management and administration, most clients now also encounter difficulties in choosing optimal procurement routes for their projects. In addition, the selection of a procurement system has been considered to be one of the most vital decisions that a client will make during the project. One of the main reasons for the construction industry's poor performance has been attributed to the unsuitability of the selected procurement systems (Takim, 2005). Therefore, the right choice of procurement is critical for project success.

Luu et al. (2003) argue that there is a common dissatisfaction of clients with the performance of construction projects which has encouraged the development and usage of new procurement methods. Nevertheless, the selection of the relevant procurement systems, in turn, requires novel approaches. Eriksson and Westerberg (2011) point out that since traditional procurement procedures cause adversarial relationships and many problems in every stage of the buying process; this is an essential improvement area that can contribute significantly to project success.

Reviewing literature has identified that most public transport development projects in Vietnam have been using the traditional procurement method. Therefore, if there is a

new method confirmed more relevant, those projects will likely achieve more success. According to Love et al. (1998), choosing a relevant procurement method for a construction project is a key factor which contributing to the overall project success and client satisfaction. It is essential that the approach for procurement selection is done systematically, logically and in a disciplined manner by the project advisers together with project client. Whatever decisions a client makes relating to procurement selection; it will have an important influence on the project team and the flow of communication between project members. Therefore, the methodology adopted for the choice of procurement route for construction needs improvement, and this will contribute greatly to the final success of any project.

3.6.4 ICT management

Nowadays, controlling and possessing information and technology are extremely important, generally in the global market and particularly in the construction market. ICT has become more widespread and more integrated into the design and implementation phases of many construction projects. Because of the increasing of completed electronic tools which have been being widely employed to assist professionals in order to design and manage construction buildings, ICT application is making substantial contributions by assisting those people to work in virtual, electronic environments (Bellamy et al., 2008).

Moreover, companies which are executing big contracts around the world are focusing more and more on carrying out projects over the project lifecycle. As a result, those companies have to either develop or buy suitable ICT products in order to accomplish project phases in an effective and timely manner (Murray et al., 2004). There are numerous of specific software packages available to assist the tasks of the different jobs including the construction industry, architects, civil engineers, town planners, quantity surveyors, management accountants and cost accountants (Murray and Lai, 2001).

As Harris and McCaffer (2006) point out, the major benefits of the change brought about by ICT are ‘speed and virtual proximity’. These two important elements are critical for achieving success in managing modern construction projects. Large volumes of data can be processed faster, and distributed to distant geographical locations more quickly. These benefits have been widely shared in the construction industry because of

the decreasing of cost for computer hardware, cheaper telecommunication costs, and an explosion of software development.

Steward and Mohammed (2003) argue that the application of ICT is part of the solution to reduce cost as well as to enhance construction productivity, management and client satisfaction. By achieving these improvements, a construction organisation will gain direct cost savings and obtain competitive advantages that are vital to the organisation's future growth.

As previously discussed in Chapter 2, it can be recognised that Vietnamese firms and professionals are using obsolete technology which adversely affects quality and success of many public transport development projects. Therefore, the role of ICT is critical in order to assist those organisations and individuals in the VCI with better design, management of projects, and communication between project participants. It helps them save time and money besides improving success of their projects. Eventually, the application of ICT in practice, therefore, has been confirmed necessary and essential for achieving the overall project success.

3.6.5 Value management

According to Kelly et al. (2004), value management is a process in which the practical benefits of a project are made clearly and consistently evaluated with a value system determined by the client. This definition therefore can be applied for any types of projects regardless of which sector they come from. Bell (1994) points out that the concept of value has been strongly impacted from the economic context and is commonly expressed as the ratio of costs to benefits. In addition, Kelly et al. (2004) identify that the relationship between value, cost and quality has been highlighted as the real indicator of the value management of the asset.

In the construction industry, Dallas (2006) defines ‘value’ as usually known as the balance between how well the construction product satisfies the owner’s expectations/needs and scarifies, in term of resources used, which the owner must take in order to achieve it. Shen and Liu (2003) point out that value management has been recognised as one of the most effective methods in order to achieve ‘best value-for-money’ for clients since it was introduced for the construction industry in early 1960.

Leung and Liu (2003) identify that in construction projects, a common complaint is that the client's brief is insufficient as a document for communicating the goals to participants of the project. A prime purpose of value management, therefore, is to identify clearly the client's and participants' values and goals through a decision-making process. Specific values therefore have to be recognised in order to generate specific goals. Thus, participants of the project have to perform well in the project tasks in order to satisfy the client and enhance the final success (Takim, 2005).

According to Hamilton (2002), the application of the processes of value management will improve the accurate understanding of the client's requirements and avoid a great deal of waste in product development. In order to be successful, the techniques of value management should be systematic as regards the appropriate aspects of the value process and continuously throughout all phases of the project lifecycle.

Pylkas et al. (2002) argue that value engineering is a sub-set of value management and can be applied to construction projects in order to search for the best functional balance between the reliability, long term cost, and performance of a project. The aim of this concept is to meet the client's expectations in achieving a completed project in terms of low maintenance requirements, expandability, energy efficiency and design integrity; and low life cycle cost of the project. Given the above, value management, value engineering and value analysis are referring to function oriented problem solving techniques, to reduce costs, improve quality and performance, and 'add value' to products and services.

Chapter 2 has identified that many projects in Vietnam are poorly studied and estimated while failing to generating benefits. It can be seen that if value management is applied in the VCI, it is not only creating a good project or accomplishing a project on time, within budget and meeting specified quality, but also to make sure that the right project is built to meet requirements of the customer based on their needs during the lifespan of the project, providing a range of better social and economic benefits and making sure the project is adaptable for future uses. Therefore, the application of value management in practice will help to better satisfy client, avoid wastages, and improve project performance. These contribute to the overall success of any project.

3.6.6 Collaborative arrangements

As Child and Faulkner (1998) argue, cooperative strategy is the effort by organisations to recognise their objectives through cooperation with other organisations, rather than in competition with them. It concentrates on the benefits that can be achieved through cooperation. A cooperative strategy can offer substantial advantages to secure these through associations with others who are having complementary skills or assets; it may also offer easier access to new markets, and opportunities for mutual synergy and learning.

Jeffrey (2004) point out that cooperation and competition provide alternative or simultaneous paths to success. In addition, Thomas-Cain (2004) states that partnering should provide supply-side firms with a culture of trust and security that encourages everyone to accurately and objectively measure performance and share the outcome without fear of criticism or risk of refusal, and to then work together to improve performance of each other.

It is stated that the development of a strategic collaborative arrangement could be an effective method for overcoming disadvantages or weaknesses that a corporation may be exposed to in the increasing competitive domestic or international market (Raftery et al., 1998). Since construction projects are becoming more complex and demanding more financing devices and sophisticated technologies, an alliance in the form of a collaborative arrangement is essential to accomplish a construction project (Dulami et al., 2003).

The resources, in terms of materials, equipment, finance, skills and expertise, are the means to bind project client, contractors, consultants and suppliers together. Inter-organisational relationships in the form of cooperation, competition, regulating, and balancing the common and individual interests could be resolved by each party's behaviour which is principally motivated by their own expectation of a positive outcome (Takim, 2005).

It can be seen that with the very fast development of science and technology, with many modern tools and the significant assistance from internet, the world seems to be smaller and closer. In this circumstance, construction markets face issues and fierce competitions from both local and international firms. Construction companies realise that the domestic market is not enough for them to operate. Moreover, with the

recession of the economic and low demands from the industry, cooperating with a foreign company seems to be a good solution in a more potential region for improving and running business. This situation is true for corporations coming from developed countries where lack projects and have to compete fiercely to other construction firms.

Whereas a developing country likes Vietnam where lacks modern tools, equipment, modern technology and management know how, there are huge demands for many projects in building infrastructure and transport facilities such as highways and bridges. However, with the problems which have been identified and discussed in Chapter 2, Vietnamese construction firms find it difficult to fulfil the requirements of those projects. In this context, cooperation between the native players with foreign corporations seems to be very necessary and potential for both parties to achieve benefits. As a result, this will improve the overall success of many projects.

3.6.7 Lean construction

The evolving theory of lean construction is concerned with the application of 'lean thinking' into the construction industry in order to improve project quality and efficiency (Green, 1999 and Koskela, 1992, 2004). In this case, lean construction is a theory based on the concept of lean manufacturing and applied to the construction industry in order to improve and manage the construction process to successfully deliver what the customer needs. The system of lean production consists of a complex idea including team work, flattened organisational structures, continuous improvement, elimination of waste, effective use of resources and co-operative supply chain management. The principal aim of lean production is the elimination of waste. In addition, the approach is possibly best described as a combination of TQM with JIT (just-in-time) concept of product delivery together with the ideal of zero waste, zero defects and zero inventories (Green, 1999 and Farrar et al., 2004).

Lean construction can be regarded as a new paradigm for project management (Ballard and Howell, 2004). The aim and objectives of lean construction are to deliver a project on time, within budget and according to designed quality standards while minimising waste and maximising value.

To a certain extent, in order to successfully achieve lean thinking, the context within lean production must be understood and organisations must be able to persuade their stakeholders if they can succeed (Piercy and Morgan, 1997). Nevertheless, lean

construction is now available and really active in the United States, the United Kingdom and many other countries. The application of lean construction also has begun in Singapore, Indonesia, Ecuador, and Colombia (Ballard and Howell, 2004). Indeed, the practical and theoretical power of lean thinking in construction is becoming greater known and attracting more enthusiasts. This is one of the improvement areas that need to be employed in the development and management of construction projects.

In the VCI where wastage, time delays, cost overruns and poor quality are usually met and reported in many construction projects; the application of lean concepts could help to improve performance and achieve more successful results. Lean construction has been considered a new effective tool for project management in order to achieve project aim and objectives while maximising value and minimising waste. It has been confirmed that application of lean construction in practice improves project quality, profits for organisations, and reduces project duration. Therefore, the overall success of construction projects are improved and achieved.

3.6.8 Supply chain management

Businesses in the construction industry are more and more dependent on organisations that supply to and buy from, and for projects being continuous success, those organisations need to collaborate and cooperate across customer/suppliers interfaces (DTI, 2004). Nowadays, modern construction methods are including the integration of supply chains where parties in the chain have a long term objective to work together to provide added value to the client. The long term relationships allow the strong influence of supply chain management to be fully recognised and therefore, the integration of supply-chain management is regarded as one of the improvement areas, which is essential in the development and management of construction projects (Constructing Excellent, 2014).

In fact, the failure to involve contractor and suppliers/subcontractors in the development and implementation of supply chain in construction projects is likely to a have an essential influence on the overall project cost and may lead to time overrun (Dainty et al., 2001). Supply chain management could concentrate on how a main contractor would be able to better control and manage the resources of its suppliers and subcontractors through working cooperatively and closely with them, instead of outsourcing most of the subcontracting work to others (Constructing Excellent, 2014).

Wong and Fung (1999) point out that the improvement of closer relationships with main contractors will secure the supply of the material or services and control the quality and cost from suppliers/subcontractors better. In return, the company (main contractor) inspires these suppliers/subcontractors by providing more opportunities to those long term established and competent partners.

Stannack (1995), Lamming (1996) and Spekman et al. (1998) identify that benefit of supply chain management is the closer relationships between parties involved in the flow of goods from suppliers to end-user. Relationships of supply chain in construction therefore not only should spread out beyond the simple exchange of services or materials, but also should integrate the design, marketing, distribution and knowledge exchange between parties (Levy et al., 1995).

Regarding the Vietnamese context where public transport development projects are huge in terms of scale, numbers of parties involved, technology and materials requirement, the application of supply chain management can bring about many benefits. It can be seen that supply chain plays a significant role in the success of construction projects due to the close cooperation between stakeholders, especially contractors, subcontractors and suppliers. Time and cost overruns may as a result of failure in the development of supply chain in construction projects between those stakeholders. On the other hand, it has been confirmed that incorporation of the supply chain within construction projects helps to achieve significant profits for client while saving time and cost. These contribute to the overall success of any project.

3.6.9 Health and Safety

According to Sawacha et al. (1999), to maintain health and safety at work is a complex issue in the construction industry. In overall, accidents can occur either because of the lack of training or knowledge, lack of means to execute the task safely or lack of supervision, or alternatively, because of carelessness, an error of judgement, apathy or absolute negligence. Furthermore, safety performance within the construction industry will be influenced by issues such as the diversity and complexity of the size of organisations, and the lack of control environment.

Everybody participated in construction has a responsibility for their health and safety issues. For example, designers must guarantee their designs deliver a safe and healthy environment for the end user, and can be built and maintained without exposing the workforce to undue risks to their health and safety. In this case, paying attention in the early stage to health and safety is essential, especially at the planning stage, and carried out through all the processes of design, construction and commissioning. Safety methods of construction and maintenance must also be planned into the project from the beginning (Takim, 2005).

There are seven factors which influence the safety of construction such as: historical, economical, psychological, technical, procedural, organisational and the environmental issues (Sawacha et al., 1999). In this case, the most influential factor of safety performance in the construction industry is the 'organisational policy towards safety'. Nevertheless, in the VCI, health and safety are not properly concerned and implemented by many construction firms which resulted in fatal accidents and buildings collapsed.

Actually, health and safety is one of the most important factors in order to guarantee a smooth process and contributing to the overall success of any project. This is a must have and designers, consultant and contractors have to clarify health and safety method which needs strictly applying during the construction process. The achievement of health and safety will greatly contribute to the ‘on time’ objective of any projects whilst mitigating any compensation for accidents or rebuilding the infrastructure. The importance of health and safety is quite obvious, thus participants in public transport development projects in Vietnam must pay great attention to.

3.6.10 Risk management

Another improvement area which is significant to the development and management of construction projects is risk management. Because of the nature of construction business activities, procedures, organisation and environment, the construction industry and its clients are usually associated with a surprising amount of risk (Akintoye and MacLeod, 1997). It is argued that risk management is critical to construction activities to enhance profitability and minimise losses. Risk within construction projects is commonly regarded as the possibility of occurrence of incidents whose impacts influence project objectives in terms of time, cost and quality performance. Risk management therefore

becomes an ongoing activity in project development and management, from initiation and during the project lifecycle.

Basically, in order to enhance project success and organisational performance, the project client should appreciate the benefits brought about by risk management while totally support its application within the organisation, especially for a specific construction project (Takim, 2005). According to Ward and Chapman (1995), the necessity of identifying project risk should be at the early phase of the project rather than later in the project lifecycle. In this situation, the role of risk management is to cover and require attention during the four phases of project lifecycle which is including the conceptual, planning, execution, and termination phase. This is vital in order to enhance the provision of product deliverables and excellent services.

Radujkovic (1996) identifies that allocation of risk is fundamental to procurement and contract strategy. He claims that traditional procurement methods, using competitive tender and bills of quantities, give a properly split of risk between contractor and client. By contrast, contractor will be allocated more risk if employing procurement routes such as Turnkey or DB contract. Therefore, effective risk management throughout the design and construction phase is intended to maintain the project within time, cost and quality parameters. Finally, Radujkovic (1996) concludes that managing risk of construction projects is maybe the most significant job in order to enhance project performance and deliver a successful project outcome.

Regarding the Vietnamese context and the VCI which contain so much potential risk as previously discussed in Chapter 2, it can be seen that risk forecasting and management can essentially influence the final success of public transport development projects by identifying potential problems and their impacts during project lifecycle, and then preparing solutions to cope with. It is necessary and needed to identify risk at the beginning of any project, and it is a ‘must have’ in order to improve the delivery process. This contributes to the success of project management and therefore, enhances the overall project success.

3.7 Gaps in thinking

After extensively and thoroughly reviewing literature, it can be pointed out that previous studies in the mainstream of project success have mainly focused on three elements namely Success Criteria, Critical Success Factors and Project Process whilst discretely recognising the links between them:

+ *Project process and Success criteria:* (Shenhar et al. 1997 and 2002, Atkinson 1999, Lim and Mohamed 1999, Chan et al. 2002b, Chan and Chan 2004, Do and Tun 2008) or

+ *Project process and Critical success factors:* (Pinto and Prescott 1988, Pinto and Covin 1989, Lim and Mohamed 1999, OGC 2000, Qiao et al. 2001, Levy 2002, OGN 2007, Do and Tun 2008, Toor and Ogulana 2008, Kulatunga et al. 2009) or

+ *Critical success factors and Success criteria:* (de Wit 1988, Shenhar and Wideman 2002, Davies 2002, Westerveld 2003, Collins and Baccarini 2004, Diallo and Thuillier 2005, Zwikael and Globerson 2006, OGN 2007, Do and Tun 2008).

Those links have been discussed in details in Sections 3.5.1 and 3.5.2, and also in the Appendices A and B of the thesis, where the above authors mentioned that criteria and critical factors should be split across different phases of the project process in order to evaluate success more accurately and achieve success more effectively. In addition, the application of critical factors (inputs) is essential to achieve criteria (targets) more efficiently in any project.

However, it has also emerged from reviewing literature that apart from the above three elements, there are other two elements which are also having very strong influences on the achievement of project success: Key Stakeholders and Severe Problems. Yet, the authors in the mainstream, as mentioned above, did not focus on these two elements in their work. Thus, the interactions and connections between the five elements as a whole are missing in previous studies, which indeed can be recognised and captured from critically reviewing literature and applying logical thinking as the followings:

+ *Stakeholders and Success criteria:* De Wit (1988), Baccarini (1999), Lim and Mohamed (1999), Chan et al. (2002), Rad (2003), Diallo and Thuillier (2005) and Marwanga et al. (2006) state that success criteria must be identified and agreed by key stakeholders before starting any project. This means stakeholders are ones who define success of their own project by coming up with a set of criteria for measuring project

performance and to understand how well project's aim and objectives have been achieved.

+ *Stakeholders and Critical success factors:* Boynton and Zmud (1984), Pinto and Prescott (1988), Sanvidor et al. (1992), Munns and Bjeirmi (1996), Tam (1999), Levy (2002), Westerveld (2003), Nguyen et al. (2004), Yang (2006), Toor and Ogunlana (2008) explain that critical success factors are inputs which assist stakeholders to achieve successful outcomes of their project. This means stakeholders are ones who directly apply and manipulate those inputs during the project lifecycle. As well as success criteria, Pinto and Covin (1989) and Takim (2005) suggested that critical success factors should also be identified and agreed by stakeholders at the beginning of any project.

+ *Stakeholders and Severe problems:* Pinto and Mantel (1990), Ogunlana et al. (1996), Ofori (2000), Chua et al. (2003); Truong et al. (2004), OGC (2005), Sambasivan and Soon (2006), Hallgren and Wilson (2008), Shehu and Akintoye (2010), on one hand, have mentioned that identifying and understanding problems will help stakeholders to avoid them in the future or come up with solutions to cope with. This implies that stakeholders are ones who directly deal with problems during the project lifecycle and, in many cases, they are also impacted by those problems. On the other hand, the above authors also identified that problems can be seen at a specific phase of a project or throughout the project process *(Severe problems and Project process)*.

+ *Critical success factors and Severe problems:* There will always be problems in any project regardless how severe or minor they are, and problems are inevitable due to project constraints such as required time frame for completion, resources etc. For example, in order to gain time, in some cases, owners/sponsors are willing to sacrifice planning and feasibility study to proceed on a project with inadequate definition of project scope. However, subsequent changes in project scope will increase costs which sometimes far exceed the initial estimates. As a result, there are clearly unsuccessful and abandoned projects before completion because of this problem. On another hand, due to the scale and importance of a project, it can take years for the planning and feasibility study process to be done properly and approved before moving on to the next stage which significantly contributes to time delays.

In fact, there are many other problems which also contribute to time delays and cost overruns of a project such as: corruption and bureaucracy, slow decision making process, poor design and construction, high inflations, extreme weathers, natural disasters etc. It can be recognised that those problems are inherently existing within a project or coming from the external environment, and they also relate to other project constraints such as cost, quality, safety and so on. Therefore, what separates a constraint from a problem is the nature of the problem, how it is originated and whether it is under or out of human control. Understand these will help identify relevant solutions and strategies to effectively cope with in order to mitigate or eliminate that problem and achieve more successful outcomes.

If problems did not exist in a project, it is certainly possible to achieve success. Because in that situation, problems which are out of human control are eliminated completely, whilst ones that could be controlled by human would provide an immediate platform for critical success factors or solutions to deal with. Here, it can be seen the differences and connections between factors and problems.

For instance, extreme weathers or natural disasters could significantly delay the construction process, damage or totally destroy the building infrastructure. These would be resulting in substantial costs for repair or rebuild, or a project will be totally abandoned in the end. However, it does not mean that good weathers or the absence of natural disasters are a critical success factor, because the building infrastructure can still be damaged or destroyed due to many problems such as poor design and construction, poor geology/hydrography study or inadequate materials used. Actually, it is not possible to control extreme weathers and natural disaster.

When removing this type of problems from a project, it has become obviously that having adequate design and appropriate construction, having proper materials used or having proper geology/hydrography study are critical factors which directly deal with the opposite problems. In addition, those factors also help mitigate the consequences which might be generated by extreme weathers or natural disasters.

Fundamentally, it can be recognised that critical success factors are not only useful in assisting stakeholders to achieve a predetermined set of criteria, but also help to directly or indirectly cope with problems which (inevitably) can be met in that project (Belassi and Tunkel 1996, Tam 1999, Truong et al. 2004, Yang 2006, Ling and Bui 2010).

+ *Stakeholders and Project process:* it can be seen that stakeholders are active throughout the project by working from the beginning to an end (identifying success criteria, dealing with problems, applying critical success factors, communicating and collaborating with each other, and many more tasks). Moreover, de Wit (1988), Parfitt and Sanvido (1993), Shenhar et al. (1996), Atkinson et al. (1997), Chan and Chan (2004) and Nguyen et al. (2009) claim that stakeholders' involvement during the process plays a vital role for the success of any project.

+ *Success criteria and Severe problems:* as analysing and discussing in Section 3.5.1 that success criteria can be used to directly confront consequences which might be generated by problems. In addition, because of problems' impacts, success criteria might not be fully achieved.

The following matrix presents the links between the five elements as described above. For instance, as previously mentioned, researchers in the mainstream of project success only focused on and therefore recognised the connections between Factors – Criteria – Process only. Thus the matching between those three elements within the matrix is marked as Y. The rest connections are recognised outside the mainstream as described above, thus their matching is marked as X.

Elements	Stakeholders	Factors	Criteria	Problems	Process
Stakeholders		x	x	x	x
Factors	x		y	x	y
Criteria	x	y		x	y
Problems	x	x	x		x
Process	x	y	y	x	

In general, reviewing literature has identified that there are interrelations and interactions from one element to another during the project lifecycle. This implies that they should not be treated as independent entities when taking into account their importance and influences on project success. Therefore, this research argues that those five elements should be holistically viewed and encompassed within a single framework. Nevertheless, previous studies failed to present the elements together – in

fact they were only treated as a pair – while properly establishing their connections. This indicates a knowledge gap which needs to be filled.

3.8 Summary

It has been confirmed that, for a specific (type of) project, there is a specific number of stakeholders who directly and indirectly influence project results during the management and implementation process. Therefore, understanding stakeholders who are the most important and having strongest impacts on the achievement of project success alongside their needs and expectations has been confirmed significant. Yet, key stakeholders have not been properly presented in previous studies together with process, criteria and critical factors for project success.

Interestingly, reviewing extensive literature has also indicated that most of previous studies in the mainstream of project success ignored the presentation of or focused on problems whose influences on the achievement of project success are also very strong. Actually, none of them focused on the all the elements which have been mentioned above. This has created a significant gap which this research is going to fill.

There are some researchers (Belassi and Tukel 1996, Shenhar et al. 1997, Atkinson 1999, Lim and Mohamed 1999, Chan et al. 2002a, Chan et al. 2002b, Westerveld 2003, Chan and Chan 2004, Chan et al. 2004a, Fortune and White 2005, Do and Tun 2008) proposing a framework which contains criteria, or critical factors or both within specific phases during the project process in order to evaluate and improve success. This study adopts that approach in the development process of a framework. It is believed that project participants will better understand, recognise, apply and manipulate critical factors if they are clearly presented during the project lifecycle and therefore can achieve more successful outcomes – evaluated by a set of predetermined success criteria.

In fact, there is a particular framework developed by Chan et al. (2004a) which focused on different groups of critical factors and provided links between them. In short, Chan et al. (2004a, p.155) argue that ‘Project success is a function of project-related factors, project procedures, project management actions, human-related factors and external environment and they are interrelated and intra-related’. Although, the explanation of

how one group of factors influences the others and how the factors can be used during the project lifecycle is missing in Chan et al.'s 2004a) work, it provides a significant implication for the presentation of potential connections between different elements of project success.

However, unlike Chan et al. (2004a) and others as mentioned above – whose framework and model are discussed in details in the Appendices A and B – this research will push the boundary of project success further by encompassing simultaneously all the elements which have strong influences on the achievement of project success namely: Critical Success Factors, Success Criteria, Key Stakeholders, Project Process and Severe Problems which have been identified from literature to achieve a complete picture of project success.

Existing theories of project management, as discussed in this chapter and Chapter 2, provide a solid foundation for this novel concept. These theories include: the process of planning and carrying out a project with activities in detail, understanding problems in current practice then preparing solutions to avoid or cope with, identifying criteria as targeted standards to evaluate project outcomes, and identifying stakeholders who have the strongest influence on the management and implementation of the project.

This research argues that focusing on one or two of the above elements, like previous studies did, are ineffective and no longer relevant to assist project participants to achieve successful outcomes. Thus, a combination of the elements within a single framework becomes apparent and necessary. The interactions and interrelations between those elements during the management and implementation process of a project have been identified and discussed in the previous section (Section 3.7).

Last if not the most important finding, reviewing the literature has shown that there is lack of research on success related issues for public transport development projects in developing countries, especially in Vietnam. Detailed discussions of previous studies have been done in Chapter 2 with clear justifications why they are not consistent to be fully applied in the current Vietnamese practice. The following chapter will discuss and specify the methodology, design and methods adopted in this research.

CHAPTER IV RESEARCH METHODOLOGY

4.1 Introduction

In the previous chapters, issues and problems in the VCI have been presented and analysed, alongside a comprehensive review of literature about project success, success criteria, critical success factors and methods for improving project success. A review about research methodology and design will be conducted in this chapter in order to evaluate relevant research methods and data analysis techniques. The most appropriate ones will be specified and proposed for the research with their application in data collection.

4.2 Research Methodology

Remenyi et al. (1998) define research methodology as related to the procedural framework within which the research is conducted and it presents an approach to the problem which can be applied into practice in a programme or process of the research. They identify there are two most common approaches used to differentiate research: empirical and theoretical studies. They note that empirical is based on the results of experiment or observation only. Theoretical studies are based on theory development and usually without direct involvement in observation and the collection of actual evidence. Although the two approaches to research are different, they are still usually accepted by a large number of scientists as methods for contributing value to the body of knowledge.

Fellows and Liu (2008) point out that in construction management, the term methodology is used as an equivalent to the scientific empirical approach which refers to: the definition of the problem; the statement of the problem and its interpretation; the formulation of hypothesis; and the empirical testing of the hypotheses. Love et al. (2002, p.295) note that ‘a fundamental objective of construction management research is to understand a phenomenon based on what is considered the (correct) way to understand it; or to understand it using whatever means provide the best and most reliable results’. They point out there are two methodologies which seem to dominate the study of construction management: the interpretivist (known as phenomenological) approach, and the positivist approach. In this case, the positivist approach assumes that reductionism can handle complexity, and hypotheses can be verified by using empirical

testing, whilst the interpretivist approach is based on understanding the social world through interpretation of meaning and actions of participants.

According to Dainty (2008), research methodology refers to more than the methods adopted in a specific study, and consists of the rationale and the philosophical assumptions that motivate a specific study; and in turn, these will influence the actual research methods which are employed to explore the problem, and to collect, analyse and interpret data. Fellows and Liu (2008) in addition identify that in considering the methodology and philosophy of research, researchers should focus on the principles that lead the process to improving knowledge and searching solutions towards the research problems. They determine that issues of ontology, epistemology, positivism, and phenomenology are considered as having influence on the statement of the research problem and the subsequent research design.

4.2.1 Ontology and Epistemology

'Initially, the basic principles of research strategy and design are examined and the ontological and epistemological assumptions which underpin different research paradigms and strategies examined' (Dainty, 2008 p.2). Ontology is concerned with the assumptions in conceptual reality and the question of existence apart from specific objects and events (Fellow and Liu, 2008). Bryman and Bell (2007) identify that ontology refers to philosophy which is according to the nature of social reality, and questions of social ontology are concerned with nature of social entities. They point out that objectivist ontology considers social phenomenon and their significances as independently existing of social actions, whereas constructivist ontology concludes that social phenomenon are created through social interaction and are therefore in a stable condition of adjustment.

According to Runeson and Skitmore (2008), in the field of construction management, the research theories are based on an ontology that assumes reality can be uncovered and known through research. However, Love et al. (2002) argue that construction projects are dynamic and made up of many variances which react to produce feedback processes and non-linear relationships. Therefore, it is necessary to consider the management of construction projects from a different viewpoint.

Bryman and Bell (2007) identify that an epistemology issue concerns the question of what is or should be considered acceptable knowledge in a discipline. In addition, epistemology is the branch of philosophy that focuses on the nature, origins, methods and limits of human knowledge (Fellow and Liu, 2008), and it concerns the question of how valid knowledge about reality can be achieved (Tashakkori and Teddlie, 2003). On the other hand, epistemology is used to identify knowledge through the research process which is developed and investigated (Smyth and Morris, 2007).

In addition, Dainty (2008) argues that epistemological conditions are restricted by the positivist view that the methods of the natural sciences should be applied to the research of social phenomenon, and the alternative orthodoxy of interpretivism which concerns a distinction between the objects of natural science and people in that phenomenon have different subjective implication for the actors studied.

To sum up, the understanding of ontology and epistemology is dependent on the assumptions that researchers make about the nature of organisations and projects and how they explore them (Bryman and Bell, 2003). They suggest that each paradigm contains assumptions which can be presented as following: objectivist – there is an external viewpoint from which it is possible to view the organisation which is comprised of consistently real processes and structure; or subjectivist – an organisation is a socially constructed product, a label used by individuals to make sense of their social experience, so it can be understood only from the point of view of individuals who are directly involved in its activities. Dainty (2008) determines that understanding the influence that competing paradigms have on the way in which research is carried out is fundamental to understanding the contribution that it makes to knowledge.

4.2.2 Positivism and Phenomenology

Bryman and Bell (2003, p.14) define positivism as ‘an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and more’. They identify that positivism also has the following principles: only knowledge and phenomenon which are confirmed by the senses can totally be warranted as knowledge (the principle of phenomenalism); the purpose of theory is to produce hypotheses which can be examined and will thereby allow explanations of laws to be evaluated (the principle of deductivism); knowledge is achieved through the gathering

of facts that generate the basis of laws (the principle of inductivism); science can be conducted using a method that is value free (objective); and there is a clear difference between scientific statements and normal statements.

The meaning which underlies positivism according to Remenyi et al. (1998, p.33) is the assumption that 'researchers are independent of and neither affect nor are affected by the subject of the research'. It is assumed that there are independent factors which cause the observed effects and that evidence is critical and should be able to model or to simplify the observed phenomena. Fellows and Liu (2008) identify that physical and natural scientists usually take a positivistic approach, and focus on quantifiable observations which help themselves to statistical analysis. However, in the social sciences, especially in business and management, positivism is not regarded as an approach which will fully achieve significant insights into problems (Remenyi et al., 1998).

Therefore, the positivist approach to research needs to be compared and contrasted with the phenomenological approach (Remenyi et al., 1998). They define phenomenology as a theoretical viewpoint which advocates the research of experience which is directly taken at face value. Fellows and Liu (2008) contribute to the definition by adding that phenomenology focuses on occurrences, events and happenings as one experiences them rather than the external and physical reality. When using a phenomenological approach, researchers have to look beyond the details of the context to find out the reality or perhaps a reality working behind them (Remenyi et al., 1998). In addition, Fellows and Liu (2008) identify that phenomenological analysis avoids emphasizing on the physical events but copes with how these events are experienced and perceived.

It can be seen that although positivism and phenomenology are based on different philosophies, they are not mutually exclusive in the adoption of methodology (Fellows and Liu, 2008). It may be argued that positivism and phenomenology are not totally different in their influence on research and in the value of their findings (Remenyi et al., 1998).

This study is going to explore how stakeholders who are working in the VCI and public transport sector interact with a proposed framework and its elements. Results collected will reflect current management practice and provide an unique picture about project

success in the Vietnamese context. Therefore, the study is standing on the empirical and positivist approach.

4.3 Research Design

According to Creswell (2009, p.3) 'research designs are plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis'. He identifies that the selection of a research design depends on personal experiences of the researchers, the nature of research problems or issues being addressed and the research's audiences. On the other hand, Bryman and Bell (2007) identify that the role of research design is to provide a framework for collecting and analysing data. They point out there are five different research designs: experimental design and its variants, including quasi-experiments; cross-sectional or social survey design; longitudinal design; case study design; and comparative design.

Making decisions about research design is essential to the philosophy which is underpinning the research as well as the contribution the research is likely to make (Dainty, 2008). In addition, Fellows and Liu (2008) determine that, in research design, researchers have to decide the methodological approach in searching for solutions or answers to the research problems or research questions. It is also important to state the way in which the researchers achieve the research objectives. Fellows and Liu (2008) note in scientific research that researchers have to consider: types of research (e.g. exploratory, descriptive, causal); research approach (qualitative, quantitative, or mixed); empirical design (between-subject design, within-subject design, longitudinal case study); data collection methods (survey, interview); and data analysis methods (t-test, ANOVA, and so on).

In fact, there are many strategies which can be applied for providing a specific orientation for procedures and process in a research design. According to Creswell (2009), three types of design are advanced: qualitative, quantitative, and mixed methods. Dainty (2008) argues that qualitative and quantitative have their own merits and advantages, however there are many arguments which are against this and point out the limitations of using any specific strategy. Therefore, these issues have strengthened the utility of mixed methods. Creswell (2009) argues that the biases inherent in each single method could neutralise or avoid the biases from the other. In addition, the

fundamental issues for selecting research design are restricted to research question and constraints, what is to be evaluated and the requirements of validity and reliability (Fellows and Liu, 2008).

4.3.1 Qualitative Approaches

According to Fellows and Liu (2008), qualitative approaches seek to gain insights into and to understand people's perceptions of reality whether as individuals or groups. They identify that in this type of research, issues such as understandings, the beliefs, views and opinions of people are investigated. Qualitative researchers usually observe reality and phenomenon which are constructed by the individuals involved in the research question, then report honestly on the reality by relying on interpretations and voices of informants. There are three kinds of data collection in this type of research: direct observations, in depth open-ended interviews, and written documents (Patton, 2002).

However, Fellows and Liu (2008) argue that the data collected may be unstructured, but tend to be detailed and rich in scope and content. As a result, the objectivity of qualitative data is usually questioned by researchers whose background is in the scientific and quantitative tradition. In addition, analysing qualitative data seems to be more difficult than quantitative data, and it needs many efforts to manipulate the data to be suitable for analytic techniques. Dainty (2008) based on studies about construction management has identified that qualitative approaches are the least used in research.

Besides all those issues, Creswell (2009) determines that the merits of the qualitative approaches are expressed in: exploratory research where researchers are not clear which are the important variables to examine; the topic investigated is new and has never been addressed with a specific sample or group of people; and current theories do not apply with the sample or group under study.

Naoum (1998) argues that a theory might emerge during the research in the data collection and analysis phase, or it is used in the research process as a basis for comparison with other theories. In qualitative research, the end product tends to be towards the end of the study, thus hypotheses can be tested more rigorously by further quantitative research. Qualitative methods are usually case studies, grounded theories, and ethnographies which deal with exploratory and attitudinal issues.

4.3.2 Quantitative Approaches

This type of research seeks to collect factual data and study relationships between facts, and how such facts and relationships conform to theories and the findings of previously executed researches (Fellows and Liu, 2008). Creswell (2009) identifies that quantitative approach is termed as the positivist, the experimental, the traditional or the empiricist paradigm. Quantitative researchers consider reality as objective or things which can be objectively evaluated by using an instrument (a questionnaire for instance).

Bryman and Bell (2003) argue this approach is regarded as entailing the gathering of statistical data and view the relationship between theory and research as deductive and having objectivist conception of social reality. They identify that the approach allows researchers to evaluate and estimate more precisely the degree of relationship between concepts. In other words, Creswell (2009) notes that objective theories are tested by examining the relationship among variables which can be analysed using statistical procedures.

However, according to Bryman and Bell (2003), there are criticises about this approach which include: failure in differentiating people and social institutions from the real world; it has the limitation and artificial sense of accuracy and precision of the evaluation process; it also depends on research procedures and instruments thus hinder the connection between daily life and research; and the view of social life is created by observing independent people and analysing relationships between variables. Despite these criticises, Fellows and Liu (2008) determine that the quantitative approach is an outstanding strategy which has gained advantages and reputation for many years, and it has been widely used in research of construction management and natural science (Dainty, 2008).

4.3.3 Mixed Method Approach

Fellows and Liu (2008) argue that both quantitative and qualitative approach may implement regular research styles which the nature and objectives are related to the nature of data collected. These will classify whether the research is quantitative or qualitative. In addition, Tashakkori and Teddlie (2003) identify that in spite of their own merits, each of the traditional methods to research has been critiqued by the proponents

from the other orientation. Due to this, a new approach is evolved to exploit the virtue of the both methods.

Bryman and Bell (2007) point out that the term mixed-method is used to describe the integration of both quantitative and qualitative research within a single project. This method employs two or more techniques to minimise or avoid the disadvantages of each individual approach while exploiting the advantages of the other, and of the combination – a multidimensional view of the subject (Fellows and Liu, 2008). Love et al. (2002) state the effectiveness of this method is achieved by compensating the weakness of any single approach with the strength of the other without combining the liabilities of using both approaches.

In fact, mixed method research concedes that all methods have inherent weaknesses and biases; that using a mixed method approach will increase the prospect that the sum of the data collected will be more meaningful, richer, and eventually more useful in answering the research questions. (Preskill, cited in Johnson et al., 2007, p. 121).

This study aims to answer the two research questions which have been presented in the Introduction Chapter. In order to do so, firstly, literature is reviewed to identify elements which influence and contribute to project success achievement. A proper solution therefore will be identified and developed to capture all the relevant aspects of project success. Secondly, an investigation of the proposed solution in the Vietnamese current perspective is conducted to determine how to improve and achieve success of public transport development projects. Because of the nature of this study, it can be seen that both qualitative and quantitative are required and they can fit within the methodological process of thought, collection and analysis of data. Based on the advantages and relevance for researching in construction project management, the mixed-method approach is adopted in this study.

4.4 Research Methods

According to Bryman and Bell (2007), a research method is a technique for collecting data, and it is different from research methodology which relates to the procedures and principles of logical thought processes applied to a study. The technique relates to the method which is used for gathering, evaluating and interpreting data (Dainty, 2008).

Fellows and Liu (2008) point out that the most relevant method to adopt depends on the logic which links data collection and results analysed to the research question investigated. They identify that there are various research methods which can be adopted for meeting a research need.

In addition, Bryman and Bell (2007) note that research methods can be and actually are associated with different kinds of research design. In the construction management research, five methods have been determined as being appropriate: action research, ethnography, surveys, case study, and experiments (Fellows and Liu, 2008 and Naoum, 1998).

4.4.1 Action Research

Avison et al. (1999, p.94) define action research as 'an overlapping process which is involved in practitioners and researchers acting together - to investigate a problem and to find solutions which are based on the investigation - on a specific cycle of activities including action intervention, problem diagnosis, and reflective learning'. In addition, they identify that action research combines theory and practice as well as practitioners and researchers through reflection and change in an instant problematic situation within a commonly acceptable moral framework in order to achieve both practical and research objectives.

Remenyi et al. (1998) identify that, as a process, action research depends on an external view of a situation and it is involved in: taking a static picture of the organisational situation; formulating a hypothesis based on the picture; manipulating variables within the control of the researcher; and taking and evaluating a second static picture of the situation. In action research, researchers review the current situation, determine the problem, generate hypotheses about the effects and causes then act on these and measure the impacts or changes (Naoum, 1998).

McQueen and Knussen (2002) argue that action research is designed to propose and examine solutions to specific problems. Therefore, this type of research is attractive to professionals, industrialists and practitioners who have determined a problem through the course of their work and wish to explore and propose a change to improve the circumstances.

However, despite a richness of insight into the problem and information provided (Bryman and Bell, 2007), the use of this method has some limitations such as: it is relevant and feasible only when the researcher is a member of the participating organisation and has a good understanding as a consequence of being an actor through the studied processes; and this method will hinder and restrict the study to locating in a single organisation therefore the data collected is restricted within an extremely limited population. Moreover, Remenyi et al. (1998) argue that action research provides the researcher with good quality access but constitutes a potentially demanding process for the collection of data given the location of the researcher within a live situation.

4.4.2 Ethnographic Research

Bryman and Bell (2007) define ethnography as a process of joining a group, observing subject behaviours, making notes and writing a full report. In addition, Lowery (2001, p.322) notes that ethnography is a method used to scientifically describe individual cultures and the 'people hood' in these cultures. Creswell (2009) identifies this research method deals with a cultural group in a natural setting during a long period of time by collecting observational and interview data. The aim of this method is to understand participants' lives from the inside in order to investigate what goes on and why their patterns of behaviour occur (Fellows and Liu, 2008). It has also been argued that this approach focuses on identifying meanings and the processes through which members of the group make the world meaningful to themselves and to others (Fellows and Liu, 2008).

Ethnographers attempt to understand the culture of the circumstances and interpret it in a method without conducting interviews or experiments in artificial environments. With this type of approach, it allows the researcher to use the socially acquired and shared knowledge which is available to the participants to account for the observed patterns of human activity (Gill and Johnson, 2010).

Fellows and Liu (2008) and Bryman and Bell (2007) identify that method might be difficult or irrelevant if the researcher is not a member or working within the organisation researched. In addition, Gill and Johnson (2010) argue that ethnographic methods have some weaknesses such as: low internal validity, low population validity, and low reliability.

According to McQueen and Knussen (2002), theories and hypotheses are formed and found out during the research process with the assumption that researchers will put aside their trust and values before investigating those of the target group. In many cases, the ethnographic approach therefore can only succeed with the full cooperation of the participants besides a remarkable amount of time and cost, and it is normally appropriate to small scale exploratory work in order to study areas which need further investigation.

4.4.3 Experimental Research

Fellows and Liu (2008) argue that experimental research is best suited to issues or bounded problems where the variables involved are known or can be hypothesised with some confidence. With this method, a laboratory setting is ideal. In addition, McQueen and Knussen (2002) point out that the common features of this approach are manipulation, measurement and control, with the aim being the demonstration of cause and effect relationships. The basic function of an experiment is to examine the influence of an intervention or a treatment on an outcome, and control other factors that may have impacts in the result (Creswell, 2009). He further notes that to conduct experimental research, the manipulation of an independent variable to identify its effect on a dependent variable is required.

Despite the major advantages which are brought about by this approach such as: the evaluation is more precise because it takes place under highly controlled conditions; the independent variables of the research can be precise through the manipulation techniques, and the laboratory experiments can be replicated; McQueen and Knussen (2002) identify that experiments which often laboratory based and demand expensive support. Moreover, there are phenomena which seem too complex to be appropriately researched under experimental conditions, and the results produced might be restricted and not reflect the realities of the investigated case.

Bryman and Bell (2007) argue in business and management research that it is difficult to reach the required level of control when coping with human behaviour and thus experimental research is rarely used. It is also challenging to implement this method in social research due to the difficulty in manipulating both the organisation and human level, especially in the field of construction management.

4.4.4 Case Study Research

According to Fellows and Liu (2008), case studies support the in-depth investigation of specific instances within the research subject. This is a strategy of inquiry in which the researcher investigates in-depth an event, programme, process, activity or one or more individuals (Creswell, 2009). In other words, Naoum (1998) states case study provides an in-depth analysis of a specific problem. Remenyi et al. (1998) argue that the case study methodology is a method of setting up valid and consistent proofs for the research process as well as presenting findings which result from the research. They further note that this method allows the researcher to focus on particular instances in an effort to determining detailed interactive processes which might be essential, but which are transparent to the large-scale survey. Therefore, the aim of this approach is to provide a multidimensional view of the situation. The nature of this method is usually descriptive and may adopt the form of interview notes, observations, records and documents (McQueen and Knussen, 2002).

McQueen and Knussen (2002) identify the case study approach as an effort to collecting data in an individual from as many sources as possible. Naoum (1998) points out there are three types of case study designs: descriptive, analytical, and explanatory. In those designs, according to Naoum (1998), the descriptive case study is similar to the concept of the descriptive survey while the analytical case study is similar to the concept of an analytical survey, but the explanatory case study copes with theoretical approaches to the problem and it explains causality and attempts to show linkages among the objects of the study.

Naoum (1998) argues that exploratory research is adopted when researchers have a limited knowledge about the case and needed a more transparent and precise statement of the recognised problems. Thus the raw data created in exploratory research will be exactly as what people have said or a description of what has been observed. Fellows and Liu (2008) identify a large number of case studies usually fall between the two extremes of exploratory and explanatory research.

However, the case study approach according to McQueen and Knussen (2002) has major disadvantages as follows: causal inferences are impossible because there is no control over confounding variables; time consuming; hypothesis testing is not possible; observer might well attend selectively to the information presented to by overestimating

some events at the expense of others; and difficulty in expanding findings from the study involving a sample to a population and to make an argument for generalising observations on an individual to society as a whole. In addition, Bryman and Bell (2007) identify that case study approaches have been criticised for their generalisability and external validity. More important, the nature of the in-depth data collection may restrict and limit the number of studies when research is subject to resource constraints (Fellows and Liu, 2008).

4.4.5 Survey

Creswell (2009) determines survey research provides a quantitative or numeric description of attitudes, trends, or opinions of a population by researching a sample of that population. This type of research includes cross-sectional (information is collected at one point in time) and longitudinal (collected over a period of time) studies by using questionnaires or structured interviews for collecting data. Surveys are primarily concerned with identifying specific characteristics of a particular population of subjects, either at a fixed point in time or at varying times for comparative purposes (Gill and Johnson, 2010). In addition, Fellows and Liu (2008) note that surveys operate on the basis of statistical sampling whose principle is to secure a representative sample. They further note that surveys vary from highly structured questionnaires to unstructured interviews, and the subject matter of the study must be introduced to the respondents irrespectively of the form adopted.

Naoum (1998) claims surveys are adopted to collect data from a relatively large number of respondents within a limited time frame. According to Naoum (1998), there are two types of surveys: the descriptive survey and the analytical survey. The descriptive survey tries to answer the questions of how many, who, what is happening, where and when? It copes with counting the number of respondents with certain attitudes/opinions towards a specific object which will be analysed to illustrate or compare reality and trends later. On the other hand, the analytical survey tries to set up associations and relationships between the independent and dependent variables of the subject matter.

Moreover, Remenyi et al. (1998) suggest using surveys in two types: in-depth surveys and large-scale surveys. They identify that in-depth survey generally attempt to achieve detailed in-depth evidence from a relatively small number of informants through a series

of interviews. With this type of survey, a questionnaire is not adopted generally, but rather the informant is allowed to speak freely on the subject of interest to the researcher. In contrast, large-scale surveys often use questionnaires to collect evidence. This type of method is widely used in business and management research.

In addition, Fellows and Liu (2008) identify that the essence of a survey is that it produces information about an entire population. However, due to the nature of the population tending to be too large, it is usual for surveys to employ sampling which is sufficient to generalise enough reliable data. In social sciences and management, much research involves asking and obtaining answers to questions through conducting surveys of people by using interviews and questionnaires.

4.4.5.1 Use of Interviews

The interview is probably the most widely used method in qualitative research, and it is a prominent data collection strategy in both qualitative and quantitative research (Bryman and Bell, 2003). According to Naoum (1998), the personal interview is a major technique for collecting factual information as well as opinions. This requires a face to face conversation between interviewer and interviewee, and approaches can vary from being very formal to very informal (Remenyi et al., 1998).

Interviews can be conducted under three forms: unstructured, semi-structured and structured; and some research may require one form of interview while others may need a combination of the three forms (Naoum, 1998). She identifies that the unstructured interview uses open or open-ended questions, and the questionnaire is usually adopted at a very general level so that the researcher can predict what direction the interviewee takes things in their response. This type of interview allows for flexibility and, according to Fellows and Liu (2008), the interviewer introduces the topic briefly and then records the replies of the respondent who can say as much as she or he desires. Remenyi et al. (1998) point out the advantages of these types are based on the questions which are open ended and therefore the interviewer is free to change the words of questions and to add questions.

The semi-structured interview is more formal than the unstructured interview in which there are a number of precise topics around which to construct the interview (Naoum,

1998). She determines this form of interview uses open and closed-ended questions which are not asked in a particular order and no schedule is used. In addition, semi-structured interviews start by asking indirect questions in order to make up a relationship with the respondent for seeking ideas and an insight on the subject, and then explore the specific issues that the interviewer has in mind. Bryman and Bell (2003) note both unstructured and semi-structured interview processes are flexible.

Finally, in the structured interview, Naoum (1998) identifies that questions are presented in the similar order and with the same words to all interviewees. Bryman and Bell (2003) argue that in business and management surveys, the structured interview is primarily employed. This approach includes a standardised format involving direct questioning - which may start with some open questions, but will soon move towards a closed question format - and answers. It allows the interviewer to have full control of the questionnaire throughout the entire process of the interview.

In addition, there is a set of predetermined questions which is presented in pre-coded form, thereby ensuring that the answers to the questions are recorded in a standardised form across the sample (Remenyi et al., 1998). Naoum (1998) determines that the main advantages of the structured interview are as following: the answers can be more precise and accurate; the response rate is relatively high (approximately 60-70%), especially if interviewees are contacted directly; and the answers can be explored with finding out why the specific answers are given. Moreover, Remenyi et al. (1998) argue the use of interview provides an opportunity to explore complex issues in a relaxed atmosphere, and it allows the interviewer to give a better explanation of the purpose of the research than a covering letter to a questionnaire therefore obtaining better quality information.

However, the use of interviews also has a number of disadvantages when comparing to the use of questionnaires (Remenyi et al., 1998): this approach may be expensive in terms of interviewing time and travelling costs, as well as in terms of the time it takes to complete the whole process. Therefore, this approach is not likely to be adopted with large samples when mailed or telephone questionnaires are probably more practical.

In addition, other problems which are associated with this approach include the lack of anonymity which could result in the interviewees not giving honest answers or giving socially desirable answers thereby contributing to increased response bias. Bryman and Bell (2003) further note that the interview approach takes more time to carry out and

analyse data, besides issues related to characteristics of the interviewer and interviewees which may have effects on the result obtained.

4.4.5.2 Use of Questionnaires

Naoum (1998, p.53) argues the postal questionnaire is probably the most widely used data collection technique for conducting surveys. Postal questionnaires have been used for analytical and descriptive surveys in order to determine facts, views and opinions to explore and evaluate research subjects. In addition, Bryman and Bell (2003, p.140) identify questionnaires that are completed by respondents themselves are one of the main instruments for collecting data by using a social survey design along with the structured interview which has been presented in the previous section.

The main purpose of questionnaire research is to achieve information which cannot be easily observed or that is not already available in written or computerised form (Remenyi et al., 1998 p.150). They further note that evidence from the questionnaire survey is used for purposes such as description, explanation, or hypothesis testing. Questionnaires might be administered by post or email/web to respondents, to groups by the researcher or to specific individuals such as to students, classes, lecturers, or to individuals by the researcher - in order to form the basis of an interview (Fellows and Liu, 2008).

Bryman and Bell (2003) determine that questionnaires maybe mailed for self-completion or used to accompany interviews, and therefore a large number of respondents will be reached within a short period of time. However, as with many other different methods, the use of questionnaires has several advantages and disadvantages which have been identified and presented by Fellows and Liu (2008), Bryman and Bell (2003, 2007), Naoum (1998), and Remenyi et al. (1998) as follows:

Advantages: post or email/web questionnaires are regarded as offering relatively high validity of results due to their wide geographic coverage, therefore in term of economics it assembles a mass of information at a minimum expense (finance, human and other resources); it is certainly a quick method and takes a minimum of respondents' time; it allows respondents to take time and make further consultation prior to answering the questions; it is easily repeatable and replicable; personal influence is minimised; due to

the absence of interview effects therefore it does not suffer from the problem of interviewers asking questions in different ways or different orders; and it is more convenient for respondents in completing the questions when they want with their own preferred speed.

Disadvantages: there is normally a poor response rate; greater risk of missing data; it is difficult to ask a lot of questions; it cannot collect additional data; there is no control over respondents; there is no opportunity to supplement the respondent's answers by observational data; researchers do not know who answers and be sure the right person complete the questionnaire; it can be read as a whole; contain simple questions, inflexible technique, difficulty of asking other kinds of question, cannot ask many questions that are not relevant to respondents, cannot probe respondents to elaborate the answer, cannot prompt and help respondents if they are having difficulty answering a question, and designing a good questionnaire is usually time consuming.

4.4.6 Grounded Theory

Besides these five research methods, another approach to construction management research is the grounded theory. This is an approach whereby a theory is grounded in actual data rather than imposed in advance of data collection (McQueen and Knussen, 2002). According to Strauss and Corbin (1998) grounded theory is defined as theory which was derived from data, systematically collected and analysed through the research process. Within this approach, data collection, analysis and final theory have close relationships with one another.

Creswell (2009) argues grounded theory is a strategy of enquiry which the researcher derives a general, abstract theory of a process, action, or interaction grounded in the views of participants. This process involves using multiple stages of data collection and the refinement and interrelationship of categories of information. He further argues that the two primary characteristics of grounded theory are the constant comparison of data with emerging categories and the theoretical sampling of different groups to maximise the similarities and the differences of information.

Although this approach is adopted for generating theory (Strauss and Corbin, 1998), it has been criticised for its nature, especially when applying in construction management

research. Runeson and Skitmore (2008) argue that grounded theory is rather a strategy which refers to the results of an empirical research project than testing and verification the existence of theories which have been widely accepted. In addition, McQueen and Knussen (2002) identify that data in grounded theory are collected from similar sources to those used in ethnography whereas the analysis is typically concentrated on the research for the kinds of patterns and relationships which can generate theories and hypotheses. Moreover, researchers are assumed to start the study without predetermined ideas and thus the research tends to conclude with a hypothesis rather than begin with one. Therefore, when research will not be generating but relying on existing theory, this method may not be relevant to adopt.

4.4.7 Summary of Research Methods

In reviewing of all the previous discussions about the methods for this study, it can be stated that the survey is the one which provides the most relevant strategy to obtain the research's aim and objectives for the following reasons:

- Action research as identified by Fellows and Liu (2008) involves the active participation by the researcher in the process under study, in order to determine, promote and analyse problems and potential solutions. The limitation of this approach is the researcher studies and observes the problem in a single organisation with daily access, thus the information generalised are restricted within an inadequate sample of the population. Whereas the VCI and public transport sector are large with many organisations and construction firms participating in infrastructure development projects. Therefore, it can be seen that action research is not relevant in this study.
- According to Remenyi et al. (1998), although ethnographic research has some application in business and management research, it is not used extensively. This method requires long field study and demands detailed besides observational evidence which will be inconsistent if investigating the management of public transport development projects in Vietnam. Thus, this method will not be adopted in this research.
- Experimental research as noted by Fellows and Liu (2008) is more suitable to carry out in a specific project, mostly related to laboratory work, rather than

managing real-life public transport development projects with many complicated relationships and influences from stakeholders. As a result, it is also not adopted to use in this research.

- Despite the in-depth information provided (Naoum, 1998), case studies will limit this research because of its nature in time consuming and the author would have to restrict the study within a limited number of cases and therefore cannot capture more valuable data as Ling and Bui (2010) admitted. Also there is a difficulty in examining and testing the proposed solution when it does not represent a sample in a very large population like construction and public transport sector in Vietnam. Therefore, case study is not relevant to use in this research.
- Grounded theory finally is a method which provides a systematic generation of theory from data through deductive and inductive thinking (Strauss and Corbin, 1998). In addition, this approach is preferable when generalising a theory, but not consistent when there is an existing theory upon which the research is formulated. Thus, in this study, the grounded theory approach is not adopted because the proposed solution is built upon existing theories of project success with the combination of concepts.

The use of survey technique which includes both questionnaires and interviews is considered the most appropriate method in this study in order to investigate the Vietnamese public transport sector and development projects. Firstly, it can cover a large amount of participants working in the field and therefore represent a proper sample of population. Secondly, the mixed method with qualitative and quantitative approach can perfectly fit within the data collection and analysis process. Therefore, it can be seen that the survey method can help to achieve the purpose of this study.

4.5 Outline of adopted Research Methodology

In Chapters 2 and 3, it has been clearly identified and stated that there are many problems in Vietnam and the construction industry which contribute to the failure of many projects and therefore hinder the development and modernisation process of the country. It is necessary and urgent to find a solution/approach to cope with this situation.

Reviewing extensive literature about project success has indicated that some of previous studies developed a framework to presenting criteria and/or critical factors in a systematic and logical way in order to evaluate and/or achieve success. With this presentation, project participants will be easier to understand, recognise and apply those in practice to achieving better outcomes. Thus, a success framework, which contains details believed are consistent and effective to be applied in the VCI, is developed (detailed discussions in the next chapter). In order to do so, a deductive and logical approach was used in this study as the following process:

- Vietnamese perspectives and the construction industry with related issues were carefully reviewed and discussed.
- Literature about project success with related issues was thoroughly reviewed and knowledge gaps were identified.
- The proposed framework, which contains elements and items believed are critical to project success, will be developed. It will be tested and validated by project participants in Vietnam. The Success Framework will be finally formed to assist stakeholders in the VCI to cope with problems while successfully managing public transport development projects.

The following sections will discuss the justification of the proposed framework, research design and research method of this study.

4.5.1 Justify the success framework

Reviewing literature in Chapter 3 has identified and stated that previous studies are not consistent to be fully adopted and employed to cope with the Vietnamese current perspective. Because they only looked at and presented the elements of project success as a pair but not as a whole whilst those elements are interrelated and interacted from one to another. Therefore, as a result, besides the common themes which have been recognised from the literature, this research also conceptualises new concepts which are believed suitable to improve success of Vietnamese public transport development projects. These integrate with current theories adopted from the literature to form the unique framework of this research. This framework pushes the boundary of project success further by encompassing all the elements with clear links between them.

According to SM (2011), a framework or a logical structure ‘is a set of terms and relationships within which the problem is formulated and solved’. In addition, a framework can be considered as a map with conceptual directions of how one theorises or makes logical sense of the relationships among some factors, normally known as variables, which have been acknowledged as important to the problem under study. The framework logically describes the interrelationships among those factors/variables that are considered to be fundamental to the situation being investigated (ZP, 2011). In addition, AT (2011) points out that a framework is a collection of interrelated concepts and obviously critical in deductive thinking.

‘In short, a framework is a concise description (often accompanied by a graphic or visual depiction) of the major variables operating within the area of the problem to be pursued together with the researcher’s overarching view of how the variables interact’ (SM, 2011). Punch (2000) points out that a framework represents the conceptual status of the issues/variables being studied and their interrelationships. Fellow and Liu (2008) argue that a framework must capture and represent the reality as closely as it practicable. It must include the important reality and features while being reasonably easy to comprehend and to use.

Most of the construction management frameworks reviewed in the literature are applied frameworks, which are developed to solve specific real-world problems. There are several types of frameworks which can be seen in the mainstream study of project success such as: management process frameworks whose aim is to recommend strategies and managerial concepts for better performance of projects; evaluation frameworks whose purpose is to provide a method with a series of criteria for measuring success; and predicting frameworks whose objective is to forecast the outcomes of construction events (success or failure) with a series of critical factors. In addition, the different types of framework could be combined into more sophisticated frameworks.

Given the definitions of a framework and its applications in the construction management practice, it is believed that a framework is the right solution in order to assist stakeholders to achieve success in public transport development projects in Vietnam. It is a bridge that applying theories to solve practical problems which have been reported in the VCI. The advantages of a framework are obvious and therefore it has been selected and will be developed in this research.

It has been eight years since Vietnam entered the WTO. More foreign contractors and consultants are present in Vietnam. Although the VCI is slowly evolving towards an international construction market, the public transport sector in Vietnam is unlikely the same as that of the Japan or South Korea in terms of the industrial mechanism within the next 30 years or more. Through the process of adapting and accommodating to international best practice, the VCI tends to consolidate its domestic market and use its own standards in design and construction. Regarding the problems faced by stakeholders (particularly foreigners) in the VCI and data that likely to be obtained, a lifecycle based framework (combined type) is appropriate to provide a sound solution. The proposed framework in this research has considered many aspects affecting foreign stakeholders during the delivery process in Vietnam including the business culture, the importance and influences of transparency.

The role of this framework is to providing assistances for achieving success of public transport development projects in Vietnam. It contains details which help project participants (especially foreigners) to understand the implementation process with critical factors which need to be applied during the project lifecycle to bring that project to success, besides understanding related issues such as: the influences of current environment and where problems lie in practice; criteria for measuring success; and understanding the role of specific key stakeholders in those projects.

However, the elements with details are based on literature, which have been adopted from previous studies in both developed and developing countries, and also being conceptualised to cope with current perspectives in Vietnam and the VCI. Regarding the status of Vietnam as a developing country which is within the transformation process from a centrally planned market to a free market economy, it is unknown how project stakeholders are interacting with the elements and proposed details. Therefore, the proposed framework has to be verified and validated in the current Vietnamese practice.

4.5.2 Justify the research design

As previously discussed, this study is trying to answer the two main research questions as can be seen in the Introduction Chapter. The first question explores and identifies elements that constitute project success. A new approach has been proposed to capture all these elements within a framework to present a complete picture of project success

and guidance of how to achieve. The second question explores the relevance and significance of those elements with details in Vietnam and the public transport sector. In addition, it also explores and identifies how to improve success in public transport development projects. In order to answer those two questions, the process with related activities requires a mixed method approach for data collection and analysis.

Firstly, it is required to review relevant information with a large number of papers then identify the common themes emerged from the literature about project success with related issues. In this study, the most overlapped and cited success criteria and critical success factors from previous studies have been identified in Chapter 3, while severe problems are identified in Chapters 2 and 5. They will be adopted in order to develop a framework for managing public transport development projects in Vietnam, and they will be tested and verified in practice.

Secondly, when investigating the Vietnamese context and public transport development projects, it is expecting that a large number of people will participate in this study to contributing their opinions, views and beliefs on issues which are being investigated. Results collected will contribute to the validation of the final framework.

Based on the nature of this study, it can be seen that a mixed method approach can fit within the methodological process and it is adopted to carry out the research.

4.5.3 Justify the research method

Given the deficiencies of research and information on success in Vietnamese public transport development projects, a survey approach is considered the most appropriate method for investigating adopted items (from literature) of the proposed framework in the practical environment. The results of survey research can provide compelling analytic conclusions that can help the researcher to understand complex situations of the Vietnamese transport sector, the project management and implementation process, and how all those influence the success or failure of past and current projects.

In the construction industry and mainstream study of project success, surveys are widely used and accepted in many previous studies (Fellows and Liu, 2008). Compared with other research methods, surveys allow the researcher to collect data over a period of time by using both questionnaires and interviews, while it is able to adopt both

qualitative and quantitative approaches. More importantly, as Creswell (2009) argues, when both interviews and questionnaires are used, they will minimise the disadvantages and exploit the advantages from the other.

Firstly, a questionnaire survey is designed to collect evidence based on respondents' attitudes and opinions toward a specific issue being examined such as a problem or a critical factor within the proposed framework. This requires an appropriate number of participants take part in this research in order to provide valid and significant results, and questionnaires can provide a sound economic solution which allows the researcher to save time and money to collecting a large amount of data within a short period of time. In addition, when using interviews in the next stage of data collection, results collected from the questionnaires can be used as a supplementary source of evidence in this research.

Secondly, a semi-structured interview-based survey is designed to verify and validate the final framework (with all validated items collected from the questionnaire), whilst examining the relationships between independent and dependent variables and their influences on project success, by collecting evidence from comments and feedbacks contributed by a relatively small number of respondents. This requires very senior and expert opinions with vastly practical experiences in managing real-life projects and therefore only a small number of people who satisfy those criteria will be approached. At this stage, interviews can provide in-depth investigations with insights which might not be able to obtain in questionnaires.

Finally, there are some difficulties when using questionnaires and interviews as previously discussed in Sections 4.4.5.1 and 4.4.5.2, particularly the poor responses usually encountered when using questionnaires or the researcher might not receive honest answers from respondents due to the lack of anonymity when using interviews. Nevertheless, it is expecting a high rate of responses and honest answers in this study. Moreover, respondents who both take part in questionnaires survey and interviews are well informed and guaranteed that their identity is confidential and will not be revealed in any circumstances.

The ultimate goal in selecting an appropriate research method is to get the most useful information to the researcher in the most realistic and cost-effective fashion. Whilst

taking the difficulties into account, the use of a survey is considered to be feasible and consistent as the research method for this study.

The process of conducting the survey in this study will be as follows:

- A draft questionnaire will be designed based on the proposed framework of this research;
- A pilot study will be conducted to gain opinions/suggestions about the questions, the languages and also the answers to those questions;
- The final questionnaire will be formed and sent by post to targeted respondents in Vietnam;
- Collecting and analysing the data, then forming the framework with proposed items which have been verified and validated by the respondents;
- Interviews will be conducted with a small number of experts who are working for the Vietnamese government and top managers of state/foreign companies to verify and validate the above framework;
- The Success Framework will be formalised and proposed to use in future practice.

4.5.4 Sources of data collection

Due to the nature of the research, targeted groups of respondents will be: teachers and scholars (mainly professors and doctors) from University of Transport and Communication, and University of Civil Engineering in Vietnam; general directors/project managers of Project Management Units (Thang Long, Bien Dong, VEC), Consultant Firms (Oriental Consultant – the researcher's former employer – TEDI, Bridges and Tunnels, and Hanshin) and Consortium Firms (Thang Long Corp, Cienco 1 Corp, Cienco 5 Corp, Cienco 8 Corp, Vinaconex Corp, Song Da Corp, Obayashi Corp, Sumitomo Corp, Yoonshin engineering and GS engineering), beside members of management teams, designers, engineers and superintendents from the same organisations (which are available); and officials from Ministry of Transport and Ministry of Construction in Vietnam. Names of the respondents will be kept confidential and not published. The following section will explain about sample design (inclusive of why those above organisations were approached) and the process of collecting data with the sample.

4.5.5 Sample design and data collection

Sample design

The importance and significance of choosing a right sample for the study play a decisive role to the quality of potential data collected. Therefore, the targeted sample for conducting the survey is carefully and selectively chosen. The strategy employed in this study is nonprobability sampling by using both snowball and purposive sample techniques.

Indeed, the selection of data collection sources to employ in a research study is always difficult and dependent on many issues. An useful step in the selection process is to frequently refer back to the purpose of the research, in order to focus attention on where to look for information and evidence that will satisfy the research aim and objectives (Soy, 1997). Given that, in this study, the appropriate population will be ones who are active players in the Vietnamese public transport sector. Thus, it excludes other players within the construction industry.

Having clearly defined the population, it is essential that a sample is selected within the population. This makes the researcher to decide whether to select the sample randomly or subjectively. Taking into account that this research is about managing public transport development projects in Vietnam, it is inevitable that the sample should be selected carefully, to reflect certain characteristics.

In this study, the sample is defined as experienced organisations and individuals who have been delivering public transport development projects, simultaneously with other projects within their business outfit. Generally, ones whom mentioned in the previous section fit this definition. The selected organisations as sources of data collection (both Vietnamese and foreigners) are, in fact, the most well-known in the VCI regarding their reputation and frequent participations in past and current projects.

Those organisations are purposively selected in this study because, firstly, for the potential to generate rich information and relevance to the research. Secondly, those organisations have been working with the others in past and current projects throughout the country. Therefore, their contributions to project results are interrelated and interconnected. When taking part in this study, they can potentially provide coherent answers of the subjects being investigated. Finally, regarding the quality of projects

which have been completed by them (some successfully completed, some were delayed and finished behind schedule, many were cost overrun, some had problems with quality of the infrastructure when in use, and few had fatal accidents), these imply they have a comprehensive view about the subjects being investigated and thus might be able to provide unbiased and impartial feedbacks about severe problems as well as critical success factors.

On the other hand, regarding the snowball sampling technique, the researcher has contacts and connections with those large corporations and organisations in the VCI, especially from senior managers at top management boards. Those people were contacted in advance and informed about this study. They promised to help the researcher by spreading questionnaires to experienced employees in their organisations to ensure answers collected will be based on professional and expertise opinions.

It can be recognised that previous studies about the VCI in particular and construction industry in general, which used questionnaire survey, usually approached 100-500 people. Given the public transport sector is a sub-market of the VCI and numbers of organisations take part in this study, it is presumed that 300 people are good representatives of the population being investigated and can provide reliable and valuable information to this research regarding their position in the market, expertise and vast experiences.

Data collection process

300 questionnaire hard-copy papers were sent out to the targeted groups of participants in Vietnam and they sent the papers back to the researcher by post. After summarising the data, it can be seen that all 300 papers were collected (100%). However, there are only 242 of them which can be used (81%) whilst 58 cannot (19%). The reason is that the respondents did not answer all the questions. Therefore, those papers are not used in this research. It can be seen that the number of respondents who fully took part in this survey is very high and sufficient enough to represent the population of the public transport sector.

As previously discussed, as using snowball sampling technique, the researcher relies on points of contact who helped to spread out the questionnaires, bearing in mind that

approaching as many people whose backgrounds are different as possible. This is critical in order to achieve a general and comprehensive view – from different perspectives – about the subjects being investigated, particularly success criteria because it has been argued that they should be clearly defined and agreed by all stakeholders in any project.

After summarising all the responses, it reveals that the respondents come from 11 different groups as follows: 58 (project manager), 15 (member of management team), 13 (university lecturer), 25 (Government), 28 (engineer), 19 (consultant), 47 (contractor), 7 (designer), 19 (superintendent), 3 (supplier) and 8 (others). According to the results collected, there are 46 respondents (inclusive of foreigners) who come from the private sector whilst the others 196 come from the public sector.

Looking at the above numbers, it can be seen that project managers and contractors are the major participants then followed by engineers, officials (the Government – the client), whilst consultants and superintendents have the same number. It comes as surprised when only seven respondents considered themselves as designers while the number of suppliers who participated in this study is very small as three. It would be more appropriate if the proportion of those respondents could be increased, because this would influence the results collected.

These reflect the limitations of this study when using survey and snowball sampling as the researcher does not have tight control of the number of targeted participants, but just depends on individuals who helped to spread the questionnaire to their chosen ones.

However, in Vietnam, an engineer can be considered as a contractor, designer, consultant or superintendent if he or she has a background in civil engineering whilst working for design, construction or consulting firms. Because of this interrelation, it is expected that the number of people who actually can work as a designer is much more than seven and therefore the results collected will be more accurate.

There are 13 university lecturers (all of them are professors or doctors) took part in the survey. They were approached because of their knowledge about road and bridge construction. Also they are normally working on public transport projects in Vietnam and invited to take part in the design or construction process. Therefore, they have both

the academic and practical experiences which will greatly reflect in their answers and contributions to data collected.

4.5.6 Data analysis techniques

The aim of the survey as previously mentioned is to verify and validate the proposed items in the proposed framework and identify which are the most relevant and critical to apply in future projects. Quantitative analysis methods will therefore be adopted to cope with a vast of numbers of respondents' feedbacks in close-ended questions. In order to evaluate respondents' opinions of the factors accurately, the Likert scale ranking is adopted and used in this research.

Participants are asked to mark each factor with a rank from one to five. Mark "3" represents a neutral view of a respondent in this research and the scales being used are unipolar. Mark "5" means that the factors have very strong impacts on projects and can be considered as very important – critical factors, and mark "1" means that the factors are not significant and have no impact on public transport development projects in Vietnam at all.

For the majority of questions that comprised a five-part Likert scale, the data for each response are summed for each response, and the percentage response rate is calculated and tabulated. An important aspect of the data analysis is the determination of the mean for the Likert scale responses. This is done using the following formula:

$$R = \frac{1(A_1) + 2(A_2) + 3(A_3) + 4(A_4) + 5(A_5)}{r_n}$$

Where R = Mean

A_x = Sum of responses (Answers) to each Likert scale point x

r_n = number of respondents

In this case, because of the importance and level of each rank, rank "5" will be scaled 5 and rank "1" will be scaled 1. After calculating the number of respondents for each rank, it is converted to percentages for easier following and analysing. For example, the number of respondents who ranked the problem Bureaucracy at 4 is 104 and this equals

to 43% (=104/242). Instead of looking at the numbers of respondents which specifically have the same ranking on the same factor, they will be presented under percentages types and it will help readers more easily to evaluate.

In this research, all the items will be analysed based on the total percentages of the respondents who rated them at 4.0 and 5.0 – from significant to very significant. The conclusion will be drawn later when the result is summed. If the percentage is equal or greater than 70%, it means the items are significant and play an important role in the VCI – this is called a significant level. Otherwise, for those which have less than 70%, they will be regarded as not significant in the VCI in current practice.

In addition, as stated in Chapter 3 that there is an unique set of criteria or critical factors which are identified, agreed and applied by also an unique set of stakeholders of a project. Therefore, in order to achieve the agreement from stakeholders in Vietnam about the items being asked in the questionnaire survey, they are asked an extra question to provide a list of the most important items (usually from eight to ten) which are based on their opinion and experience from the total items proposed in the framework. Results collected will clarify a set of the most important criteria or factors which are all highly rated and agreed from respondents about their important role to project success.

Qualitative analysis methods will be employed to deal with opinions and trends of the data collected from open-ended questions in both the questionnaire and interviews. In this study, content analysis will be adopted to deal with qualitative data. Similar comments will be gathered under the same themes which have the same meanings or contribute to the same point of view. From which, the interpretation of data will be drawn and concluded based on results collected. Moreover, the qualitative conclusion and summary will be drawn by gathering the common items emerging from quantitative results and linking them together with proper reasoning and explanations.

4.6 Design Survey for the research

The questionnaire survey in this study is designed to test and validate the proposed items within the five main elements of the proposed framework. Because those items are adopted from literature, hence it is unknown about their significance when being

applied in a specific environment like Vietnam. Moreover, the purpose of this research is to identify a set of items such as problems, criteria or factors which are agreed by project stakeholders. Therefore, a questionnaire survey is consistent to meet these purposes. In addition, it aims to explore some of the aspects in the VCI. The objectives of the questionnaire survey are:

- To identify the most severe problems in current projects. Regarding the problems which have been reported in the VCI and adopted to be use in this study, it is necessary to verify their actual impacts on the public transport sector. The most severe ones will be emerged and therefore presented in the final framework. Stakeholders will have to carefully focus, analyse and address them with consistent solutions in order to ensure their project will be able to cope with those and achieved success in the end;
- To investigate how business culture has influenced project management and implementation in Vietnam. This is particularly useful information for foreigners who are working or intending to work in the VCI. The ability to manage crossed-culture effectively and efficiently is essential to the success of any project;
- To investigate how transparency has influenced project management and implementation in Vietnam;
- To identify key stakeholders who are having the most influences on current projects. Similarly to the Vietnamese business culture, results collected will provide useful information for foreigners in order to achieve more successful project outcomes by understanding and collaborating smoothly with their native counterparts;
- To test and validate the proposed criteria and find out more unknown criteria (if available) for measuring success of public transport development projects in Vietnam. Results collected will provide a complete set of ‘targets’ which stakeholders will have to achieve in order to safeguard the success of their projects;
- To test and validate the proposed critical factors and find out more unknown factors (if available) for successfully managing and delivering public transport development projects in Vietnam. This is the most essential part of the

framework as well as the research because results collected will help to dictate how to achieve success in future projects;

- To identify the most relevant delivery route which has been mostly used in current projects. Results collected will help stakeholders to come up with relevant strategies for process management whilst implementing critical factors more effectively during the project lifecycle;
- To find out if there are relevant methods which can be adopted and used in public transport development projects in order to improve project success; and
- To achieve a full picture of project success under the Vietnamese current perspective which is in the transitional process from a centrally planned market to a market economy. This will contribute to the body of knowledge of project management practice, particularly in developing countries and emerging economies.

4.6.1 Questionnaire Design

According to Remenyi et al. (1998), the important point of a questionnaire design is a clearly defined problems and explicit terms of reference and objectives. In addition, it is important to be clear about the phenomenon to be described and explained, and the hypotheses to be tested. Naoum (1998) notes that before constructing a questionnaire, one needs to go back to the proposal and the literature review to start formulating a list of questions at 'first thought' stage. Once this has been obtained, it will be possible to determine and define the concepts to be evaluated and how these are to be measured (Remenyi et al., 1998). They further argue that at this point, the first draft of the questionnaire can be designed.

Naoum (1998), Remenyi et al. (1998), Fellows and Liu (2008) determine that questions can be either open ended or closed ended types as the following discussions:

Open-ended questions: are typically used in exploratory studies where the researcher is not in a position or is not willing to pre-specify the response categories (Remenyi et al., 1998). They further argue that the response is in the form of a narrative which has to be analysed qualitatively, but sometime can be converted into a form which is suitable for quantitative analysis. A popular technique for analysing narrative is content analysis. Naoum (1998) identifies that open questions seek to encourage the respondent to

provide free responses, or as Fellows and Liu (2008) state they are designed to enable the respondent to answer in full; to reply in whatever form, with whatever content and to whatever extent the respondent wishes – questions of this type are typically used in personal interviews with small samples, and the researcher may probe various areas and raise specific queries (Naoum, 1998 and Remenyi et al., 1998).

This type of question gives the respondent an opportunity to express their views; and when understanding the theme of the investigation, the respondent will be ready and prepared for replying (Naoum, 1998). Besides the above advantages, open-ended questions however present some problems such as: they offer no direct clues and are broad based, predictably this type of questionnaire is more difficult to analyse and interpret (Naoum, 1998 and Fellows and Liu, 2008), and this type of question requires the respondent to be articulate and willing to spend time on giving a full answer to the question (Remenyi et al., 1998 and Fellows and Liu, 2008).

Closed questions: are easy to ask and quick to answer, and they often require a short response in the form of yes or no, agree or disagree for example, besides requiring no writing by either interviewer or respondent while their analysis is direct (Naoum, 1998). Remenyi et al. (1998) identify that this type of question is typically used in quantitative studies with large samples, and the assumption is that detailed knowledge is available on the attributes of interest therefore it is possible to pre-specify the categories of response. They also argue that closed questions are difficult to design but it will simplify the collection and analysis of the evidence. In addition, Fellows and Liu (2008) note that care must be taken that responses to questions may be biased, either by forcing the respondent to choose from given alternatives or by offering the respondent alternatives that might not have otherwise come to mind (Naoum, 1998).

Fellows and Liu (2008) suggest the questions should be clear and easy for the respondents to answer, and should not contain requests for unnecessary data. According to Naoum (1998) and Fellows and Liu (2008), questions to be asked should concern facts, knowledge and opinion in which factual questions are designed to achieve objective information while opinion questions are designed to obtain subjective data. In addition, Naoum (1998) identifies that questions can be formulated in various ways where the most common formats are checklist, grid, rating scales, numerical rating scales, ranking and semantic scales. Remenyi et al. (1998) argue that measurement of

questionnaire responses can be made at four levels: nominal, ordinal, interval, and ratio. They point out variables that are measured at the nominal or ordinal level are often referred to as qualitative variables, while those measured at the interval or ratio level are referred to as quantitative variables.

Both types of questions are used in this research. Detailed discussions will be found in the next section.

4.6.2 Formulating the final Questionnaire

After identifying the draft questions, one should be moving to construct the final questionnaire (Naoum, 1998). She argues there is need to introduce a number of categories or sections for the questionnaire, and attempt to fit the draft questions in these sections. In addition, it is necessary to give these sections a title or a theme which should closely correspond with the survey's objectives.

In this study, the questions are designed based upon the proposed framework with a main purpose to test and validate the proposed items within each main element, besides exploring and investigating further some aspects in the Vietnamese public transport sector. The setting of questions has been based on the principle of non-leading, concise, and having space for respondents to comment freely. The questions are kept as short and straightforward as possible in the survey in order to avoid bias and get the best results with the "Wh-" used always. More importantly, threatening questions are not used in this survey because of their unethical practice while they can lead to response bias, to denial of the behaviour in the questions or to underreporting (Charmaz, 2001).

Ranking is used in the questionnaire survey to obtain data from respondents regarding their thoughts on the degree of importance of specific items. For example, one of the questions on Likert scale ranking analysis is asking respondents to indicate the importance of critical factors by using the five-point scale. The listed factors are obtained from literature review and given the current perspective of the VCI. While it is convenient for respondents to choose, the question also allows respondents to input other factors which are not included in the list.

Open-ended questions are used in the questionnaire survey to asking respondents to freely express their thoughts on subjects being investigated such as transparency,

business culture and how to improve success of future projects. This type of questions is not followed by any specific choices and respondents' answer are fully recorded (Charmaz, 2001). They are also used in interviews for validating the final framework.

4.6.3 Piloting the Survey Questionnaire

Naoum (1998) advises to complete a pilot study before collecting the final data from the targeted sample. In addition, Fellows and Liu (2008) identify that all questionnaires should be piloted initially; and completed by a small sample of respondents. The pre-testing of the questionnaire therefore needs to be carried out before it is finally administered (Remenyi et al., 1998). They identify that the objective of such pilot is to detect possible shortcomings in the design and administration of the questionnaire. This pre-testing should be undertaken within different groups such as colleagues and potential users of the data.

McQueen and Knussen (2002) also suggest that piloting is important to find out whether the proposed methods of gathering data might produce information which will be able to be used to achieve the intended goals. In whatever form of piloting, it is critical to keep detailed notes, to record all the factors, both in term of personal and situational which informed the decisions about methodology. A pilot study provides a trial run for the questionnaire which involves testing the wording of question, determining unclear questions, testing the technique used to gather data, and evaluating the standard invitation to respondents (Naoum, 1998).

In this study, a pilot study has been conducted before sending the final questions to the respondents. There are ten people were invited to take part in this pilot study. They are PhD students at the University of Leeds, some of them are Vietnamese and some are international. There are also university lecturers (professors and doctors) from University of Transport and Communication, University of Civil Engineering in Vietnam take part in to help. Two project managers were invited too, one is Vietnamese (at PMU) and the other is Japanese (at Consultant firm).

They helped to answer the survey questions, checked the languages and translations (there are two versions of the questionnaire, one is in English and another is in Vietnamese), and also checked if the questions are relevant to ask or not, and might

affect the data collected in terms of bias or underreport. However, the results showed that because the participants have different background and therefore their answers were reflecting exactly this trait. Also, the analysis was not difficult and quite straight forward based on the data collected. This is the positive point and probably the most important point when using the pilot study.

There are minor changes which have been recommended by the participants in the way of asking some questions, particularly the open-ended ones. Overall, they all said that the questions are appropriate and can serve the purpose of this survey very well. After all the modifications are made, the final version of the questionnaire was sent by post to the targeted respondents in Vietnam. The questionnaire for this study can be found at the Appendix L of the thesis.

4.6.4 Framework Verification and Validation

One of the methods for validation is to apply the framework to one or more real projects. Nevertheless, the validity of a lifecycle based framework maybe difficult without resource commitment to the administration burden and time period required. It may take at least one year or more to have some outcomes for a project which is applied the framework. Therefore, it is not always feasible to use this method for validation. Alternatively, framework validation can be carried out by a group of experts with broad range of expertise. This increases the opportunities of finding a fault while providing valuable insights to the subjects being investigated.

In this research, the verification and validation of the final framework are conducted by carrying out interviews with a small number of experts who are on top of companies/organisations (both foreign and domestic) in Vietnam. Since the researcher is stationed in the UK, trips to sites in Vietnam are limited. It is difficult to ensure that every interviewee can be reached for face to face conversation because of their very busy schedules. Therefore, all appointments are made in advance and agreed by interviewees before the researcher travel to Vietnam. Fortunately, all interviewees' offices are located in the same city Hanoi, therefore it is able to conduct more than one interview in a same day when interviewees are available. All the interviews are conducted in interviewees' office in private, quiet and comfortable environment.

The researcher followed a prepared script that is designed specifically to verify and validate the final framework with data collected from the questionnaire survey. All interviewees are asked exactly the same questions about the framework which is printed and given to them at the beginning of the interview. The researcher cast the question in such a way that the questions were clear and straightforward. During the face to face interviews, the researcher was able to encourage respondents to clarify, elaborate or amend what they say. But most importantly, the researcher tried to be a listener than a speaker during the interviews.

Digital voice recording was employed for recording interviews in this research and the responses to the semi-structured interview questions are also noted and transcribed. After the completion of each interview, main points of the conversation were summarised. When all interviews are finished, data collected were carefully and thoroughly analysed. Details are presented in Chapter 7, Framework Verification and Validation, of the thesis.

4.7 Summary

This chapter has presented and analysed the research methodology, research design, and research methods. It has identified that use of a survey approach, a deductive research method, and allows theories to be verified and validated from data collected within the context of the studied research problem. In addition, both qualitative and quantitative techniques are employed in this research in order to develop the Success Framework and to collect and to analyse data.

This research has adopted the survey methodology to explore factors which have been influencing outcomes of public transport development projects in Vietnam. Data is gathered by both questionnaire and interview instruments. As previously discussed in details about the purpose of the questionnaire, it has been developed to test and validate the proposed items of the proposed framework of this study, besides discovering more about non-revealed factors from practice. The designed questionnaires are distributed to targeted groups of participants in Vietnam.

The advantage of using questionnaires is that it can cover a large number of people participating in the study and therefore provides highly validity of results especially in

term of a common agreement between stakeholders regarding a set of important items which have the strongest influences in project success. In addition, it saves time for both the respondents and researcher in term of answering and asking questions when separated geographically from many respondents take part in the research.

However, this technique contains some disadvantages such as poor response rate, difficulty in asking many questions or having biases in the answers. But these can be supported and covered by the use of interviews which provide more in-depth results and more accurate data and responses; and more questions can be asked to explore further aspects of the investigated problem. It can be seen that the mixed method approach effectively allows the researcher to achieve the purpose of this research. The following chapter will discuss the development of a success framework for this research.

CHAPTER V THE FRAMEWORK DEVELOPMENT

5.1 Introduction

The purpose of this research is to find an effective approach/solution in order to cope with the problems in the VCI while improving success of public transport development projects. Reviewing literature has pointed out that a framework with proper details will provide relevant information and guidance to do so. Because of this nature, a framework is believed relevant to achieve the research purpose. The following sections will discuss in details the approach of how this framework developed.

5.2 Logical framework approach

According to Do and Tun (2008), the logical framework approach is a general methodology which is commonly used by the development community to design, plan, communicate and manage their projects. Jackson (2001) argues the logical framework approach provides a set of designing tools that, when used creatively, can be used for planning, designing, implementing and evaluating projects. The logical framework approach therefore provides a structured, logical approach to setting priorities and determining the intended results and activities of a project.

Moreover, BOND (2003) identifies a logical framework – also known as a project framework – is a tool for planning and managing development projects. It aims to present information about the key components of a project in a clear, concise, logical and systematic way. Thus, the logical framework provides a handy summary to inform project staff, donors and other stakeholders, which can be referred to during the lifecycle of a project.

According to BOND (2003), a logical framework needs to be in a standard format covering the following questions:

- What the project is going to achieve?
- What activities will be carried out to achieve its outputs and purpose?
- What resources (inputs) are required?
- What are the potential problems which could affect the success of the project?
- How will the progress and ultimate success of the project be measured and verified?

The quest for answering those questions - in accompanied with the definitions of framework (provided in Section 4.5.1), the problems in the VCI (identified and discussed in Chapter 2), and the new concept of project success developed in this research (explained and discussed in Section 3.8) - is the basis for developing a new framework for successfully managing public transport development projects in Vietnam, which can be seen in Figure 5.1.

For instance, answering question four will cover the details presented in the element Severe Problems of the proposed framework. On the other hand, the first and final questions cover the elements Success Criteria and Project Process, whilst the second and third questions cover the element Critical Success Factors and methods which can be employed to potentially improve success. Answering all those five questions, the logical framework approach helps to cover the overall aspects of project success with related issues and therefore it is adopted for this basis.

In this study, the proposed framework demonstrates how the comprehensive range of interrelated elements in a state of dynamic interaction should be viewed holistically, in order to understand and effectively address them. It is argued that by focussing on the issues that feature prominently in delivering projects with clear solutions, it is possible to achieve success.

The following sections will discuss how the elements with their specific items are selected in this research in order to develop the proposed framework.

5.3 Severe problems

In Chapter 3, project success related issues have been discussed. Reviewing literature reveals a lack of concerns about presenting the potential issues and problems which affect project success. Previous studies about Project Success just focus on success criteria (for evaluating success), critical factors (for improving and achieving success), or both. Yet, none of those has included and presented a set of problems in their work together with criteria or factors or both.

There are very few studies such as Belassi and Tunkel (1996), Tam (1999), Yang (2006), Ling and Bui (2010) which have focused on both causes of project success and failure. However, those researchers have not looked at the other three elements of

project success. Therefore, these studies are considered not consistent enough to be fully adopted in this research and applied in the Vietnamese context.

Most of previous studies about project failure (Pinto and Mantel, 1990; Dlakwa and Culpin, 1990; Ogunlana et al., 1996; Kuruoglu and Ergen, 2000; Ofori, 2000; Frimpong et al., 2000; Tse and Love, 2003; Chua et al., 2003; Flyvbjerg et al., 2003; Truong et al., 2004; Assaf and Al-Hejji, 2004; OGC, 2005; Sambasivan and Soon, 2006; Hallgren and Wilson, 2008; Le et al., 2008; Shehu and Akintoye, 2010; etc.) only focused on the causes, normally known as problems, for the failure of a (construction) project. Many of them tried to find the reasons for cost overruns and time delays in construction projects within the environment being investigated.

In addition, it has also been confirmed from the above authors that understanding problems will help stakeholders avoid similar mistakes in future projects, therefore having a better chance for improving project success. Thus, it can be recognised that the influence of problems on project outcomes is evident and significant. As Pinto and Mantel (1990) pointed out, that is essential for project managers and researchers to achieve better understanding of the causes of project failure. There could be legal, social, technological, political or economic environments which may change project outcomes. Identifying those causes and preparing solutions to cope with them will prevent future projects from failure whilst enhancing the possibility of achieving success.

Therefore, this research argues that it is also necessary to include and present severe problems in a success framework, alongside the other elements, which previous studies failed to do. As Yang (2006) pointed out, during the lifecycle of a construction project, there are always defects which are caused by various problems. It is necessary to identify those problems so that such defects can be corrected. By doing so, the project can be performed smoothly while improving the project quality and overall project success.

Problems which are recognised and identified in the previous studies which cause failure in general projects and construction projects in developing countries are:

- Pinto and Mantel (1990) identified that causes of project failure are related to three contingency variables: the way in which project failure was defined, the

type of project being implemented, and the stage in the lifecycle occupied by the project;

- OGC (2005) pointed out the eight common causes of project failure;
- Hallgren and Wilson (2008) identified the fifteen crises which are usually met during the lifecycle of construction projects with solutions of how they were managed;
- Shenhu and Akintoye (2010) identified the major challenges to the successful implementation and practice of programme management in construction projects;
- Dlakwa and Culpin (1990) identified the reasons for overrun, including both time and cost, in public sector construction projects in Nigeria;
- Ogunlana et al. (1996) identified the problems that generate delays for construction in developing countries where Thailand is the case study;
- Kuruoglu and Ergen (2000) pointed out the effects of economic development of project management in developing countries with Turkey being the case study;
- Ofori (2000) specified the problems and challenges of construction industries in developing countries that are underlined by four main issues such as construction industry development, globalisation, culture and the environment;
- Frimpong et al. (2003) identified the causes of delay and cost overrun in construction projects in developing countries with Ghana as the case study, and ground water projects were investigated;
- Chua et al. (2003) identified the obstacles and their impacts in East Asian construction where many developing countries are in the transformation process. They point out the obstacles are originated from five aspects such as business environment, regulatory restrictions, contractual arrangements and differences in standards and culture;
- Flyvbjerg et al. (2003) specified that because of misleading cost estimates, it is normal to overrun in transport infrastructure projects worldwide;
- Assaf and Al-Hejji (2006) investigated large construction projects in Saudi Arabia to identify the causes of delay for those projects with different levels of severity and related to different groups;
- Yang (2006) identified the factors that have strong influences in the performance of public transportation projects in Taiwan; and

- Sambasivan and Soon (2007) identified the causes for delays in the Malaysian construction industry.

In fact, the problems identified in the previous studies derived from different environments and different business cultures. Applying similar techniques employed in identifying the most common success criteria and critical success factors from literature; it can be recognised that although, there are similar problems which overlapped and mostly cited from one to another such as: Lack of money funding for project, Lack of top management support, Bureaucracy, Lack of responsibilities from parties, Inaccurate time and cost estimating, Technology related issues, Design related issues, and Project management related issues; it is difficult to identify their theoretical hierarchy of severity because most of them received a similar number of researchers who mentioned them in their research, albeit the number varies from one problem to another. Moreover, many authors simply identified problems with related issues for project failure without ranking their significance. Thus, there will be no theoretical ranking provided for them in this study.

Given this research is based on the Vietnamese perspective, therefore the problems adopted, to form the element Severe Problems of the proposed framework, are the ones which were identified and discussed in Chapter 2. In fact, many of them are supported by previous studies – as mentioned above – due to their similarity and common nature in the developing world. It is conceptualised that those problems might have significant impacts on outcomes of public transport development projects.

5.4 Success criteria

Chapter 3 has presented and discussed criteria for measuring project success in multidimensional approaches. Reviewing literature has confirmed that there is not yet a final agreement among the previous studies regarding a complete set of criteria which can be used to evaluate the success of any project in general or construction project in particular. Despite efforts from many authors, findings from recent studies have confirmed that for a specific type of project, there exists a set of criteria for evaluating project performance and outcomes. Those criteria must be identified before starting the project and achieved common agreement from project stakeholders.

Previous studies about success criteria from de Wit (1988), Pinto and Mantel (1990), Sanvido et al. (1992), Freeman and Beale (1992), Pinto and Slevin (1994),Shenhar et al. (1996), Lipovetsky et al. (1997), Shenhar et al. (1997), Songer and Molenaar (1997), Liu and Walker (1998), Atkinson (1999), Clark (1999), Baccarini (1999), Lim and Mohamed (1999), Cheng et al. (2000), Kagioglou et al. (2000), Levy (2002), Chan et al. (2002b), Shenhar et al. (2002), Dainty et al. (2003), Westerveld (2003), Rad (2003), Chan et al. (2004), Chan and Chan (2004), Collins and Baccarini (2004), Hughes et al. (2004), Yu et al. (2005), Diallo and Thullier (2005), Marwanga et al. (2006), Do and Tun (2008) and many others suggested that is necessary and important to determine specific criteria as standard for evaluating projects.

The role of those criteria is critical because it helps project stakeholders understand how well project aims and objectives have been achieved and, based on that, they can judge the project outcomes. Therefore, this research adopts the suggestion from previous studies and presents the element ‘Success Criteria’ in the proposed framework as an integral part of project success.

This research also adopts the idea of Baccarini (1999) that the success of a project is achieved when both project management and its final product are successfully achieved. This is essential because when being applied in the Vietnamese context, as previously discussed and analysed in Section 3.4, it provides a comprehensive view about success and identifies exactly what needs to be achieved in public transport development projects.

Moreover, reviewing literature has revealed that criteria were proposed for evaluating success of a project within specific phases. They believed that will help stakeholders to have more control of the project performance throughout its lifecycle. However, reviewing literature about project success under the multidimensional approaches has, otherwise, confirmed that failure occurs during the management and implementation process of a project, but a project can still be considered a success in general. Vice versa, a project can be considered a failure in the end despite the objectives of management and implementation being successfully achieved. Thus, it can be seen that there is a flaw in the presentation of success criteria across project phases in previous studies.

There are many researchers who provided a complete set of criteria for evaluating success as a whole but not scattered during the project lifecycle such as: de Wit, 1988; Pinto and Mantel, 1990; Shenhar et al., 1996, 2002; Baccarini, 1999; Chan et al., 2002; Diallo and Thuillier, 2004; etc.. This study, therefore, adopts this concept that the criteria for measuring performance and outcomes of a project should be established in the beginning and presented as a whole standard of success achievement. With this concept, it helps to avoid the flaw when evaluating success during the project lifecycle as described above, whilst providing a more solid view about success criteria for a project generally.

In addition, reviewing literature also reveals that many common criteria have been recognised and identified from the previous studies about project success. Their theoretical hierarchy of importance has been provided in Table 3.1 and their potential applications in the Vietnamese context have been analysed in Section 3.5.1 of the thesis. Thus they are adopted in this research in order to form the element 'Success Criteria' of the proposed framework.

5.5 Key stakeholders

Previous studies by de Wit (1988), Parfitt and Sanvido (1993), Shenhar et al. (1996), Atkinson (1997), Belout (1998), Lim and Mohamed (1999), Crawford (2000), Chan and Chan (2004), Koelmans (2004), Chan et al. (2004), Wang and Huang (2006), Olander and Landin (2005), Takim and Adnan (2008), Bedingfield and Thal (2008), Takim (2009), Nguyen et al. (2009), Toor and Ogunlana (2010), Yang et al. (2010) etc., confirm that stakeholders' involvements plays a crucial role to the success of any project. They are the ones who directly or indirectly benefit from projects or can have impact on the project performance (PMI, 2004). Olander and Landin (2005) argue that lacks concern of stakeholders often leads to conflicts and controversies about the implementation of a project. Therefore, Takim (2009) states it is necessary to clarify stakeholders in projects and investigate their perception and influence on project success.

In practice, stakeholders are the key to the success or failure of a project from inception to completion. However, in different environments and projects, key stakeholders in fact are not always the same (Chan et al., 2004). These stakeholders are the ones who apply

critical success factors into practice and they will measure the project success according to their personal perspectives (Toor and Ogunlana, 2010). More importantly, stakeholders are the ones who are directly influenced by problems and also directly cope with those problems. It can be seen that stakeholders are at the core of any projects and are interacting with project related issues. Without stakeholders, there will be no project started and completed.

In the previous studies about project success, it is hard to find ones which presented specific key stakeholders besides properly investing their role in successfully managing (construction) projects. This creates another knowledge gap in literature about the comprehensive understanding of project success. Therefore, this research believes that it is necessary to include and present the element 'Key Stakeholders' in the proposed framework regarding their vital role to project success. As Koelmans (2004) point out, people are the key to project success.

There are many stakeholders in a (construction) project which have been identified in the previous studies. In addition, it is also confirmed that, for a specific type of project, there is also a specific and unique set of stakeholders. Despite a fact that many researchers highlighted the role of client, (particularly) project manager, management team, consultant and contractor in the success or failure of a project, a hierarchy of importance of stakeholders is missing from literature. In the mainstream study of project success, no authors ranked or establish a ranking system for project stakeholders. Thus, there will be no theoretical ranking provided for them in this study.

Regarding the Vietnamese perspective and the public transport sector as well as findings from the previous studies about stakeholders, this research believes that the following stakeholders could have strong influences on the management and implementation process of public transport development projects: Client/Owner (in this case is the Vietnamese government, the MOT, or local authorities), Project manager, Consultant, sub/Contractor, Management Team, Designer, Engineer, Superintendent, Supplier, Quantity Surveyor, Legal advisor, Community and Target beneficiaries. They are adopted to form the element 'Key Stakeholders' of the proposed framework. Their actual ranking of importance will be identified and examined in the Vietnamese current practice.

5.6 Project process

In practice, with different types and size of a project, the process for carrying out that project will be different. However, despite all the differences, every project has a beginning and an end (PMI, 2004) and therefore they all have a lifecycle (Pinto and Slevin, 1994).

In Chapter 3, it can be seen that some of the previous studies proposed different sets of criteria for measuring success or critical factors applying in specific stages of the project lifecycle, or both criteria and factors across the project process within a completed framework. Furthermore, reviewing literature has also identified and confirmed that critical success factors are implemented by project stakeholders. However, the role of each stakeholder and their tasks vary during the project lifecycle.

Thus, authors such as de Wit (1988), Pinto and Prescott (1988), Pinto and Covin (1989), Belassi and Tukel (1996), Shenhar et al. (1997), Atkinson (1999), Lim and Mohamed (1999), OGC (2000), Qiao et al. (2001), Levy (2002), Chan et al. (2002b), Chan and Chan (2004), Chan et al. (2004), Zwikael and Globerson (2006), OGN (2007), Toor and Ogunlana (2008), Do and Tun (2008), Kulatunga et al. (2009), etc., argue that understanding thoroughly phases during the process of a project with clear activities is vital to improve and achieve success.

This research adopts this idea from the previous studies and presents the element Project Process in the proposed framework with a belief that will provide a more solid picture of project success with the Process as an integral part of project management and implementation. In addition, because the characteristics of public transport development projects are usually large, involve many people, are enormously invested, require high technology, tremendously influence the community and environment surrounded and have many uncertainties and potential risks/problems, therefore understanding the process with well-planned ahead and prepared solutions to cope with surprises are vital to the management and implementation of any projects.

It also adopts the idea from Chan et al. (2002b) that a construction project has been divided into three stages: pre-construction, construction, and post-construction. In this study, the conceptual thought behind the divided stages is simple. According to Gameson (1991) and PMI (2004), a project is initiated in order to meet a specific purpose or need which the project's design will mostly be based on. Due to this

specification, it can be seen that the pre-construction stage will cover the aspects of defining a project's aims and objectives, a feasibility study, design specifications, planning tasks and forecasting risks. The construction stage will focus on everything about implementing and completing the project. The post-construction stage, as a final stage, will pay attention to the execution, operation and maintenance of the product. Due to this division, it is believed that will be more effective in identifying critical success factors applied in every stage.

5.7 Critical success factors

In Chapter 3, the previous studies about project success, which focused on critical success factors for a project generally and for a construction project especially, have been presented and discussed in detail. All the authors who studied and identified critical factors such as Rockart (1982), Boynton and Zmud (1984), Slevin and Pinto (1986), Ashley et al. (1987), Pinto and Slevin (1987), Pinto and Prescott (1988), Pinto and Covin (1989), de Wit (1988), Barry and Randolph (1988), Sanvido et al. (1992), Tiong et al. (1992), Munns and Bjeirmi (1996), Belassi and Tukel (1996), Larson (1997), Chua et al. (1999), Lim and Mohamed (1999), Clarke (1999), Tam (1999), Cheng et al. (2000), Qiao et al. (2001), Davies (2002), Westerveld (2003), Poli and Shenhar (2003), Shen and Liu (2003), Chan et al. (2004), Nguyen et al. (2004), Zhang (2005), Fortune and White (2005), Diallo and Thuilier (2005), Yang (2006), Truong et al. (2008), Do and Tun (2008), Kulatunga et al. (2009), Ling and Bui (2010), etc. state that critical factors are the key for project success.

Fundamentally, if one considers criteria as objectives, critical success factors will be the instrument for achieving those. Moreover, those factors help to cope with severe problems in practice and therefore achieve more success in both the project delivery process and the final product. Indeed, critical factors are very important and indispensable to project success.

Also there have been suggestions from the previous studies to apply critical factors at specific stages during the project process. It has been argued and believed that project participants will have a better view and understanding about project success with related activities. They will know exactly which factors they need to have and when to apply them during the process in order to successfully deliver their project. Therefore, this

research adopts this concept in order to present critical success factors across specific phases of the project lifecycle in the proposed framework.

Reviewing literature has revealed many common factors which overlapped from project to project. Those factors have been recognised and identified from the previous studies with their theoretical hierarchies of importance have been collected and presented in Table 3.2. In addition, their potential applications in the Vietnamese context, to confront directly the severe problems have been analysed and discussed in Section 3.5.2. They are adopted in this research in order to form the element 'Critical Success Factors' of the proposed framework and presented across the three phases during the project process.

5.8 A Success Framework for Managing Public Transport Development Projects in Vietnam

After reviewing comprehensively a large number of previous studies about project success, besides using critical and deductive thinking, this study has recognised that it is necessary to combine the ideas and concepts from the existing theories to form a framework in order to cope with the problems in the VCI, whilst improving the success of public transport development projects. This proposed framework reflects all the aspects of project success and management which have been concerned, identified, discussed and presented in the literature review Chapter. A key conclusion of this research is that project success is affected by Stakeholders, Critical Factors, Processes, Problems and Criteria. This set of elements ultimately influences the management and delivery of projects in practice.

According to Winter et al. (2006), a lifecycle framework portrayed as theory of project management to reflect the reality of projects. This recommendation significantly supports this research, in view of the fact that the basic theory of project management is a combination of a series of activities with involvement of many people, issues and factors. Therefore, the need for a framework becomes necessary.

A number of approaches to develop a framework which has emerged from literature such as: a framework with criteria for evaluating success, a framework with critical success factors for improving success, a framework with both criteria and critical

factors spread across specific phases of project process to both evaluate and improve success. While any of these could be used as a theoretical and methodological approach, their practical application is not consistent when being considered to apply in the Vietnamese context. Therefore, developing a new success framework is preferred for this study for the reason that it presents a novel approach in construction project management research.

In order to offer a different way of perceiving project success, the framework developed draws on a new concept (as discussed in Section 3.8). It represents a holistic approach that covers the multi-dimensional aspects that influence the achievement of project success. Figure 5.1 demonstrates a new framework of project success which is based on the management process and evaluation of project outcomes alongside with the identifying of severe problems, key stakeholders and the interactions between those elements during the project lifecycle.

This framework provides a theoretical understanding of the nature of relationships between the elements and their items. Thus, it integrates the items relating to each element by drawing links between them. The logic of the framework is that a variety of relationships between the elements exist during the project lifecycle, the nature of which may determine the impact such interactions have on the project delivery then achievement of project success.

The framework can be used for identifying those variables that feature prominently in delivering Vietnamese public transport development projects. In doing so, it can be employed to establish the focus on problems and factors that need to be scrutinised and urgently addressed, leading to improvements through taking proactive measures instead of being passively responsive. In addition, it can also be employed as an analytical tool for investigating the interactions between elements and factors influencing the implementation process. Therefore, it holds significant potential for managerial improvement in project success.

The interactions and interrelations between elements

In Chapter 3, reviewing literature of project success has clearly pointed out that although previous studies discretely recognised the links (as a pair) between the

elements (detailed discussions provided in Section 3.7), they failed to look at and present them holistically. In fact, during the project lifecycle, it can be realised that the elements are interacting from one to another and these both directly and indirectly influence project outcomes. Thus, this research argues that it is necessary to encompass all the elements and their connections together as a whole. This will provide a complete understanding of attributes of project success.

Looking at the Figure 5.1, it can be seen that there are five violet lines originated from the elements (rectangle boxes) with arrows heading to the project success (oval box). This is implying that all those elements are having influences on the achievement of project success. It is the first indication about the fundamental role of each element to project success.

There are black lines and brown lines connecting the element boxes within the framework. For instance, the black lines originated from the Key Stakeholders box with arrows heading to the Success Criteria and the Critical Success Factors boxes imply that stakeholders are the ones who decide which criteria are used to evaluate project outcomes and performance whilst implementing critical factors across the specific phases during the project process. In other words, stakeholders proactively control and manipulate the other two elements, regarded as ‘one way’ impact from stakeholders on them in this case, but not the other way.

On the other hand, the brown lines with double arrows at both sides connecting the Key Stakeholders box and the Severe Problems and Project Process boxes indicate the mutual impacts between those elements. (First impact) stakeholders are ones who have to directly cope with problems throughout the project lifecycle. In fact, it can be recognised that some problems can be met at any stage while the others can be only met at specific stages. Therefore, dealing with those problems is not easy and requires serious efforts from stakeholders throughout the process. (Second impact) vice versa, in the Vietnamese context, many problems are created and generated directly by the stakeholders such as bureaucracy, corruption, lack of responsibility, lack of competence and so on. Those problems, together with others, might have very strong impacts on project participants, especially foreigners, then deteriorating their motivation and commitment to finish the project at any stage or throughout the process.

The presentation of the five elements with clear links between them has not been done before in any frameworks or models about project success. The role of the proposed framework in this study is as a guide for stakeholders who are working in the VCI to know how to bring public transport development projects to success. Although there are theoretical hierarchies of importance of the adopted criteria and critical factors which have been identified and discussed in Chapter 3; they are going to be tested and validated in the fieldwork. Therefore, the theoretical ranking of those items are not presented in the proposed framework (Figure 5.1).

5.9 Summary

Based on the logical and lifecycle-based framework approach, a framework has been developed and proposed in this research for successfully managing Vietnamese public transport development projects. To develop this framework, a comprehensive literature review about project management, project success and related issues has been conducted and analysed in depth. It contains the five main elements which have been identified and are believed to have strong influences on the achievement of project success. However, this framework is tentative and mostly based on existing theories, especially many items have been adopted and conceptualised to cope with the Vietnamese circumstances. Therefore, it is necessary for testing and validating this framework in current practice.

If the factual data collected are similar to what has been proposed, the research is successful and the proposed framework is accepted. However, if the factual data collected is different or contains different information which is missing in the framework, or rejects some proposed elements and details, it will have to be modified to reflect what exactly is going on in Vietnam. A final framework will be formed, verified and validated in order to make sure that all the elements are useful to assist stakeholders in Vietnam to achieve success and that can be applied in a real live public transport development project in the future.

The following chapter will discuss results what has been found from the data collected when conducting a survey questionnaire in the VCI regarding the adopted items from literature presented in the proposed framework.

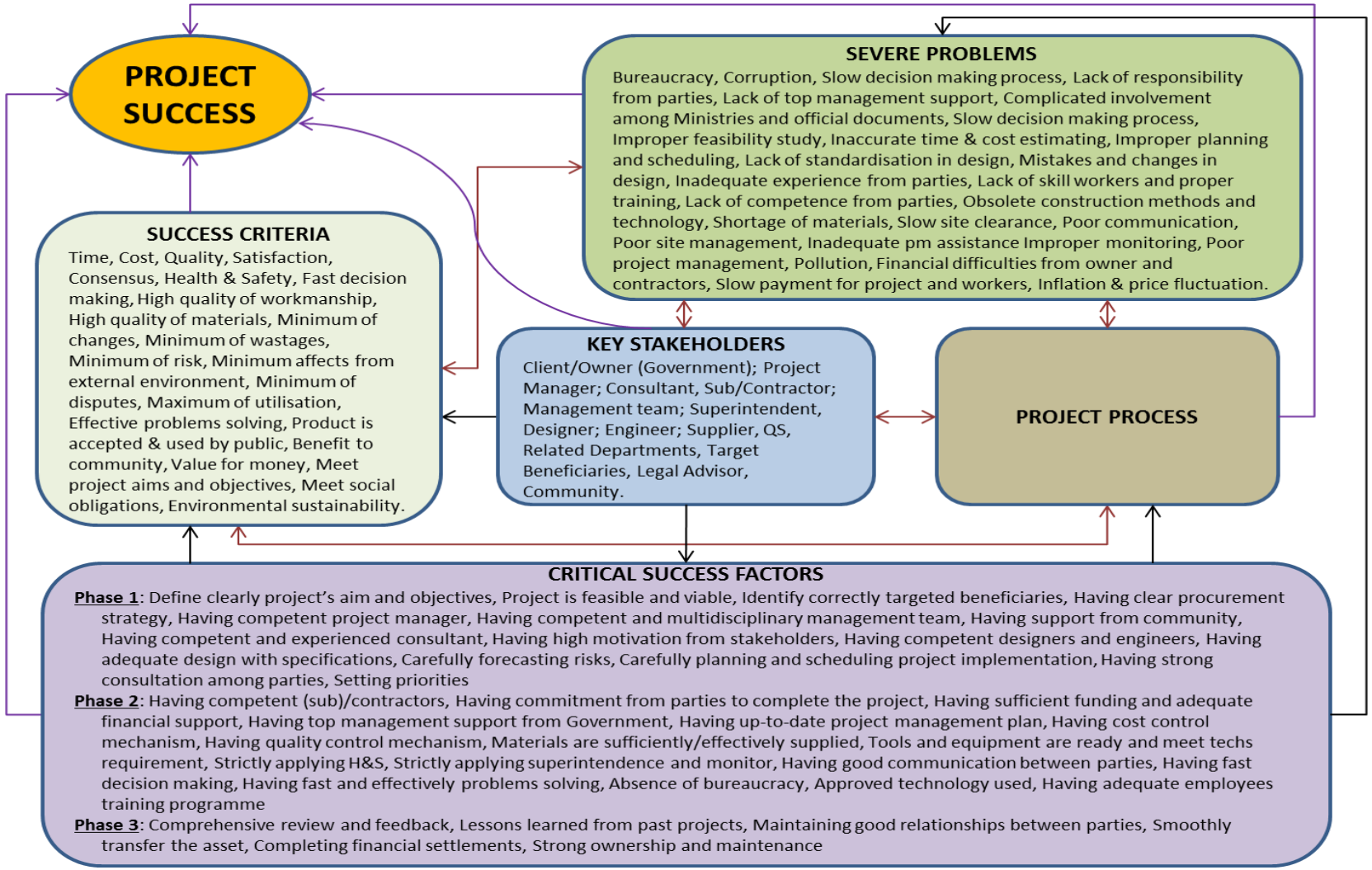

Figure 5.1: The proposed framework developed by the author for this research

CHAPTER VI DATA ANALYSIS

6.1 Introduction

In the previous chapters, the methodology which is adopted in this research has been presented and explained. Also a proposed framework has been developed and explained in detail in order to cope with the problems in the VCI and help to achieve more successful outcomes in future public transport development projects. The questionnaire survey has been developed in this study to validate the proposed items of the framework. The survey is also breaking out new aspects such as the influences of the Vietnamese business culture and the role of transparency in current projects. In addition, it is asking respondents to contribute their own opinions regarding suitable methods for improving the success of those projects.

6.2 Data Analysis

This chapter presents and analyses the data which have been gathered from the questionnaire survey. The most important factors which have the highest value of a mean and those most chosen from the respondents will be highlighted and discussed. The results will be revealed and, from that, an interpretation would be drawn to show how the results contribute to the final framework of this study.

6.2.1 Problems which hinder the success of public transport development projects in Vietnam

In the VCI, there are many problems which hinder the success and greatly contribute to the failure of many projects as previously discussed in Chapter 2. In the framework development chapter, this research has identified and proposed a set of specific problems which believed that might have severe impacts on outcomes of Vietnamese public transport development projects. Nevertheless, these problems have been adopted from literature. The questionnaire survey was designed in order to find out the degree of severity of those problems in current practice according to respondents' viewpoints. The severe problems will be identified, confirmed, and presented in the final framework.

They will be considered as the main problems in the Vietnamese public transport sector which needs to be addressed by all stakeholders.

The following table presents the most severe problems which have been confirmed and validated from the fieldwork. The complete results collected for all problems can be found in the Appendix C of the thesis.

Table 6.1 Ranking of the most severe problems in the Vietnamese public transport sector

Problems/Rankings	Res	R-1	R-2	R-3	R-4	R-5	Mean	Res-R
Slow site clearance	210	0.40%	1.60%	9.10%	30.20%	58.70%	4.5	1
Financial difficulties from client/owner (insufficient funding)	188	0.40%	2.90%	7.00%	24.80%	64.90%	4.5	2
Financial difficulties from contractor/subcontractor	135	0.40%	2.90%	9.90%	36.40%	50.40%	4.3	3
Corruption	115	1.20%	8.70%	19.80%	36.40%	33.90%	3.9	4
Inflation/price fluctuations	87	1.70%	7.30%	18.20%	43.00%	29.80%	3.9	6
Slow payment for project	80	0.00%	6.20%	17.00%	44.60%	32.20%	4.0	8

In this survey, in order to evaluate the problems more accurately, the respondents were asked to list eight most serious problems based on their personal view and experience. The reason to ask this extra question is because results collected will provide a group of the most severe ones which are based on choices of the respondents as a whole but not based on the collection of every single problem with their mean value from the highest to the lowest, which has been judged for individuals. This implies that more common agreement from the respondents to the severity of those problems will be achieved.

It can be seen how many respondents have chosen each problem and rated them as the most severe in public transport development projects in the above table under the Res column, corresponding to their ranking under the Res-R column. Therefore, these will provide a better view of the worst problems in the Vietnamese public transport sector at the moment. It is similarly applied for the rest of the questions in this study.

As previously specified in Chapter 4, problems which have a total response rate of Rank 4 and Rank 5 equal or greater than 70% will be considered as severe or main problems. According to the results collected, there are only six problems which fall in this

category, as presented in Table 6.1, and all of them was chosen among the most eight severe problems by the respondents. Interestingly, among the top four problems which have the highest value of a mean, three of them relates to finance. Indeed, four out of six problems which have been confirmed and validated as the most severe in this study relate to finance. Thus it can be concluded that stakeholders in the Vietnamese public transport sector have been really struggling with finance in recent projects.

However, it is not surprised with the result collected given the current perspectives in Vietnam where money funding for public transport development projects is mainly coming from ODA loans and FDI or sometimes from the national budget. Fundamentally, this implies that there is a difficulty in self-funding for those projects from the client (the Vietnamese government or local authorities) and contractors. High inflations and price fluctuations can cause serious troubles by increasing project expenditures and therefore leading to cost overrun. Eventually, project participants, particularly workers, will be suffering if payments are slow or delayed (quite commonly reported in the VCI too), and this will adversely affect their lives then deteriorate their motivations and commitments to finish the project. All these severely affect the management and implementation process of any project and, in many cases, resulting in a failure.

In this study, there are two problems which have the highest value of a mean at 4.5 are ‘Slow site clearance’ and ‘Financial difficulties from client’. However, according to the respondents’ choices (210/242 compares to 188/242), ‘Slow site clearance’ has been considered as the worst problem in the Vietnamese transport sector at the moment. In fact, this problem has been reported as very serious in large construction projects which the Vietnamese government and local authorities have been struggling for years. In many projects, especially ones in urban areas, money spent on site clearance actually is much higher than money spent on building infrastructure. For example, Dtinews (2013) reported that in order to build 547 meters of a road in Hanoi, the capital city, it costs the local authority 35.3 million dollars for site clearance compensation whilst the cost of building was around just five million dollars.

Moreover, with the financial difficulties from the client and a high inflation rate, these make the progress of site clearance slower. In many cases, the process was very slow (up to years) due to lacking money to spend on land and property compensation whilst

land/property owners were not satisfied with the compensation and they kept staying in their premises. It can be recognised that the financial issues are having very strong influences on the problem ‘Slow site clearance’. Nevertheless, the results collected have confirmed that ‘Slow site clearance’ is the worst problem which has the most impacts on current public transport development projects.

‘Corruption’, ‘Bureaucracy’ and ‘Lack of responsibility from parties’ are the last three which have been chosen by the respondents among the eight most severe problems in this study. It can be seen that these problems which relate to official issues are high concern to the respondents. As previously discussed in Chapter 2, they can be seen everywhere in Vietnam and usually blamed by both the government and the public. They have caused many negative impacts on daily life as well as business so that they hinder investment, commitment, motivation and project success. However, there are not proper solutions or proposals so far to cope with those problems. Therefore, it can be explained why the respondents have highly rated and chosen them. Nonetheless, only the problem ‘Corruption’ is considered and confirmed severe in this study while the others two are not because they do not meet the significant level of the Likert scale ranking.

In this study, it is interesting to see that the problems ‘Inflation/price fluctuations’ (87/242) and ‘Slow payment for project’ (80/242) are confirmed and considered severe but not the problems ‘Bureaucracy’ (98/242) and ‘Lack of responsibility from parties’ (87/242).

To explain for these results, it can be understood that when the respondents rated them in total, in order to specify and combine the most eight severe ones, they have placed their thought on a group which they believe has the most significant impacts on current projects or has the highest degree of occurrence in practice. Therefore, it can be seen why some problems have been chosen by more respondents than the others, but they are still not qualified in this research because they do not satisfy the significant level of the Likert scale ranking.

In general, it can be seen from the data collected that all the problems have mean values which are greater than 3.0. This is implying that they all might have negative impacts on public transport development projects in Vietnam. However, not all of them are considered as main/severe problems in this study because the total response rates at the

significant level have not been met. The above problems have been analysed and confirmed as severe and having strong influences on current projects and they will be presented in the final framework.

There are similar and different findings in this study compared to what were reported from previous studies about the VCI. Detailed discussions can be found in Chapter 8 of the thesis.

6.2.2 Business culture and its influences on implementing and managing projects in Vietnam

Every nation has its own culture regardless of the development status and political regime. In many cases, because of the differences in tradition and business culture, there are difficulties for participants in a same project, especially when this is a mixed/international environment between natives and foreigners. Hwak (2002) points out that in the context of international development projects, cultural issues are the least known but they are the most hazardous.

According to Ofori (2007), the need to recognise and cope with cultural issues is essential in developing countries where large projects usually involve foreign corporations and professionals. It is not certain if things which are working well in a country will be the same when applied in another, especially when there are deficiencies of information in the new host nation regarding how people are doing business and in which manner.

Therefore, there is no warranty for success when applying elements which have been confirmed from literature in different countries to a specific one. Adler (1983) said most of the previous studies applied to one culture in which the research had been conducted and, hence, they are not applicable to other cultures. This study is based on the Vietnamese perspectives and the data have been collected from ones who are working in the VCI. Thus the results are unique and reflecting accurately what happens in Vietnam.

In general, business culture is a broad area which covers many aspects from how people think to how they carry out their work in a specific region/organisation. The purpose of this survey is to find out what the respondents think about the Vietnamese business

culture and its impacts on the management and implementation process of public transport development projects.

There are more and more foreign organisations coming and establishing businesses in Vietnam nowadays, particularly in the construction industry and public transport sector. Based on the results collected from this study, foreigners will understand Vietnam better and the way businesses are being run there. Thus, they will be able to come out with solutions to work with their native partners more effectively and efficiently in future projects. As Ofori (2000) points out, the ability to identify and manage cultural issues in multi-cultural environment which is normally encountered on large construction projects is a determinant of project and corporate success.

After collecting and summarising the data from the respondents' answers, it can be seen that most people who are working in the VCI can recognise impacts which have been generated by the Vietnamese business culture. There are 154 comments saying the same thing that 'business culture directly influences the management and implementation of projects' while there are only 9 comments said 'Business culture does not have any influences on project implementation at all'.

There are 27 main opinions collected in this study. After analysing and summarising the contents from the respondents' feedbacks, it can be seen that there are three main themes which have emerged from the data collected. Each theme has been contributed by many similar opinions and comments which can be found in the Appendix D of the thesis.

The first theme which is also the most outstanding and common to recognise is "the Vietnamese business culture is very poor and not really professional". In this study, there are only 26 foreigners took part in whilst the rest of the respondents are all Vietnamese. Looking at the large numbers of respondents who contributed their view to this theme, it can be seen that many Vietnamese respondents are also not happy with the way their native partners are doing business and therefore they contributed their honest opinions in this situation.

Despite the fact that the business culture in Vietnam is steadily being improved and becoming more professional as a small number of the respondents indicated, this is not good enough when Vietnamese stakeholders still have a lack of willingness to work and

share experience with their partners whilst being selfish as pointed out in the survey. It can be concluded that the business culture in Vietnam is very poor and therefore needs to be urgently improved.

The next theme is “the Vietnamese business culture is Bureaucracy and Corruption”. The respondents pointed out clearly and succinctly how they feel about this topic. Many said because of these issues, project management and implementation processes are badly affected. In addition, because of the domination of the centrally planned economy in Vietnam for a long time, this has formed an unique business culture in Vietnam – ‘old school style’ as some pointed out in their comments.

Moreover, it has been reported that the severity of bureaucracy and corruption is different in level of hierarchies. The respondents identified that the higher the position of individuals is, the more extreme and serious bureaucracy and corruption will be. Also, they stated that the business culture in Vietnam is for personal sake. It can be concluded that bureaucracy and corruption are really severe and being a major part of the Vietnamese business culture.

The last theme which has been recognised in this study is: “Many benefits will be achieved if the Vietnamese business culture is improved”. Although there are difficulties and misunderstandings between Vietnamese and foreign stakeholders due to the barriers in languages and cultures as some of the respondents pointed out; nonetheless, if the communication and cooperation are achieved with a friendly manner, mutual trust and consensus will be gained between parties as others indicated. The management process, thus, will be smoother as an obvious result. More importantly, this will help natives and foreigners understand each other better, the way of doing business and the capability of completing the job. All these will contribute to the final success of any project.

Many respondents also argued if Vietnamese people can learn and adopt the way their foreign counterparts are doing business with professionalism, commitment, responsibility and sharing knowledge, it is believed that there will be great success in future projects. As previously discussed, Vietnam is in the process of modernisation from a centrally planned economy to a free market economy. According to Lee and Peterson (2000), economic reform is only one step in the whole process of modernisation. In fact, modernisation must include cultural transformation. Therefore,

in order to achieve more successful outcomes in future businesses, Vietnamese people have to adjust and transform the culture to a higher level in every aspect to cope with the needs of modernisation.

In fact, the results collected from the fieldwork have strengthen the argument of this research that in order to improve success, foreigners have to analyse and understand the Vietnamese business culture very well before participating in any projects. Because its influences are significant and in many cases would lead a project to unexpected outcomes. Nevertheless, if they carefully analyse the business culture as well as other Vietnamese stakeholders, whom specified in the framework, creative and reasonable solutions will be found to effectively collaborate with their native partners in the future to achieve successful projects.

6.2.3 Critical factors which can potentially contribute to the success of public transport development projects in Vietnam

This research has identified and proposed a specific set of critical factors which have been adopted from literature for improving and achieving success of public transport development projects in Vietnam. The purpose of this survey is to find out which factors are important and commonly used by stakeholders in current practice. From which, they will be presented in the final framework to use in future projects.

The following table presents the most critical success factors which have been confirmed and validated from the fieldwork. The complete results collected for all factors can be found in the Appendix E of the thesis.

Table 6.2 Ranking of the most critical success factors in the Vietnamese public transport sector

Factors/Rankings	Res	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean	Res-R
Having competent contractors/sub-contractors	188	0.80%	0.40%	6.20%	28.10%	64.50%	4.6	1
Having sufficient funding and adequate financial support	187	0.40%	0.00%	5.40%	22.70%	71.50%	4.7	2
Define clearly aim and objectives of the project	152	1.20%	2.10%	10.00%	38.40%	48.30%	4.3	3

Having competent designers and engineers	132	1.20%	2.90%	7.40%	45.50%	43.00%	4.3	4
Strictly apply Superintendence and monitoring	113	0.00%	2.90%	12.80%	43.00%	41.30%	4.2	5
Having competent project manager	108	0.00%	2.50%	13.60%	54.50%	29.40%	4.1	6
Project is feasible and viable	103	0.80%	2.10%	12.40%	47.10%	37.60%	4.2	7
Having competent and experienced consultant	100	0.80%	1.70%	10.30%	55.40%	31.80%	4.2	8
Absence of bureaucracy	96	1.20%	0.00%	18.20%	48.40%	32.20%	4.1	9
Having quality control mechanism	92	0.00%	2.50%	13.60%	61.20%	22.70%	4.0	10

In order to evaluate the factors more accurately, the respondents were asked to list ten most important factors based on their personal view and experience. It can be recognised that four of them are sharing the same component ‘Competent’ from: Project Manager, Consultant, Designers and Engineers, and sub/Contractors. In addition, the factor “Having competent and multidisciplinary management team” is also highly rated with a mean value at 4.0, although not as highly chosen as the others.

Despite the fact that “Having sufficient funding and adequate financial support” has been rated as the most critical factor based on the mean value and ranked 2nd based on the respondents’ choices, the above ‘Competent’ factors are overwhelming and dominating in the top ten. Thus, it can be concluded that having competence from key stakeholders is the most critical component for project success.

However, with the results collected in this study, it seems the people who are working in the Vietnamese transport sector have different views about “Competence”. On one hand, they do not think lacking competence and adequate experiences from project participants is among the most severe problems which can cause serious troubles for current projects (Appendix C). On the other hand, they believe that the factors which relate to competence are vital for project success.

As Le et al. (2008) pointed out, the fast development of the construction sector in Vietnam requires a large number of workers. The low quality and productivity of workers will create impacts on the project progress, particularly in large construction projects where complex and modern technology needs exploiting. However, according

to Nguyen et al. (2004, p.410): ‘on large construction projects in Vietnam, a developing country, it is extremely difficult to assemble adequate and capable professionals to direct projects to success.’ They also pointed out that a dominant characteristic of construction projects is the involvement of many parties. Thus, if one of those is not capable to play their role properly, there is likely to be project failure. Because of this paradox, it can be explained why the respondents have placed their thoughts about competence differently in these cases.

It has been reported that many projects in Vietnam were initiated only for private gains regardless of the modern technology required or huge money invested. In addition, as analysed in the previous sections, the problem “Bureaucracy” has been chosen among the eight most severe in the VCI (ranked 5th) whilst it is also perceived as a major part of the Vietnamese business culture. Therefore, the factors “Project is feasible and viable” and “Absence of bureaucracy” have been highly chosen (ranked 7th and ranked 9th respectively) by the respondents as very critical to achieve success in current projects.

According to Yeo (1995), a large infrastructure project also needs the community to support and understand about its development purposes like long term implication and benefits of the project. Smooth implementation of a project will be achieved if the community affected by the project is supportive and understanding (Nguyen et al., 2004). Meanwhile, many public transport development projects in Vietnam have been criticised by public media and they do not have positive supports from local people whom are affected by these projects. So that, “Having support from community” is considered very critical to project success, with a mean value at 4.2, although not among the top ten (ranked 11th).

It can be seen that many factors, which have been validated as critical so far, relate to humans and this reflects correctly the social aspects in Vietnam as well as the coherence of data collected from the survey. A big picture about project success and the public transport sector in Vietnam will be drawn later in the summary section.

In this study, the factor “Define clearly aim and objectives of the project” has been ranked 3rd by both respondents’ choices and the mean value. It is not surprised because Truong et al. (2004) indicate that unclear project scope and objectives will cause severe consequences such as unexpected design changes which lead to many other changes

during the construction phase. These will be resulting in time delays, cost overruns and eventually failure of many projects. Therefore, this factor is very critical to avoid or cope with the above issues then contributing to the overall success of public transport development projects.

Among the top ten factors chosen by the respondents, it can be seen that "Having quality control mechanism" (ranked 10^{th}) has a mean value at 4.0 which is equal or lower than many factors. This implies that people who are working in Vietnam believe when project quality is properly controlled, this is more important and contributes more to the final success of public transport development projects than other factors. Also "Superintendent and monitor are strictly conducted" has been very highly rated (mean 4.2) and chosen by the respondents in this survey (ranked 5^{th}). As reported in Chapter 2, the quality of many projects in Vietnam is very poor and usually criticised by the public. In addition, quality is one of the tree most important criteria always used to measure success of any projects. Therefore, it can be explained why the respondents have chosen the factor which relate to quality control but not the others.

Furthermore, it has been confirmed that if design is carefully and appropriately conducted, this is essential to guarantee the quality, progress and safety conditions of any project. As a result, the factor "Having adequate design with specifications" has very high value of a mean at 4.2 and ranked 12^{th} based on the respondents' choices in this study because of its wide impacts on project outcomes.

Among the last four factors which have a mean value equal or greater than 4.0, one has been discussed before is "Having competent and multidisciplinary management team" while the rest are "Strong consultations among parties" (4.0), "Materials are sufficiently and effectively supplied" (4.1) and "Tools and equipment are ready and meet technical requirements" (4.1). Given the current perspectives in Vietnam and the nature of public transport development projects, it can be understood why those factors have been highly rated.

For the rest of the factors, it can be seen that all of them have a mean value which is equal or greater than 3.6. This implies that stakeholders in Vietnam have optimistic and positive views about those factors and believe that they have the potential to cope with severe problems in the VCI whilst delivering future projects to more successful outcomes. Nevertheless, there are only some of them satisfy the significant level of the

Likert scale ranking while the rest fail to meet this requirement, so that they will not be included and presented in the final framework.

Above all, the results collected in this survey reveal the dominance of a mean value which is equal or greater than 4.0 when there are 16 factors (out of 39) lie on this category – considered as very critical, then followed by values 3.9 and 3.8 which has been rated for seven factors each, then the value 3.7 with six factors and the last three factors with the value 3.6. In addition, it can be seen that the respondents see the factors which relate to initiate a project are the most critical/important for the success of public transport development projects in Vietnam. The average of the mean value of those factors (4.01) is slightly higher than those which relate to construction (3.97) or project completion (3.77). These figures indicate that the early stage of a public transport development project needs more focuses and therefore the tasks which need to be carried out here will have greater impacts on project outcomes than the other stages.

In this survey, the respondents were asked to provide new factors which they think are missing from the list but also critical to the achievement of project success. However, the results collected have revealed that there are no suggestions made in this study. In addition, there are similarities and differences from the results collected in this study to the previous studies about the VCI. Detailed discussions can be found in Chapter 8 of the thesis.

6.2.4 The role of transparency in a project and its importance to project success in Vietnam

The purpose of this survey is to find out what the respondents think about the transparency in current practice. In fact, transparency is a larger area which covers many aspects than a single factor or criterion. Because of this characteristic, transparency has been separated from the critical success factors which have already been discussed in section 6.2.3 or the success criteria which will be discussed in section 6.2.8. It is expected to get contributions and suggestions from the respondents to see how transparency can help to improve the success in future projects.

According to the data collected, among 242 respondents, there are 185 who said transparency is very important for any projects while 57 who said none – it is not

important at all in the Vietnamese context. There are total 22 main opinions which have been contributed by the respondents in this study. These numbers indicate that people who are working in the public transport sector in Vietnam have high concerns to transparency and its impacts on project outcomes.

There are three main themes which have emerged from the respondents' feedbacks, which can be found in the Appendix F of the thesis, with the first which is also the most outstanding one and can be easily spotted: "Transparency is 'must have' in order to achieve project success in Vietnam". The respondents clearly pointed this out regarding the necessity of having transparency in current projects. In fact, the results collected also reveal that transparency is poor or not existing in Vietnam. Taking into account the small number of foreigners who took part in this survey, it can be seen that there is a large amount of Vietnamese who also contributed honestly what they thought about this topic whilst they recognised how essential transparency is in terms of achieving success. This reflects correctly of what has been discussed in the previous sections about the social aspect in Vietnam, particularly the business culture which is dominated by corruption and bureaucracy thus resulting in the lack of transparency in daily business.

The next theme is "Transparency will help to avoid many severe problems in Vietnamese public transport development projects". As Zhang (2005) pointed out that corruptions can be spawned by the lack of transparency, thus there are many respondents believe this problem and many others such as: cheating between project participants, wastages and losses would be significantly avoided or mitigated if transparency exists, and as a result, future projects will be better managed and completed.

The final theme which has been contributed by most opinions and comments in this study is "Transparency will help to gain many benefits in public transport development projects". For example, because of unfair bidding and lack of transparency during the bidding process, many projects in Vietnam have been granted to state-owned contractors or ones who lack competence to do the job. Therefore, the respondents believe that the existence of transparency will help the right contractors to get the right projects which is essential to improve and achieve success. Moreover, if transparency exists, project participants in Vietnam might have to take responsibility more seriously

whilst project design, project progress, project effectiveness, quality control and appraisal might be improved.

Besides the significant role which is coping with corruptions, it can be seen that transparency is very useful, particularly when it might help to attract more investments from foreign investors as the respondents pointed out. This is an important aspect because the lack of transparency will restrict those investors expanding and doing businesses in Vietnam, whilst the country needs investments and financial aids from foreigners to build more infrastructure and transport development projects.

In this study, transparency has been confirmed to be very important and critical to improve project success in Vietnam. Therefore, transparency must be applied and achieved in the future at any stage throughout the project lifecycle. It will be presented within the element "Project Process" of the final framework. This will raise awareness from project participants, particularly the Vietnamese Government and local authorities, regarding the needs of having transparency in practice. It is believed that foreigners who intend to do businesses in Vietnam will have a better understanding of how to improve success and mitigate problems such as corruption and bribery in future projects.

6.2.5 The most relevant delivery route which is currently employed in public transport development projects in Vietnam

The understanding of construction process and how to implement tasks are very important and critical to success. Any project has a lifecycle and the method of delivering a project from the beginning to a successful completion is a challenge. The purpose of this survey is to find out which delivery route is the most relevant to be applied in public transport development projects in Vietnam. Understanding this will contribute greatly to the success improvement in future projects, particularly in terms of implementation and management. This research has adopted a process which was proposed by Chan et al. (2002b) for DB projects. The results collected in this study will confirm whether this process is valid and acceptable to be applied in future projects.

The complete results collected for all methods can be found at the Appendix G of the thesis and it can be seen that the traditional delivery route (DBB) is considered as the most relevant for applying in Vietnamese public transport development projects. Thus,

the final framework will be modified with the new process which has four different phases as follows: conceptualise/feasibility study, design and planning, construction, completion and operation. Because of this change, all the critical factors which have been identified and validated will be relocated within the new phases.

The other methods mentioned in the survey will not be adopted in near future because of their unfamiliarity to project participants, although BOT has shown potential which can be employed in some projects.

6.2.6 Methods which are important and relevant to improve success of public transport development projects in Vietnam

Reviewing literature has identified methods that, if being applied in Vietnam during the project lifecycle, will potentially improve success of public transport development projects. They were adopted in this study and the purpose of the survey is to identify their degree of importance and relevance in the Vietnamese current environment. The important ones which will be presented in the final framework.

The following table presents the most relevant methods which have been confirmed and validated from the fieldwork. Complete results collected for all methods can be found in the Appendix H of the thesis.

Table 6.3 Ranking of methods for improving success of public transport development projects in Vietnam

Method/Ranking	Res	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean	Res-R
Procurement routes	142	0.80%	7.40%	20.10%	38.00%	33.50%	4.0	1
Total quality management	106	0.00%	2.10%	21.10%	41.30%	35.50%	4.1	2
Education and training	87	0.00%	3.30%	19.40%	56.20%	21.10%	4.0	3

In this study, in order to evaluate the methods more accurately, the respondents were asked to list three most relevant methods which are based on their personal view and experience. According to the respondents' choices, those three methods are also ones which have the highest value of a mean. Looking at the above table, it can be seen that the respondents who are working in the Vietnamese public transport sector believe future projects will be more successful if focusing on the improvement of procurement

strategy, applying total quality management, and having proper education and training programmes for staff and workers.

Given the facts that: the traditional delivery route is commonly and widely used in public transport development projects, which is a long and complicated process involving many people and activities; those projects were initiated to serve the socioeconomic development purpose and must be finished in high quality standard to be safe to use for a long period of time, nevertheless many defects found and resulting in poor quality; Vietnamese students and workers are being trained by an obsolete and poor education system, leading to a lack of quality human resources. Therefore, it is not surprised with the above results.

For the remaining methods, none of them meets the significant level of the Likert scale ranking therefore they will not be selected and presented in the final framework. There is one which comes close to the top three is 'Improving business culture and human resources'. In fact, the business culture has been created and developed by Vietnamese people for decades or even centuries. Meanwhile, Vietnam has been struggling with many severe problems which relate to humans. Because of these issues, the respondents believe when the business culture and human resources are improved, future projects will be more successful. Nevertheless, in order to achieve this, it might take a very long time with great efforts from both the Vietnamese government and everyone who is living and working in Vietnam.

In this study, the three most important methods, as analysed and discussed above, will be presented in the final framework within the element 'Project Process'. Project participants who are working in the Vietnamese transport sector should focus on those methods and their potential applications during the project lifecycle to improve success.

6.2.7 Key stakeholders in public transport development projects in Vietnam

This research has identified a specific set of stakeholders who are active in Vietnamese public transport development projects. The purpose of the survey is to find out: 'who are the most important stakeholders having strongest impacts on the outcomes of current projects?' In this study, the respondents were asked to mark each stakeholder based on the important hierarchy. Mark "1" means the stakeholder is the most important, then

followed by the less important ones who will be ranked as 2, 3, and so on. The following table presents the most important stakeholders whom have been confirmed and validated from the fieldwork. Complete results collected for all stakeholders can be seen in the Appendix I of the thesis.

Table 6.4 Ranking of stakeholders in public transport development projects in Vietnam

Stakeholders	Rank
Client/Owner	1
Project Manager	2
Consultant	3
Contractors/Sub-contractors	3
Project management team	5
Superintendent	6
Designer	6
Engineer	8
Suppliers	9

Looking at the above table, firstly, it can be seen that Client/Owner (the Vietnamese government or local authorities) is ranked as the most important stakeholder and following by Project Manager. In addition, the respondents in this study think the role of Consultant and Contractor/sub-contractor is equally important. In practice, the stakeholders such as client, project manager, consultant and contractors are the principle stakeholders of a public transport development project. The results collected in this study have already confirmed the importance of the factors such as 'Having competent contractors', 'Having competent project manager' and 'Having competent and experienced consultant' to project success in Vietnam. Therefore, it can be concluded that these stakeholders are playing the most important roles in current projects and being considered as the key to project success.

Project management team has been ranked as the 5th important stakeholder. They are considered more important than both Superintendent and Designer who are equally important and ranked 6th, then followed by Engineer and Suppliers with ranked 8th and 9th respectively. It can be seen that these stakeholders are also considered as key stakeholders in this research because of their unique roles which have strong influences

on project outcomes in terms of design, supply, quality supervision and project management assistance.

The above stakeholders will be presented within the element ‘Key Stakeholders’ in the final framework as the core of project management and project success. Project participants will understand more about their important role which might lead future projects to a success or a failure. It is believed that will help to raise awareness and enhance responsibility of those stakeholders in future projects. Especially, foreigners who intend to do business in Vietnam will have a better understanding of key stakeholders with whom they have to work and cooperate.

For the rest of the stakeholders in this question, they are not selected and presented in the final framework due to their roles are not considered as important as the above stakeholders.

In this study, it is interesting to find out that the Vietnamese government is the most important stakeholder who has strongest influences on the outcomes of many projects in current practice but not project manager or contractors. As previously discussed in Chapter 2, the government directly controls the construction market with legislations and regulations. Officials normally have strong influences on project approvals or selection of contractors and consultants. It can be seen that the results collected in this study have reflected the characteristic of the VCI during the transitional process with the dominant role of the government in the domestic market and particularly the public transport sector.

In fact, the Vietnamese government has not played their role adequately. It is believed that the government should better support future projects and not interfere the management and implementation process unless it is absolutely necessary. In addition, the government should pay serious attention to quality supervision as Ling and Bui (2010) pointed out. These will effectively and efficiently improve success.

6.2.8 Criteria for evaluating success of public transport development projects in Vietnam

This research has identified and proposed a specific set of criteria which have been adopted from literature for measuring performance and outcomes of public transport

development projects in Vietnam. The purpose of this survey is to find out which criteria are important and commonly used by stakeholders in current practice. From which, they will be presented in the final framework to use in future projects.

The following table presents the most important criteria which have been confirmed and validated from the fieldwork. Complete results collected for all the criteria can be found in the Appendix J of the thesis.

Table 6.5 Ranking of the most important criteria for evaluating success of public transport development projects in Vietnam

Criteria/Ranking	Res	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean	Res-R
Quality	210	0.00%	2.10%	8.20%	31.00%	58.70%	4.5	1
Time	203	0.00%	2.10%	12.00%	38.80%	47.10%	4.3	2
Meet project's aim and objectives	185	0.40%	0.80%	5.80%	41.70%	51.30%	4.4	3
Benefit to the community	173	0.00%	2.40%	7.90%	38.00%	51.70%	4.4	4
Cost	140	0.00%	3.70%	21.90%	45.50%	28.90%	4.0	5
Value for money	112	0.40%	1.70%	9.90%	47.10%	40.90%	4.3	6
High quality materials	102	0.40%	3.70%	18.60%	46.30%	31.00%	4.0	7
Satisfaction achieved	95	0.40%	4.10%	18.60%	56.60%	20.30%	3.9	8

In order to evaluate the criteria more accurately, the respondents were asked to list eight most important criteria which are based on their personal view and experience in this study. According to the respondents' choices, it can be seen that the "iron triangle" with time, cost and quality has been highly chosen and rated as the most important criteria to evaluate the success of public transport development projects in Vietnam. This is similar to what has been discussed and identified in Chapter 3 that these criteria have been used for success judgement of most projects, albeit with different degrees of importance when being applied in the Vietnamese context and public transport sector.

In this study, 'Quality' has been chosen as the most important criterion by the respondents whilst it also has the highest value of a mean at 4.5. This implies that quality is extremely important and 'must be achieved' in any public transport development projects. Taking the current perspectives in Vietnam into account, it is not surprised with this result. In fact, it reflects honestly what is going on in the country and the construction industry.

'Time' has been ranked as the 2nd based on the respondents' choices while ranked 3rd with the mean value at 4.3. It can be seen that the respondents in this study believe that public transport development projects in Vietnam should be finished on time and this is very critical to the government and contractors. Indeed, time is money and when a project completed on time, it can avoid and mitigate the problems such as inflations and cost overruns.

The 3rd most important criterion chosen by the respondents is 'Meet project's aim and objectives'. It has the 2nd highest value of a mean at 4.4 whilst it has the highest total response rates at the significant level at 93%. With these figures, it can be seen that the respondents in the VCI strongly believe a project is considered success when its aim and objectives have been achieved. In this case, the aim and objectives are not only just about the achievement in terms of project management with time, cost and quality, but also the overall success of the project when it serves the socioeconomic development purposes whilst successfully coping with serious traffic problems.

Also having the 2nd highest value of a mean at 4.4, the criterion 'Project brings benefits to the community' is ranked 4th among the eight most chosen criteria by the respondents. It has been identified that due to the poor feasibility study and corruption problems, many projects have been initiated and built for just no reason (GTKP, 2013). This has created wastages and capital losses whilst there are lacks of funding for really necessary projects. In addition, the funding sources for those projects are normally contributed by civil taxes or loans from foreign countries. Therefore, it can be seen why the respondents in the VCI believe a public transport development project is considered a success when it can bring benefits to the community.

It is interesting to see the criterion 'Cost' is ranked 5th based on the respondents' choices whilst it has a mean value at 4.0 (ranked 7th) in this study. It was expected that this criterion would be rated among the three most important criteria which include quality and time for measuring project success. To explain for this result, it could be understood that when the Vietnamese government and contractors are struggling with financial difficulties which resulting in projects delayed due to insufficient funding. These delays and high inflations might contribute to the increasing cost in those projects. Therefore, this criterion 'Cost' might be tolerantly rated in this situation and considered less

important than the above criteria when being chosen for evaluating the success of current public transport development projects.

There are two more criteria which have been also chosen among the eight most important criteria by the respondents in this survey are 'Value for money' (ranked 6th) and 'High quality of materials' (ranked 7th). Wells (2014) and GTKP (2013) point out that in developing countries where contractors are using poor quality of materials to build in order to gain their profits back after bribing officials and placing their low priced bids to win contracts. In addition, because of bribery and corruption, the design, materials and construction method are sometimes chosen with unnecessarily high quality in order to maximise the benefits from the large bribes whilst only standard materials are used. These problems are common in Vietnam too. Therefore, it is understandable why it has come up with these results.

When looking at the results collected, it can be seen that there are eight criteria which have a mean value which is equal or greater than 4.0. Seven of them have been chosen by the respondents as the most important criteria in this research. The criterion 'Meet social obligations' (ranked 11th) is the only one which has not been selected by the respondents despite its high value of a mean at 4.1. In this case, the chosen one is 'Satisfaction' (ranked 8th) which has a mean value at 3.9. It can be seen that the respondents in the Vietnamese transport sector have placed their thought on one of very basic criteria for measuring success and believed this is more relevant than the others if satisfaction is achieved from stakeholders.

Besides the top eight criteria for evaluating success of public transport development projects in Vietnam as discussed above, there are others also considered to be important in this study such as 'Health and Safety', 'Environmental sustainability', 'Effective problems solving' and 'Fast decision making'.

Firstly, Hughes et al. (2004) pointed out that in construction projects, safety performance can be considered the primary determinant of success regardless of the other measurement. Secondly, public transport development projects are usually huge in terms of scale, thus their impacts on the environment which including local communities and ecological systems are very strong. Meanwhile, Vietnam is a developing country and needs to build more transport infrastructures for the industrialisation and modernisation process, which means there will be more concerns

about health and safety and environmental impacts issues. Thirdly, as previous discussed, no projects go exactly as planned while there are usually problems and conflicts arising during the implementation process; particularly between foreigners and Vietnamese due to cultural and language barriers. The ability to resolve those issues quickly and effectively can contribute greatly to the achievement of success. Finally, because of the complicated involvement of official departments as highlighted in Chapter 2, the decision making process is so slow that significantly influences many projects. So that, it can be seen why the respondents have highly rated these criteria and believed they are relevant to measure success of current and future projects.

In general, the results collected in the survey have revealed that all criteria have a mean value is greater than 3.0 which implies that respondents have positive view about their importance and relevance if being applied in the Vietnamese context. Nevertheless, despite the potential applications, there are only some of them, as discussed and mentioned above, meet the significant level of the Likert scale ranking, and therefore are validated to use in future projects. They will be presented in the final framework.

6.2.9 The success of public transport development projects in Vietnam in term of project management (time, cost and quality)

The purpose of this study is to find out how the respondents in the VCI think about the performance of current projects which is based on the 'iron triangle' with time, cost and quality. The result collected will give a general view of how successfully Vietnamese projects have been completed in recent years in terms of project management. The following table presents the results collected in this survey:

Table 6.6 Ranking of performance parameters in public transport development projects in Vietnam

Parameters/Ranking	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean
Time	12.00%	41.30%	35.10%	6.60%	5.00%	2.5
Cost	2.90%	17.80%	56.60%	16.90%	5.80%	3.1
Quality	4.10%	12.80%	57.90%	18.20%	7.00%	3.1

Looking at the above table, it can be seen that Time has the lowest value of a mean at 2.5 which is lower than the satisfactory point (3.0), while Cost and Quality have the

same value of a mean at 3.1 with the domination of total response rates in rank 3 – 56.6% and 57.9% respectively. These numbers indicate that, in recent years, public transport development projects in Vietnam have just been somehow completed with the satisfactory level but not really significant and over expectation. Cost and quality have been achieved with the acceptable level while time is still poor in many projects which have been normally finished behind schedule. The management and implementation of those projects, therefore, needs to be improved in order to achieve more successful outcomes in the future.

6.2.10 The overall success of public transport development projects in Vietnam

In the previous section, the respondents in this study have rated the outcomes of recent projects in terms of time, cost and quality which are considered basic for measuring the success of project management. The purpose of this survey is to find out how the respondents also evaluate the success of those projects in general. In this survey, the respondents were asked to choose only one option in order to rate the outcomes of public transport development projects in Vietnam.

According to the data collected, with 242 respondents, the results are distributed as follows:

- Bad failure (2)
- Failure (10)
- Somewhat successful (178)
- Successful (50)
- Very successful (1)

Looking at the above figures, there are 178 respondents (equally ~ 73.6%) who placed their thoughts on the third option. It can be seen that the respondents in this study consider projects which have been completed in recent years as somewhat successful. It is interesting to see that there are 50 respondents (equally ~ 20.7%) who believe those projects are successful. In fact, there are few public transport development projects in Vietnam which have been finished before schedule, within (or cheaper than) the estimated cost, according to design and achieved high quality products whilst greatly

dealing with serious traffic problems. Therefore, the respondents who might be participants in those projects have come up with this result.

As previously discussed, two out of three most basic criteria for measuring project management success have been achieved at the satisfactory level whilst one not. Therefore, it can be seen why 'Somewhat successful' has been chosen by most respondents in this study and this reflects a fair result of past and current projects. These imply that, firstly, the judgment of the overall success of a project is contributed and subordinated by the success of project management and the final product; and, secondly, it is necessary to improve the overall success of future projects to effectively and efficiently contribute to the development process of Vietnam. The results collected in this survey have confirmed the concept of project success which has been adopted from Bacarrini (1999) is valid.

6.2.11 Suggestions/recommendations which are relevant in order to improve the success of public transport projects in Vietnam.

From the results collected in this survey, there are many similar comments which come from the respondents and they contribute to 28 main ideas which can be found on the Appendix K of the thesis. When looking at the respondents' contributions, it can be seen that many of them are as similar as the critical success factors which have been proposed in the framework and the respondents believed when applying those factors in the future, public transport development projects will be more successfully achieved.

In this survey, the respondents also contributed ideas and opinions which have not been mentioned in the questionnaire but they believe that can help to improve the success of future projects such as:

- Vietnamese government should amend and modify legal documents to improve project success (52 comments),
- Vietnamese government should focus investment in the most important/urgent projects to get effectiveness and efficiency (54 comments),
- Vietnam should learn and adopt standards and technologies from developed countries into domestic projects (51 comments),

- Public transport development projects should be monitored publicly to make sure the right materials are used and quality is up to standard (44 comments),
- Projects should be more transparent and this will help reduce corruption besides choosing the right contractors (75 comments).

Firstly, Chapter 2 has discussed the complicated involvements of departments and ministries in Vietnam with intricate documents. Because of these issues, many projects have been negatively influenced, especially in terms of slow appraisal and decision making processes. Therefore, it can be seen why many respondents believe future projects will be more successfully achieved if the government amends and modifies legal documents.

There are many respondents who also suggested that the Vietnamese government should focus the investment on the most important/urgent projects to gain effectiveness and efficiency. This is similar to what MGI (2012) suggested in order to improve success in the Vietnamese construction sector. As a developing country, Vietnam is dependent on foreign investors to build up transport and infrastructure projects due to the lack of capital. Meanwhile, there are many projects which have been initiated and built for private gains whilst these projects are not really necessary and urgent to cope with the socioeconomic development process. Therefore, the necessity of focusing the investment in the most important projects is vital not only for the success of those projects, but also essential for the government to avoid wastages and to have a long term sustainable development.

The respondents also believe that there will be more successful in future projects if Vietnamese people can learn and adopt standards, technologies and management knowhow from developed countries into the domestic market. According to Ling and Bui (2010), construction projects in Vietnam tend to have more successful outcomes when foreign experts are involved. Moreover, they identify that local firms have benefit of the learning opportunities to transfer technology and management skills from those foreigners. Therefore, it can be seen why the respondents have suggested this method in order to achieve more successful outcomes in future projects.

In addition, there are many respondents who believe if public transport development projects are supervised and monitored publicly, they will be better finished. This involvement will help to ensure high quality of materials used and the infrastructure

built in accordance with designed standards. In addition, ‘Strictly apply superintendence and monitoring’ has been identified and confirmed in this survey as one of the most critical factors to project success in Vietnam. Therefore, the respondents believe if the public can participate and have the right to supervise those projects, these will help to improve success.

The last suggestion which has been contributed by the respondents in this survey is transparency. They think if transparency is achieved in future projects, it will help to reduce corruption and choose the right contractors. As previously analysed, the role of transparency and its influences on current projects are essential. Therefore, it is not surprised when the respondents once again believe its existence will enhance project success. It can be seen that transparency is extremely important and must be present from the inception to the completion in any projects in Vietnam.

In general, it can be seen that to apply these above methods in practice, it requires great efforts from the Vietnamese government and project participants during a long time period. Nevertheless, the results collected in this survey have reconfirmed the role of the government as very critical to the domestic market and to the outcomes of many projects, the role of supervision in project success achievement, the role of transparency to improve project success, and the role of education and training to improve human resources and to catch up with the modern world. All these issues should be properly focused not only by the government but also by anyone who is living in Vietnam and working in the public transport sector.

6.3 Findings from the survey and the final framework

The purpose of the survey is to test and validate the items which have been proposed in the framework. In addition, it was designed to explore and investigate other aspects of the VCI such as the influences of the business culture and transparency in current projects; while getting contributions from the respondents in order to improve the success of public transport development projects in Vietnam. It can be seen that the results collected from the fieldwork are significantly different from what has been proposed initially (adopted from the literature). There are items which have been confirmed and validated as very important to use in future projects whilst there are many others which have been rejected. Nevertheless, when linking the findings

together, it provides a vivid picture/framework of project success with details of what is going on in the Vietnamese public transport sector.

Firstly, from the results collected it can be recognised that Vietnam is a developing country which is still facing two fundamental categories of problems such as 'Finance related problems' and 'Human related problems'. These are resulting in financial difficulties from the government and contractors, corruption and lack of competence and experience from project participants. In fact, there have been no proper solutions so far to cope with them whilst they continue adversely impacting outcomes of many projects. Therefore, it is not surprising when some the most critical factors identified in this study also relate to 'Finance' and 'Human' (especially ones with the Competent component) whilst some of the most important criteria for measuring success relate to cost, value for money, the benefits of community and society - to confront directly the problems and their potential consequences.

Secondly, the Vietnamese business culture has been identified as having very negative impacts on the implementation process and quality of many projects with the dominant characteristic of Bureaucracy and Corruption. While transparency has been confirmed vital to achieve success of those projects, especially to dealing with corruption. It has been clearly pointed out that in order to achieve better outcomes in future projects, the Vietnamese business culture must be improved and transformed whilst transparency must be present from inception to completion during the project lifecycle. In addition, education and training has been confirmed among the most relevant methods to improve project success. In this perspective, it is believed that, a proper and modern education and training system is a best tool which can assist to improve the Vietnamese business culture plus bringing about many benefits in the long run of the socioeconomic development process, particularly in supplying quality human resources.

Thirdly, the role of the Vietnamese government has been identified and confirmed as the most important stakeholder who has huge influences on project outcomes. It is believed that the government is the vital key or 'game changer' who can transform the Vietnamese current status into a very much better future if proper actions and strategies taken. Nonetheless, the role of other project participants such as project managers, consultants and contractors are also critical in contributing to project success. They are the most important stakeholders and being considered 'fundamental' in Vietnamese

public transport development projects. Achieving satisfactions and effective collaborations from all those stakeholders during the project lifecycle will strongly enhance the achievement of project success.

Fourthly, the results collected indicate that project management is still poor in many Vietnamese projects which resulting in completion behind schedule while somehow meeting quality standards and staying within budget. As a result, recent projects are reported somewhat successfully completed and this implies that it is necessary to improve the delivery process in order to achieve better outcomes in future projects, especially in terms of high quality and achievement of project aim and objectives.

Finally, the traditional delivery route has been identified and confirmed to be the most relevant for carrying out public transport development projects in Vietnam. In addition, there are three methods which have been confirmed to be relevant to employ during this process in order to improve success of future projects: focusing on the improvement of procurement strategy, applying total quality management, and having proper education and training programmes for staff and workers. There are also several suggestions from the respondents in this study regarding new methods for improving success. Although there are many similar comments contributing to each method, the number of those comments do not satisfy the significant level (at 70%), therefore they will not be included and presented in the final framework.

In general, the results collected in this study are reflecting the relationships and interactions between the elements as described and discussed in detail in Chapters 3 and 5. It can be seen that stakeholders (or humans) interact with the severe problems throughout the process, apply critical factors in order to cope with those problems and to achieve a specific set of criteria for safeguarding success. In addition, a set of items presented in one element link and interact with their counterparts in the others as analysed in this chapter. For instance, the multilateral connections between severe problems, critical factors, success criteria, business culture, transparency, key stakeholders and methods of improving success are clear and apparent during the project lifecycle as the empirical findings indicated. Therefore, these have confirmed the argument and hypothesis of this research that all the five elements should be viewed holistically and presented together as they are interrelated and all have influences on the achievement of project success.

In the final framework, critical success factors will be relocated within the new four phases as previously discussed and relevant methods for improving success will be presented in the Project Process element. Although there are significant changes in details within each element between the proposed framework and the final framework, the layout of boxes, lines and arrows stay the same. This is because the results collected reflect correctly the relationships between the elements as well as their details when one relates to and interacts with another as pointed out previously. The actual hierarchies of importance of the items within each element will be presented in the final framework.

Looking at Figure 6.1, it can be recognised that it reflects the main characteristics of Vietnam as a developing country which is in the transitional process towards a market economy with different aspects from human, problems, critical factors, success criteria and process with relevant methods to carry out a public transport development projects. This framework provides a comprehensive picture of project success with guidance of how to achieve – detailed discussions will be provided in Chapters 7 and 8 of the thesis.

6.4 Summary

This research has combined the five elements with validated items which are considered important to the achievement of success within a single framework. However, it is unknown whether this framework is going to work if being applied in practice and it can help project participants in Vietnam to achieve better results in future projects. Therefore, it is necessary to verify and validate this framework in the Vietnamese current perspective.

In this research, the verification and validation of the final framework will be done by interviewing experts who are project managers or general directors of big construction corporations in Vietnam. They will contribute their own thought and opinion regarding the consistence, solidity, completeness, usefulness and practical application of the framework in a real life project. The following chapter will present and analyse feedbacks which have been collected from the interviews.

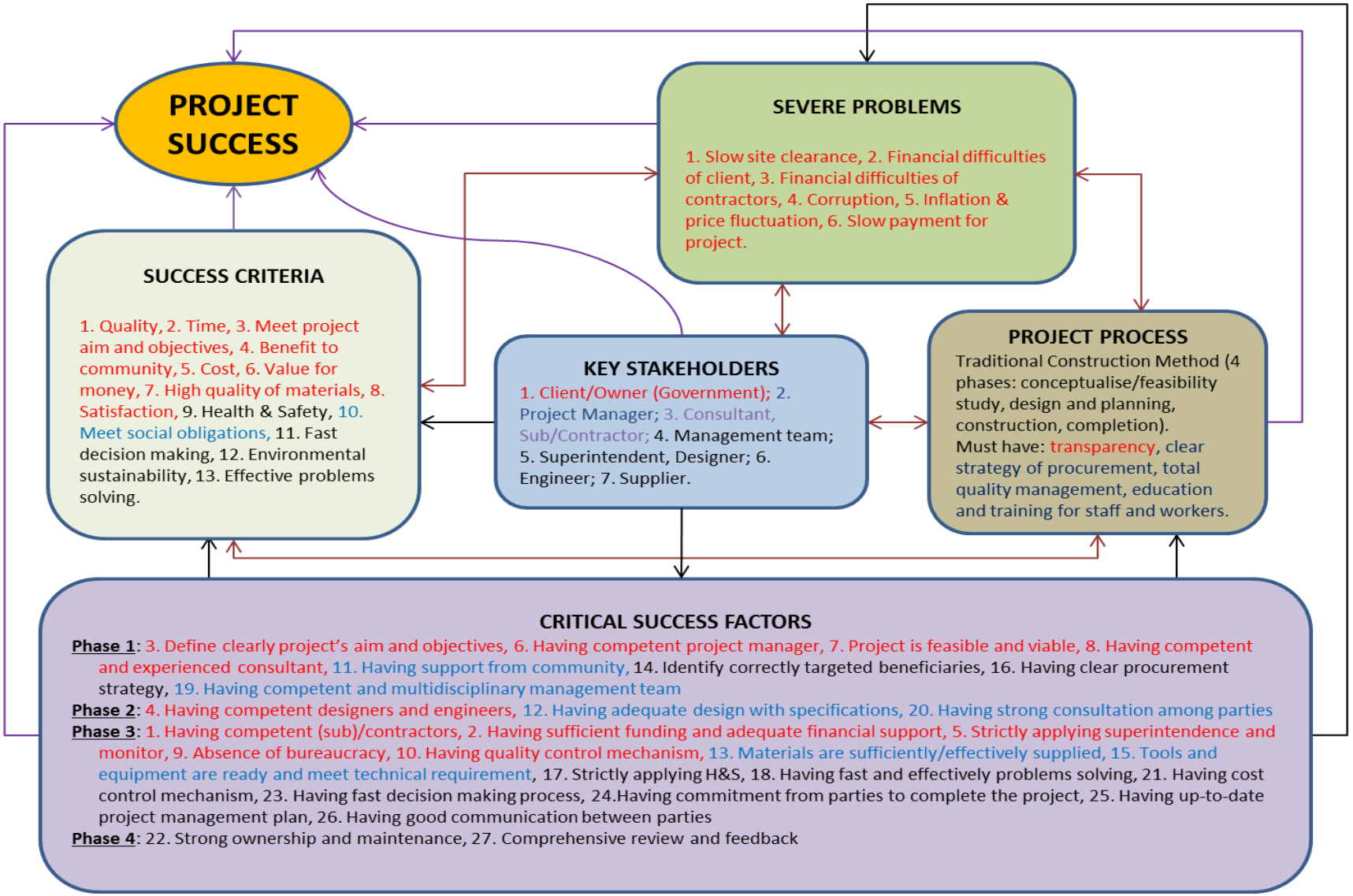

Figure 6.1: The final framework, developed by the researcher for this thesis.

CHAPTER VII FRAMEWORK VERIFICATION AND VALIDATION

7.1 Introduction

In the previous chapter, the data collected from the survey has been analysed and discussed in details. The validated items have been gathered and presented in the final framework which has been revised to suit the needs of current practice. Although the usefulness of the framework, which has been developed for this study, can only be eventually established through actual application and implementation in a live public transport development project, it is significant to test its potential practical value for those projects in Vietnam and the VCI. The aim is to ensure that the research study meets its intended requirements in terms of the concept and methods employed.

In the context of this research, 'verification' means evaluating whether the framework properly addresses the factors that strongly influence the delivery and outcome of public transport development projects in Vietnam. On the other hand, 'validation' means evaluating whether the framework realistically and reasonably meets the needs of stakeholders who are working in the VCI, in terms of acceptance and adoption for managing and implementing public transport development projects in the real world. In this chapter, it presents and analyses the feedbacks collected from interviewing experts in order to verify and validate the final framework of this research.

There are eight independent practitioners whom have been selected to provide expert opinions regarding the practical value of the framework in this study. They have been working in the VCI and public transport development projects in Vietnam during the last 10-20 years. Also they are on top of their organisation and powerful enough to have very strong influences on project outcomes. There are four foreigners – two project managers of two consultant firms; the other two are contractors (general director/project manager) of two construction corporations. There are four Vietnamese – two of them are contractors (general director/project manager) of two state-owned construction corporations, and the other two are project managers of two different PMUs who are working on behalf of the Vietnamese government in managing public transport development projects.

The interviews have been taken face-to-face and one-to-one. The length of the interviews is from half up to one and a half hour. The length depends on how much more information the experts want to tell and express their own opinions during the interview when they answered the main questions. The interviewees were explained the background of the research, the methodology employed to develop the framework with the key elements, the presentation of the framework with the specific role of each element, the interactions and interrelations between these elements, and how the framework can be used. Each expert was asked to comment on the success framework based on the following issues:

1. Completeness and presentation of the framework;
2. Usefulness of the framework for both Vietnamese and foreign stakeholders in the Vietnamese public transport sector;
3. Its utilisation in terms of application and implementation in the real world;
4. Checking the most important factors (only one factor for each element);
5. Checking the influences of business culture and transparency in current practice;
6. Other methods to improve the success of those projects; and
7. Suggestions and recommendations to improve the framework in future projects.

The following section will discuss the experts' feedbacks in this study.

7.2 Discussion of feedbacks

A consensus has been achieved among the experts regarding their opinions and views about the framework.

Firstly, all the experts believed that the framework contains the principles of project management which, in this situation, are the five main elements. Each element has a specific and unique role which has been reconfirmed by the experts. In addition, the experts agreed with the author that it is necessary to present the five key elements together within the framework to provide a complete picture of project success with a clear strategy of project management. The experts confirmed that the framework is fully complete and it provides a map with clear guidance of how to successfully deliver public transport development projects in Vietnam.

Furthermore, when being asked about the presentation of the framework, the experts all agreed that the layout is logical and shows clearly the links between these elements. It is easy for them to follow and understand the detail and the role of each element during the management and implementation process. It can be seen that the first objective has been achieved. The completeness and presentation of the framework have been validated by the experts in this study.

In addition, they also believed that the framework is very useful and helpful for achieving more successful outcomes when being applied in future projects. The experts confirmed that the framework provides a strong assistance to them and other stakeholders who are working in the VCI – especially the foreigners – with all necessary information in order to improve and achieve success in their own projects.

Looking at the framework, the experts confirmed that it not only provides the understanding of the most severe problems in current practice, or the understanding of the most important stakeholders who have strongest influences on project outcomes, inclusive of the experts themselves; but it also provides the understanding of critical factors and methods which need to be applied across specific phases during the project lifecycle to achieve the targeted standards – as known as success criteria. The usefulness of the framework for both Vietnamese and foreign stakeholders in public transport development projects has been validated by the experts in this study. It can be seen that the second objective has been achieved.

In this study, the potential application and implementation of the framework in practice has also been validated by the experts. After listening the author presenting how to potentially use the framework as a ‘checklist’, they all agreed that the framework can be adopted and applied in a real live project to obtain significant improvement in project delivery. Nevertheless, they also contributed their own thought of how to apply the framework themselves.

In this research, the framework has been developed for project delivery with the process which has been presented as a series of activities. According to the experts, at each specific phase during this process, project participants can use work-breakdown-structure to apply a set of critical factors which have already been specified and allocated in that phase to achieve better project results. The presentation of the factors across the specific phases within the framework provides them with the necessary

solutions to achieve success. However, they also realised the challenge of making sure all those factors available at the right time and ready to be used, while it is also difficult to make sure that transparency is present at anytime and anywhere during the process.

But they are confident that a relevant strategy for procurement and an adequate training program for their staff and workers can be properly prepared. The total quality management would also be applied throughout the process too. In the end, they can use the criteria which are presented in the framework as a whole standard for evaluating how well their project has been managed and achieved. In fact, these criteria must be addressed and achieved a common agreement from all the key stakeholders at the very early stage of the process, as 'must have' for safeguarding project success, and the experts said this can be done, albeit not easy.

At the beginning of the process, according to the foreign experts, they can focus on the key stakeholders who are Vietnamese and carefully study severe problems that are presented within the framework. Doing so will help them to come up with solutions to avoid or mitigate those problems if being met or encountered during the process; and solutions to better cooperate with key stakeholders in Vietnam, where has an unique and special business culture, to avoid misunderstandings or unnecessary conflicts. The experts said they can also use the critical success factors provided in the framework and analyse how these could help to cope with the problems. All the above will contribute to a smoother project management and implementation process then, as a result, to improve the achievement of overall project success.

In fact, when commented on the practicalities of trying to use and apply the framework into practice, all the Vietnamese experts said that they do not see any difficulties or hurdles to do so. However, the foreign experts said the use of the framework might be limited by the poor working attitude and lack of collaboration from their Vietnamese partners. While these might be valid concerns, as discussed in Chapter 5, the presentation of each element within the framework gives a clear message to project participants. Thus, this will raise awareness from Vietnamese stakeholders so that they will put more efforts on a project with greater responsibility, commitment and these will be resulting in better working attitude and more effective collaborations with foreign stakeholders. In this research, the final framework has been confirmed and validated by the experts as a valuable tool that can be applied in future projects to assist project

participants to achieve better success. It can be seen that the third objective has been achieved.

The following discussions will give more details about the experts' feedbacks regarding the most important factors within each key element of the framework.

The most important key stakeholder

The results collected by the interviews have confirmed what have been found from the questionnaire survey when Client, Project Manager and Contractor are considered as the most important stakeholders by the experts. In addition, they also confirmed that the other key stakeholders whom are presented within the framework are actually having very strong influences on the outcomes of public transport development projects in Vietnam.

In this study, when being asked about the most important stakeholder in current practice, six out of eight experts pointed out that Project Manager is the most important one, because they think a competent project manager will lead a project to the final success. In fact, what they described the role of a project manager is similar to what have been identified and reported in the literature review Chapter. However, this result is different from what have been collected from the questionnaire survey when Project Manager has been ranked 2nd regarding their importance and influence to project outcomes. To explain for this difference, it can be seen that all the experts are actually project manager but they are standing on the different positions and working for the different companies. Therefore, they see themselves as Project Manager in general who plays the most vital role in their projects.

Meanwhile, the rest two experts thought Contractor is, however, the most important one in those projects and it is interesting when they are all the project manager/general director of two construction corporations (the role as contractor). The reason for this option is because they believed contractor is the one who build the infrastructure and they are also the one who mostly controls the quality, cost and progress of the project. Therefore, a competent contractor, according to their opinions, is the most important stakeholder who has strongest influences on project outcomes.

Although all the experts confirmed the vital role of the Vietnamese government (as the client), however, according to the experts' opinion, Client is not the most important key stakeholder who has strongest influences on current public transport development projects. In this study, Client has been considered as the 2nd most important stakeholder after the first choice as described above. It can be seen that the results collected from the interviews are slightly different from the questionnaire survey when Client has been ranked as the most important stakeholder. But it is understandable with the results in this situation, because there are only eight experts taken part in the interviews to give their own opinions, besides they all confirmed the role of Client is vital for project outcomes. Therefore, in general, it can be seen that the result collected from the questionnaire is still valid, with Client as the most important stakeholder then following by Project Manager and Sub/Contractor.

Finally, the experts all agreed that 'Key Stakeholders' which can be perceived as 'Human factor' is the most important element and has strongest influences on the success or failure of Vietnamese public transport development projects. Hence they confirmed that it is relevant to put this element at the centre of the framework.

The most severe problem

The experts all agreed and confirmed that the problems which are presented within the framework are really serious and having very negative impacts on the outcomes of current projects. Also, they did not include or identify any more problems which they think are missing from the list.

In this study, when being asked to place their thought on the worst problem in Vietnamese public transport development projects, four experts said 'Human related factors', three experts said 'Site clearance' and the last one said 'Insufficient funding' (poor budget and the government has not focused to invest in the most urgent and important projects).

Firstly, the experts who chose the problem 'Human related factors' said that the Vietnamese transport sector is having troubles from the top (the government) to the bottom (workers who are working at the construction site) in implementing and managing projects. This is similar to what have been identified from the questionnaire

survey and from the findings of Truong et al. (2004) that many problems which are considered as the most serious in Vietnamese large construction projects have been usually caused by or related to human factor.

Secondly, the experts who chose ‘Site clearance’ as the worst problem provided an example that officials who are working on ‘site clearance’ usually have issues with corruption and bribery while land owners keep prolonging their occupation on the construction site because of their unhappiness with the site compensation. All these contribute to the increase in expenditure on the project while the progress is severely slowed down, and then cause failure of many projects in practice.

Thirdly, the last expert who chose ‘Insufficient funding’ as the worst problem said the budget for transport infrastructures is limited but being spread throughout the country and being spent on many projects. Therefore, as a consequence, there is lacking of investment in the most urgent projects while many less important and unnecessary projects are still being built for political or private gains. Meanwhile, there are many projects which have been delayed due to lack of capital. These reveal a weakness of the Vietnamese government in managing and controlling the limited budget which is funding for development projects, besides the lack of responsibility from officials with the severe corruption.

With the above results and discussions, it can be seen that they have reflected the social aspect with related issues in Vietnam which there has not been proper solutions to cope with.

In addition, the results collected from the interviews have shown that there are two different situations between Vietnamese contractors and foreign contractors when they were asked about difficulties in finance. On one hand, the foreign contractors do not think this is the problem, because firstly they are powerful enough to handle everything on their own, and secondly their payment comes directly from their country where supports and provides ODA loans for public transport projects in Vietnam. Therefore, they do not need to worry about finance. On the other hand, the Vietnamese contractors are still struggling with their finance because of slow payment from the client. In addition, it is very complicated for them to get the full payment after a specific amount of work has been done, because they need full 18 signatures from different parties in

their paper work for the money to be cleared. Missing one will cause them enough trouble to sort it out and get what they should be paid.

Moreover, the Vietnamese experts also complained about superintendents in public transport development projects who have been usually asking for money as an exchange for signature in the appraisal paper work and causing hassles during the construction process. As previously discussed, Vietnamese contractors cannot get the payment from the client even if a single signature from the superintendent is missing. In addition, if anything happens (accidents occurred for example or redone works), the superintendent is not responsible for finance and compensation because of the legislation (reported by the Vietnamese experts as superintendence law) which is claimed not fair and practical. Thus the contractors have to deal with the financial issues on their own, and the Vietnamese contractor experts see it is very critical for their organisation. Therefore, it can be seen that the problem 'Financial difficulties from contractors' will be modified as 'from Vietnamese contractors' only and presented in the framework.

In general, it can be seen that the results collected from the interviews are similar to what have been found and confirmed from the questionnaire survey regarding the most severe problems which are lying in current practice.

The most important criterion for evaluating success

In this study, the experts all confirmed that the criteria which are presented within the framework are important for evaluating the success of public transport development projects Vietnam. However, they pointed out that Health and Safety is another criterion which should be highlighted as 'vital' for evaluating the success of any construction project. There are four experts who rated Health and Safety as the most important criterion and they believe if any accidents or fatal damages occur, a project is not considered successful regardless of other criteria have been achieved. In addition, according to those experts, Health and Safety is also considered 'progress', because if there is no accident happens, the project will be likely finished on time. The result collected from the interviews has confirmed that Health and Safety should be included and highlighted among the most important criteria in the success framework of this research.

The last four experts believe that quality or time is actually the most important criterion for evaluating success in this study. They explained that Time is money and Quality is vital for public users besides meeting a long term utilisation of final product during the socioeconomic development process.

Moreover, it is interesting when asking the experts about Satisfaction in current projects. They all confirmed the relevance and importance of this criterion for evaluating success. In Vietnam, it is considered a new standard and just mentioned in transport projects during the last couple of years. However, it has been confirmed really important for all stakeholders in order to achieve a completely successful project.

It can be seen that the results collected from the interviews have confirmed what have been found from the questionnaire survey about the most important criteria for evaluating success of Vietnamese public transport development projects.

The most important factor/method which must be applied during project lifecycle in order to achieve success

In this study, the experts all confirmed the critical factors and the methods which are presented within the framework are very important to improve and achieve the success of current projects in Vietnam. In addition, the results collected from the interviews are similar to what have been found from the questionnaire survey regarding the most important factors for achieving success of public transport development projects.

Five experts believe that ‘Human’ is the centre of everything – as already discussed and analysed about the element ‘Key Stakeholders’ of the framework – therefore they think the most important factor which can help to achieve the success of public transport construction projects in Vietnam is also ‘Human factor’. This is similar to the result collected by Nguyen et al. (2004) when they pointed out that critical success factors for Vietnamese large construction projects are mostly related to human. In this study, according to these five experts, ‘Human factor’ in this situation is not only about the Competence of each project participant, the Commitment and Responsibility they are willing to take to complete the project, but also they have to perform well under the international environment of public transport projects with professional and positive attitude.

Meanwhile, the rest three experts think that Defining clearly project aim and objectives (including well feasibility studied), or Having sufficient funding for project, or Strictly applying superintendence and monitoring, is, however, the most critical factor for project success. To explain for the first choice, the Vietnamese project manager expert said there are wastages and lack of focus in investment in urgent public transport development projects. Therefore, when conducting feasibility study, it has to make sure and guarantee that project is really important and urgently needed in order to deal with serious transport problems, while it has to fit the long term plans for the social economics development. This is similar to what MGI (2012) suggested to improve the effectiveness and success of construction projects in Vietnam.

For the second choice, the foreign consultant expert said money is the key for the success of any projects in Vietnam. Without money, site clearance will not be done in practice and contractors will face many difficulties in implementing and building the infrastructure.

Finally, the Vietnamese contractor expert chooses superintendence and monitoring as the most important factor, because he said it decides 80% to 90% the quality of the product which is the most important criterion for measuring success (in his own opinion) then following by Health and Safety. According to this expert, Supervision can help to achieve both these two criteria (Quality and H&S) if it is strictly applied in any projects. Also he is the one who blamed superintendents the most for their lack of responsibility – particularly in the financial terms – when anything goes wrong during the project.

The influences of transparency and business culture in the Vietnamese public construction/transport sector

When being asked about this question, firstly, the Vietnamese experts said the lack of transparency has caused serious problems in choosing the right people for the right projects besides judging the quality and accountability of those projects. They gave examples, a president of a province can come to ask officials from the government to give him a budget to fund a local transport project, or a contractor will ask for a package or more of big transport projects which are currently prepared for tenders. The officials

can use their power to force the agency (PMUs) that is responsible for tenders to accept the contractor, or the MoF and the MPI to accept the proposal to build a new local transport project which is in many cases are not really necessary at the moment. In exchange, the officials will receive benefits in the future if the contractor is chosen or the proposal is accepted, and most of the time the exchange is money or valuable assets. In any cases, the acceptance has been officially done by legal documents, reported by the experts.

In addition, as previously discussed in Chapter 2 and Chapter 6, many Vietnamese people are doing business based on their personal relationships. Once again, the experts have confirmed this and blamed the lack of transparency has caused many problems for public transport development projects, while it is very difficult to change the situation in near future. This mostly creates wastages and lack of money for funding the right projects besides choosing the right people.

During the interviews, when both the Vietnamese and foreign experts were asked about the most difficulty when working with their foreign partners, all admitted that the differences in business culture – in this case reported is bureaucracy, corruption and lack of responsibility from parties – have caused many serious troubles in managing and completing transport projects. The Vietnamese experts said their foreign partners do not clearly understand the Vietnamese business culture and therefore causing problems when working together. In contrast, the foreign experts complained about the intricate documents they have to deal with as it is too much and the legal procedure slowdowns project processes, besides deteriorating their enthusiasm and motivation. Therefore, time delay is usually occurred in many projects because of the slow decision making process.

Moreover, not only the foreign experts but also the Vietnamese contractor experts feel the same when they need approvals for payment and other works. In fact, the longer the delay of public transport development projects, the more severe consequences are generated for the community and also the government, all the experts said. Thus, it is critical if Vietnamese officials can change their mind and think about the benefits of those projects will bring about when completed on time. The Vietnamese experts said officials do not think this way and they think about the benefits they will get only. It is also considered lack of responsibility and support from top management.

It is interesting when the Vietnamese experts discussed the lack of responsibility from project stakeholders. Another aspect of the Vietnamese business culture has been revealed as the “Tenure” thoughts from Vietnamese officials. As explained by the Vietnamese experts, Vietnamese officials have their tenure in a specific period of time which is from five to ten years if they are selected in the next election. Therefore, when a new person is appointed, he/she cares only about getting as much benefits as possible from their position, and they might change plans which have been created by their predecessors in order to fit their purposes. Otherwise they do not care about other things such as quality or health and safety or long term planning as previous reported by the experts.

Because of this issue, bureaucracy and corruption have been generated and become severe in Vietnam. The Vietnamese experts said this is one of the reasons why in many projects, contractors who lack capability and competence to do the job are still chosen, because they have bribed officials to win bid in those projects. If they cannot do the job, the bidding process and choosing new contractors will be done again in the same manner, as reported by the Vietnamese experts. That is why time delays and poor quality can be seen in almost any transport projects, especially in the countryside or rural areas where the supervision and monitoring are very poor, the Vietnamese experts said.

Things become worst when an incident occurs – a beam collapses for instant and causes fatal accident – the Vietnamese experts said. No one is willing to take responsibility and the delay of that project seems to be forever. It takes very long time to find out what the original cause of the incident is and then decide who will be responsible for that. Because of a long procedure with piles of documents and paper works – most of the time is legal and contractual documents – a project can be delayed for months or a year until everything is sorted and contractors can start constructing the remaining work. It can be seen that the lack of responsibility is severe in the VCI. On the other hand, as the Vietnamese experts pointed out, laws are not properly applied in Vietnam, and because of corruption and bureaucracy, Vietnamese people tend to bribe officials to get away from their mistakes. Therefore, it contributes more to the severity of lacking responsibility from project participants in current practice.

The results collected from the interviews have reconfirmed the findings from the questionnaire survey in this research are valid regarding the negative influences of the Vietnamese business culture and the lack of transparency in current practice. In addition, it has been confirmed and validated that all the items which are presented within the framework have very strong impacts on the outcomes of public transport development projects. Therefore, it can be seen that the next two objectives have been achieved.

The last two questions which the experts were asked are how to improve the success of public transport development projects in Vietnam besides their recommendation to improve the framework. Firstly, all the experts said the framework is solid and really useful therefore they did not give any suggestion or recommendation in order to improve the framework as they thought it is unnecessary to do so. Secondly, it is not surprising when, once again, the experts repeated of what they believe is the most important factor/method such as improving human resources, applying foreign standards and methods in the VCI, and focusing on procurement strategy in order to improve success of future projects.

It is clearly understood why improving Human resources is the first to come and considered as the most important method for the success of future projects. As previously discussed, Human is the most important element and standing in the centre of everything. Therefore, improving Human resources will improve everything from policies, management and construction. Both the Vietnamese and foreign experts recommended that having proper education and training programs besides raising awareness of both the government and community about having talented people are critical not only for the transport sector, but also for the nation in a long term of sustainable development.

For example, according to the Vietnamese experts, a problem which causes them many troubles with transport projects is that officials who develop policies and standards are not having practical experiences, ‘but just only theories and imaginations’. Those people can be professors, PhD or master level, but they only work in their office without the actual knowledge of what is happening in practice. Therefore, they develop and propose policies which are not suitable to apply or create many difficulties when applying in transport projects. The Vietnamese experts suggested that people should be

replaced by ones who have strong experiences with the VCI and have been working in real transport projects during the last 20 years. Because those experts understand exactly the problems out there and know exactly what project participants need in order to deliver a successful project. This issue is not only reported in the transport sector but also everywhere among Ministries and the Vietnamese government about the policy makers – the experts said. If the Vietnamese government can do this, there will be huge benefits in the future for the VCI particularly and for the national economy generally.

In addition, all the Vietnamese experts and one foreign expert (the contractor) agreed that Vietnamese people are very far behind from their foreign partners in terms of working attitude, modern technology possession-manipulation and management know how. Therefore, in order to improve success of future projects, the experts said Vietnamese people have to learn from the foreigners and improve themselves, especially in terms of professional working manner and meeting foreign standards. The experts also suggested that is necessary to employ and apply foreign standards in Vietnamese projects, because this will enhance project quality with better health and safety conditions. Vietnamese people will have to learn from foreigners in how to use and manipulate modern technologies in design and construction, and also how to deliver a construction project successfully.

Finally, they think the BOT procurement method should be used more in future projects in order to avoid time delays, cost overrun, poor superintendence and poor quality standards. They believe they will manage their projects well with their own money, choosing the right superintendents for their projects, and having their projects completed on time, within budget and according to quality standards.

It can be seen that the recommendations to improve success of Vietnamese public transport development projects are similar to what have been found from the questionnaire survey, and also to the methods/factors which are presented within the framework. In addition, the solidity (usefulness and completeness) of the framework in practice have been validated. It can be seen that the last two objectives of this study have been achieved.

7.3 The Success Framework

Based on the results collected, there are just only two minor changes which need to be amended in the final framework: firstly, to highlight and include 'Health and Safety' as one of the most important criteria for evaluating success of public transport development projects in Vietnam; and secondly, to modify the severe problem 'Financial difficulties of contractors' to 'Financial difficulties of Vietnamese contractors'. Apart from that, all the layout and details of the framework stay intact.

The Success Framework, eventually, has been achieved as shown in Figure 7.1. It contains all the details which have been verified and validated in this study within the five main elements which are interacting and interrelating to each other – detailed discussions have been provided in Chapters 3, 5 and 6 of the thesis. The hypothesis of this research has been confirmed valid by the experts that those elements and their connections should be viewed holistically and encompassed simultaneously in order to accomplish a completely full picture of project success. In this case, the achievement of the framework provides important insights of the VCI, particularly the public transport sector with Vietnam as an emerging economy, and the project management practices with related issues here.

Beyond that, the framework also provides a clear strategy of how to achieve success during the project lifecycle whilst shifting the way people perceive success in a logical and innovative manner. These have not been done in any previous studies and therefore the achievement of the framework provides significant implications for both theoretical and practical project management – detailed discussions will be provided in the next chapter plus a clear indication of how the framework can be used.

7.4 Summary

The final framework has been validated by the experts in this study and being confirmed as a valuable tool to assist project participants in the Vietnamese public transport sector, to improve and achieve success. All the details of the framework have been verified and validated that they are relevant and can be applied in a real live project. In addition, a common consensus has been achieved among the experts regarding the completeness and usefulness of the framework. The presentation of the framework with connections has also been validated and confirmed as logical and understandable.

In this research, the results collected from the experts' opinion on the validation exercise, concluded that the framework has achieved its primary purpose, which is to provide a novel approach for stakeholders in Vietnam successfully managing public transport development projects. In addition, it has practical value for capturing and understanding the key influent elements that affect the successful management and implementation of projects. Lastly it challenges the conventional thinking on project success whilst unlocking other opportunities for change. The next chapter will discuss the empirical findings of this study further when compared to the existing theories with implications.

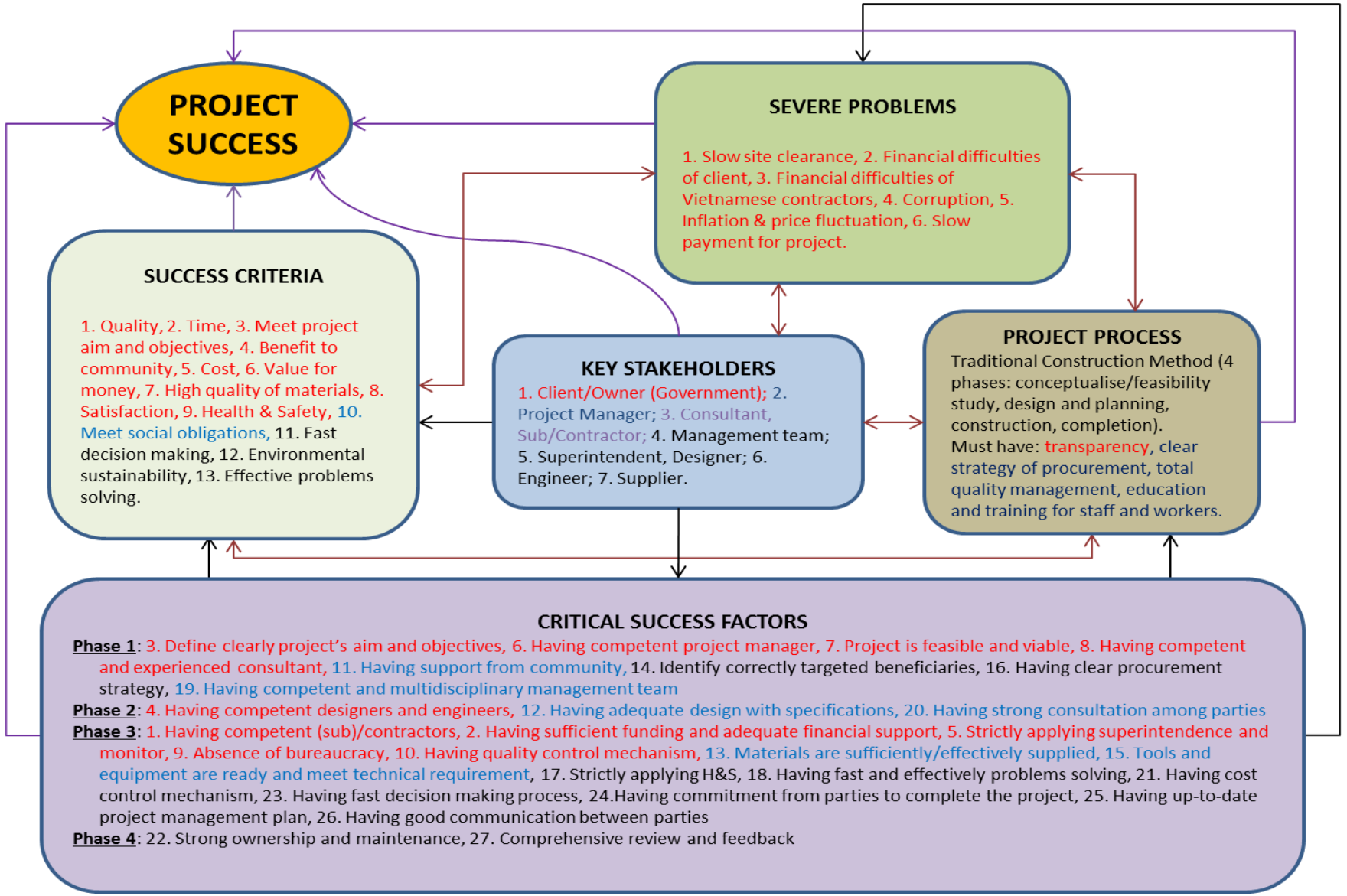

Figure 7.1: The Success Framework for managing Public Transport Development Projects in Vietnam, Developed by the Author.

CHAPTER VIII DISCUSSION

8.1 Introduction

In the previous chapter, the final framework has been verified and validated with minor changes which have been made in order to achieve the Success Framework for managing public transport development projects in Vietnam. This chapter will discuss further the empirical findings of the research and compared with existing theories which have been presented in the previous chapters.

8.2 Comparing empirical findings with existing theories

8.2.1 Confirmation of existing theories

As shown in Figure 7.1, it can be seen that project success includes all the principles of project management which is underlined by the process of planning and control and being considered as indispensable for the execution of any project (de Wit, 1988; Munns and Bjeirmi, 1996; Baccarini, 1999; PMI, 2008). In fact, project management is a tool which is widely applied in order to assist to achieve project aims and objectives. Success is the final destination which project participants are trying to reach by employing the techniques of project management.

With the understanding and identification of the five main elements such as Success Criteria, Critical Success Factors, Project Process, Key Stakeholders and Severe Problems, the empirical findings of this research have confirmed the view of many authors (de Wit, 1988; Pinto and Mantel, 1990; Sanvido et al., 1992; Shenhar et al., 1996; Ogunlana et al., 1996; Munns and Bjeirmi, 1996; Atkinson, 1999; Baccarini, 1999; Ofori, 2000; Chan et al., 2002a and 2002b; Chua et al., 2003; Truong et al., 2004; Chan and Chan, 2004; Chan et al., 2004; Nguyen et al., 2004; Diallo and Thuilier, 2005; Yang, 2006; OGN, 2007; PMI, 2008; Le et al., 2008; Do and Tun, 2008; Nguyen et al., 2009; Takim, 2009; Toor and Ogunlana, 2010; Ling and Bui, 2010; and so on) whom have been mentioned in Chapters 3 and 5, that each element is an important force of project management which significantly influences and contributes to the achievement of project success.

In the Vietnamese context, which is during the transitional process from a centrally planned market to a free market economy, the interactions and interrelations between those five elements within a project are strong and they have significant impacts on project outcomes. Each element has a specific role interacting with the others during the project management and implementation process with a prime purpose which is to achieve the final success. For instance, the mutual impacts between 'Key Stakeholders' and 'Severe Problems' during the 'Project Process' or the application of 'Critical Success Factors' to cope with 'Severe Problems' whilst achieving 'Success Criteria' during the 'Project Process'.

The combination and presentation of these elements in detailed within a framework provide a clear strategy for project participants, whilst project success is the target which will be achieved when applying this strategy in practice. The findings of this research, therefore, have reflected the theory of Chan et al. (2004a) when they argued that project success is a function of project-related factors, albeit with the combination of other elements, which are interrelated and intra-related.

In this research, the identification of the criteria for evaluating success of Vietnamese public transport development projects has confirmed the theory of Baccarini (1999). He argued that the overall success of a project is achieved and combined by both the success of project management and the final product. In the Vietnamese context, the successful achievement of project management can guarantee a project to be finished on time, within budget and accordingly technical specifications, whilst the successful product can guarantee the project to serve the public to accelerate the socioeconomic development purposes. As a result, these contribute to the overall success of the project in terms of value for money, benefit to community, social obligations and environmental sustainability. It can be seen that these findings are reflecting the characteristic of Vietnam as a developing country where project success is strictly related to the basic standards of management and the requirements of socioeconomic development process.

In addition, the empirical findings of this research have also confirmed that the use of success criteria for evaluating project performance and outcomes is important and being considered as 'must have' to ensure all the efforts of project planning, management and implementation are benchmarked. For instance, planning, control and monitoring of

process against the ‘iron triangle’ were found to be applied in most projects, although to different degrees and approach. The criteria such as Satisfaction, Health and Safety, and Meet project aims and objectives have also been confirmed very important and being considered as ‘basic criteria’ for safeguarding the success of public transport development projects in Vietnam.

These have reflected the view and findings of many authors (Pinto and Mantel, 1990; Freeman and Beale, 1992; Shenhar et al., 1996; Lipovesky et al., 1997; Levy, 2002; Rad, 2003; Diallo and Thullier, 2005; Do and Tun, 2008; and so on) in previous studies regarding a similar set of some criteria for measuring success of a (construction) project. In the Vietnamese context, the findings of this research have confirmed that regardless of the environmental differences or types or stakeholders, those criteria can be considered as common knowledge for success judgement and they must be achieved in any projects.

The identification of the severe problems which have strong influences on the outcomes of Vietnamese public transport development projects in this research has confirmed the views and findings of Ogunlana (1996), Ofori (2000), Chua et al. (2003), Frimpong et al. (2003), Truong et al. (2004) and Le et al. (2008) in the construction industry of developing countries. The empirical findings have confirmed that Vietnam is seriously struggling with financial difficulties from both the government and state-owned contractors in terms of sufficiently funding for infrastructure projects and paying wages for staff and workers on time, whilst they have to face high inflation rates and price fluctuations.

According to Le et al.’s (2008) findings, the financial problems were ranked in the top four of the most severe problems in large construction projects in Vietnam. In practice, the lack of capital from both the client and contractors has created many difficulties in implementing and carrying out construction projects. Kumaraswamy and Zhang (2001) state that developing countries usually lack mature capital markets. Louzolo-Kimbembe and Pettang (2006) pointed out that one of two major problems which are commonly encountered in the process of construction in developing countries is the difficulty of having sufficient budgets that can continuously support a construction project during its lifecycle. Therefore, the results collected in this study come as no surprised when the problems which relate to finance in Vietnam are still among the worst.

Moreover, ‘Slow site clearance’ was ranked 1st with the highest degree of influence and ranked 2nd with the high degree of occurrence in large construction projects in Vietnam, according to the findings from Truong et al. (2004). The empirical findings of this study have also confirmed that ‘Slow site clearance’ is still the worst problem which has been prolonged in the VCI for years and had severe impacts on public transport development projects. In addition, the lack of competence and experiences from project participants and corruptions are the main problems which also contribute greatly to the poor result of many projects. These reflect the characteristics of a developing country with typical problems which are usually met in large public infrastructure projects.

In this research, the identification of the traditional delivery route, which has been confirmed as the most relevant and being widely used in public transport development projects, has reflected the complication of those projects in terms of management and implementation due to their characteristics such as large in size, generously financial investment, modern and appropriate technology required and many parties involved. Moreover, this finding has also reflected the limited capabilities of the Vietnamese government and state-owned enterprises in self-handling those projects with a more efficient and effective way.

The empirical findings of this research have identified that the role of Client (the Vietnamese government) is vital and being considered as the most important stakeholder in public transport development projects. Without a client, there will be no project. Client is the one who not only pays for a project but also decides the design and scope of that project. Their support during the management and implementation process of the project is essential and this has strong influences on the achievement of project success. Project Managers, Consultants and Contractors have been confirmed also very important when working together in order to deliver a project to the final success. These stakeholders are considered as the key to success in current projects. In addition, others such as Management team, Superintendents, Designers, Engineers and Suppliers have also been considered really important and they have very strong impacts in project outcomes. These findings have reflected the view of Gameson (1991) about client generally and Nguyen et al. (2009) about key stakeholders in the VCI particularly.

The identification of the critical success factors in this research has confirmed the findings of Nguyen et al. (2004), Do and Tun (2008) and Ling and Bui (2010) in the

VCI and many other authors (Slevin and Pinto, 1986; Barry and Randolph, 1988; Sanvido et al., 1992; Belassi and Tukel, 1996; Lim and Mohamed, 1999; Davies, 2002; Chan et al., 2002a and 2002b; Diallo and Thuillier, 2005; Yang, 2006; Kulatunga et al., 2009; and so on) in the construction industry worldwide. It can be recognised that in order to achieve success, project' aims and objectives have to be clearly defined, have sufficient funding and adequate financial support to that project, have competent and experienced individuals and organisations who participate in that project, have commitment from these people to complete the project, have strong communication between these people, have strong consultation between these people and the client (the government), have support from the community, have adequate design with specifications, have superintendence and monitoring strictly applied, have health and safety conditions strictly applied, and so on. These critical factors must be applied and implemented across the specific phases during the project lifecycle. In the Vietnamese context, those factors are considered as common knowledge which is required to achieve the success of public transport development projects, whilst coping with the severe problems which are lying in current practice.

Especially, the factor 'Have sufficient funding and adequate financial support' has been rated with the highest value of a mean in this study whilst it has been chosen as the 2nd most critical success factors from the respondents. Nguyen et al. (2004) has achieved the same result in their study regarding the most critical success factors for large construction projects in Vietnam. They pointed out that "Adequate funding throughout the project" was ranked as the 2nd most important factor. These results indicate that having enough money is still the most important key to initiate, carry out and successfully complete any public transport development project. As previously discussed, having sufficient funding is a decisive factor for a project to be completed on time with high quality standards. Therefore, it can be seen why finance related issues has been highly rated in this study and it is reflecting correctly the current perspective of Vietnam.

Finally, the empirical findings of this research have confirmed the theories of Belassi and Tunkel (1996), Tam (1999), Yang (2006) and Ling and Bui (2010) that it is necessary to identify and understand both the causes of failure and success within a project. The identification of severe problems and critical factors reflects an opportunity to improve and achieve better success of that project. This allows project participants to

avoid the problems or to prepare solutions to cope with them, whilst applying the critical factors to achieve success. In many cases, the critical factors also help to deal with the severe problems. These contribute to the final success of any project.

In summary, the empirical findings have confirmed the existing theories of project management, project success and related issues which have been adopted from previous studies then conceptualised to develop the Success Framework for managing public transport development projects in Vietnam. The following section will discuss new findings of this research.

8.2.2 New findings

Although there are common findings from this research compared to the existing theories of project success, as discussed in the previous section, there are unique features of its own, especially when the verified and validated items are reflecting the uniqueness of the VCI which is during the transitional process from a centrally planned market to a free market economy.

Firstly, the empirical findings have identified that the Vietnamese government plays a dominant role in the domestic market and its impacts are very strong on the outcomes of many projects. These have confirmed the views and findings of Ling and Bui (2010) that it is because of the existence of the centrally planned economy which is strictly controlled by the government for a very long time. However, this research contributes further to the understanding of stakeholders' impacts on public transport development projects in the developing and transitional economies by identifying explicitly that the government is the most important stakeholder in current practice. For instance, officials and authorities can use their power to impose their impacts on many projects in order to gain political or private benefits. Many unnecessary projects have been initiated and built while important projects are delayed because of insufficient funding and lacking of responsibility from parties, especially from the government and its slow decision making process.

None of the previous studies about the VCI has identified or come up with this result although some of them did recognise the importance of the government and its influences on large construction projects. In fact, in the mainstream of project success

literature, project manager is the one who has been identified and considered as the most important stakeholder in most projects by previous studies. Therefore, the empirical findings of this research reflect the characteristic of Vietnam as a developing country and still being strongly influenced by the centrally planned market economy with the domination of the government in almost every sector.

In addition, the findings of this research have confirmed the views and findings of Nguyen et al. (2004), Truong et al. (2004) and Le et al. (2008) about the VCI that human related factors are the core which mostly influences the success or failure of many projects. In the Vietnamese context, it can be seen that the most severe problems and the most critical factors are caused by or related to humans. The empirical findings have also identified and confirmed that education and training are very important to improve the 'human factor' and project success in Vietnam. Nevertheless, none of the previous studies identified that having Competence from project participants is the most important component to achieve success in the VCI. In fact, in order to achieve project success, it requires great efforts from project participants and necessary activities during a long and complicated process. Therefore, Competence in this case has been considered as 'must have' to avoid and mitigate problems whilst improving project success.

Especially, in this research, 'Having competent contractors' has been chosen as the most important factor by the respondents and ranked 2nd as the most important factor based on the Likert scale ranking for individuals. This is different from what Nguyen et al. (2004) and Do and Tun (2008) found out in their research. The most important factor according to the above authors was "Competent project manager" or "Competent project designers" respectively. More importantly, these authors did not mention the factor "Competent contractor" in their critical success factors list whilst only Nguyen et al. (2004) came across with "Award bids to the right designer/contractor" and this factor was ranked 7th for its importance to Vietnamese large construction projects.

It has been identified in Chapter 2 that because of the close relationship with the Vietnamese government (client), state-owned contractors have received many important contracts in large construction projects and they are dominating the domestic market. In addition, the empirical findings have also identified and confirmed that state-owned contractors have been struggling with financial difficulties whilst lacking of modern

technology, tools and equipment. Therefore, it can be understood that it does not matter who will be granted the contracts as long as they (contractors) are competent enough to get the job done properly. These reflect the unique characteristics of the VCI during the transitional process which have not been identified or pointed out by the previous studies.

In fact, the findings in this study are different from Nguyen et al. (2004) and Do and Tun (2008). More importantly, there are factors which have not been proposed or mentioned by the above authors in their studies, but those factors have been confirmed critical to the success of current projects in Vietnam such as: Project is feasible and viable, Having quality control mechanism, Strictly applying superintendence and monitoring, and many more. These imply that this research has identified and proposed a more comprehensive set of critical factors than those mentioned above and, based on that, project participants will have a better view about project success with related activities when looking at the framework of this research. As a result, they will have a stronger tool to manage and implement public transport development projects.

Although many problems which were identified from literature have been confirmed also severe in the Vietnamese public transport sector, their degree of severity is not the same. In previous studies, the problem such as corruption was not considered very serious or as main causes for the poor results of construction projects. In this research, it has been confirmed among the most severe problems which have very strong influences on the outcomes of public transport development projects. In addition, this problem has been identified and confirmed that it is representing a main aspect of the Vietnamese business culture. The consequences, which might be generated by this problem, are threatening not only the success of many projects or businesses but also the sustainable development process of the country. It deteriorates the motivation of stakeholders whilst making Vietnam less attractive in foreign investors' eyes. It can be seen that all the above findings were not identified and revealed in the previous studies about the VCI.

On the other hand, many problems which were identified as really severe in large construction projects in Vietnam, but in this study, they have been confirmed as having moderate impacts on public transport development projects. For instance, the empirical findings indicate that 'Inaccurate time and cost estimates' is not among the main causes for failure in current projects. This is different from Truong et al.'s (2004) findings

when the problem 'Inaccurate estimating' was ranked 1st with the highest degree of occurrence and ranked 3rd with a high degree of influence on large construction projects in Vietnam.

In addition, 'Slow decision making process', 'Design changes' and 'Inadequate project management assistance' have been confirmed as not severe in Vietnamese public transport development projects. Nevertheless, according to Truong et al. (2004), the problem 'Slow government permits' was ranked 2nd as a high degree of influence and ranked 4th as a high degree of occurrence; whilst in Le et al. (2008), the problems relate to design and project management were ranked 5th and 2nd respectively for their severe impacts on large construction projects in Vietnam, particularly time delays and cost overruns.

Apparently, the empirical findings of this research have indicated and confirmed that results collected from previous studies about the VCI and large construction projects are not sufficient enough to be fully adopted to successfully managing public transport development projects in Vietnam. In addition, the results collected have also confirmed that although the public transport sector is a sub-sector of the construction industry, it is necessary to separate it from other sub-sectors due to its own characteristics.

In this research, in order to cope with the severe problems and to improve the success of public transport development projects in Vietnam, literature of project management, project success and related issues have been extensively reviewed to find out the most relevant solution to achieve this aim. As previous discussed, there are five elements which have been identified and confirmed as the main forces of project management and they all constitute to the achievement of project success. However, authors in previous studies usually looked at them individually and linked their important roles to project success. In fact, there have been few authors who did look at two elements and combine them within their research. The empirical findings have identified that some frameworks or models which were proposed or developed in previous studies usually presented criteria for measuring success or critical factors for achieving success, or both across different phases of a specific process.

On the other hand, understanding severe problems which have high potential to lead a project to severe consequences has been identified and confirmed critical for project participants to achieve better success. Nevertheless, authors in previous studies simply

looked at problems as a cause of failure and they suggested project participants to avoid or to prepare solutions to cope with. There have been few authors who looked at both problems and critical factors in a single study. They pointed out that understanding both the causes of success and failure will enhance the opportunity to improve project success. Yet, the findings have identified that there has been a lack of focus on the other elements within these studies, especially criteria which are used for measuring success and to against consequences which might be generated by problems.

Moreover, stakeholders whose actions and decisions can lead a project to a success or failure have been identified and confirmed as the core of any projects. Previous studies usually focused on the management of stakeholders within a project and find out how this relates to success achievement. There has been a lack of concern and presentation of stakeholders within a framework or model of project success. Although there is a specific set of stakeholders for a specific project, the findings have identified that their hierarchy of importance is not the same when being applied in different environments and types of project. More importantly, the strong interactions and interrelations between stakeholders and the other elements were missing and not presented in previous frameworks or models of project success.

Similarly to stakeholders, project lifecycle is an integral part of project management and being considered as obvious in any projects. However, with different types of project, there are different processes which can be employed for project delivery. In addition, there are methods which can be applied during the lifecycle in order to cope with problems whilst improving project success. Understanding project process with related activities has been confirmed critical for project participants to achieve success. Previous studies usually focused on the management of procurement or proposed a solution to assist clients to choose the right delivery route for the right project. Yet, the findings have identified that there has been a lack of focus and presentation of project process with the other elements within a framework or model of project success.

This research, therefore, goes beyond the mainstream of management theory for project success, which just only looked at a single element or two of them at most, by combining the five main elements together and presenting them simultaneously within a framework. In fact, the existing theories have identified individual elements but been unable to combine them to provide a complete picture of project success as this study

has done. Therefore, the achievement of the Success Framework with the five main elements and details has an implication on its own right. This contributes further to the body of knowledge of project success with the presentation of the five elements within a framework which have not been done before in any previous studies. It shifts the traditional way of looking at project success from the two main elements 'Success Criteria' and 'Critical Success Factors' to a broader and more comprehensive approach with the presentation of three more elements 'Severe Problems', 'Key Stakeholders' and 'Project Process'.

Especially, for the first time, this research has presented those elements with their connections within a framework which have been discussed in Chapters 3 and 5 of the thesis. It has provided a complete map with clear guidance of how to achieve success in a construction project which, in the Vietnamese context, is a public transport development project. In addition, the framework gives a clear message to project participants that, in order to deliver a project to the final success, they must understand the specific role of each element with their interactions and interrelations during the management and implementation process which have strong influences on project outcomes. This research has provided a clear strategy for them to achieve success in future projects.

As a result, the achievement of the Success Framework in this research provides the following implications:

- ✓ It is bettered understanding of the most severe problems in the VCI and, therefore, project participants will prepare solutions to mitigate or avoid them during the project lifecycle. This is especially useful for foreigners whilst raising awareness among Vietnamese stakeholders, especially the government, about many problems which, in many cases, are related to or generated by themselves. These problems need to be properly addressed in the future to minimise project failure and to improve project success;
- ✓ It is bettered understanding of standards which are known as success criteria for evaluating outcomes and performance of a project. Those criteria have to be identified from the beginning of any projects with a consensus by all stakeholders. Those criteria must be achieved to safeguard the success of any public transport development projects in Vietnam;

- ✓ It is bettered understanding of critical success factors which need to be applied across the specific phases of the project lifecycle in order to cope with the problems and achieve success;
- ✓ It is bettered understanding of a process which is employed to deliver public transport development projects in Vietnam with the necessary methods and activities (critical factors) which need to be applied for improving success; and
- ✓ It is bettered understanding of the key stakeholders who have strongest and most significant influences on the outcomes of many projects in current practice. This is especially useful for foreigners whilst raising awareness among project participants, especially the Vietnamese government, about their important role within those projects. It is expected that they will take their responsibility more seriously in the future whilst applying necessary actions in order to achieve more successful projects.

The empirical findings of this research have also reflected the views of Ofori (2000), Chua et al. (2003) and Ling and Bui (2010) that business culture and transparency have very strong influences on the outcomes and management process of construction projects in developing countries. They pointed out and argued that projects are likely to be more successful when cultural differences among stakeholders are adequately managed. However, the above authors did not identify the explicit benefits which are brought about by transparency and business culture in such projects. In the Vietnamese context, the benefits would be many such as: enhance the communication and cooperation between parties, enhance support from the community, enhance responsibility from project participants, enhance project quality, choose the right people for the right project, attract investment from foreigners, and so on.

The findings of this research have confirmed and pointed out that improving business culture whilst having transparency at any stage of the project lifecycle will help to achieve better success in a project. On the journey of modernisation, the transformation and improvement of business culture are vital and inevitable. In fact, the business culture has been created by Vietnamese people for many years. Therefore, in order to improve the business culture, it needs great efforts from the government and the community. In this perspective, education and training are believed the best tools which can assist to improve the Vietnamese business culture. This finding is new and was not proposed in previous studies about the VCI.

In this research, ‘transparency’, for the first time, has been included and presented within the element ‘Project Process’ in the Success Framework and being considered as ‘must have’ to cope with many problems, especially corruption, and to improve the overall success of any public transport development project in Vietnam. This has not been done before in any frameworks or models which have been developed in previous studies about project success. This research, therefore, has contributed further to the understanding of project success in transitional and emerging economies which have not been revealed in previous studies about the VCI within a similar case or condition. In fact, it has provided a comprehensive picture about Vietnam and the public transport sector with all necessary information that project participants can learn and adopt to successfully deliver future projects.

8.3 How the framework can be used

Although it is developed to assist project participants, the proposed framework in this study is particularly useful for project developers and managers whose decisions and influences are essential to project outcomes. Nevertheless, it can be adopted by both Vietnamese and foreigners who are or will be venturing into the public transport sector. While the benefit will be maximised if the framework is applied from the development stage of a project until the end, it can be implemented at any stage of the project. The framework provides a management strategy for project participants and can be used as a ‘checklist’ throughout the project lifecycle in order to achieve better performance and more successful outcomes.

When applying the framework into practice, project participants should focus on and employ the elements in an integrated manner because they are interrelated and interacted as previously discussed. However, they need to focus on the critical factors most of the time, thoroughly analyse them and try to make sure they are available then associate them with the severe problems, the success criteria, and the specific phases during the project lifecycle. Regardless of which element they want to start with first, for example analysing the problems or identifying success criteria, they will need to refer back to the critical factors usually and see how these could help them to tackle or achieve what they desire.

The presentation of the Severe Problems box on top of the framework focuses on the potential of catching an immediate attraction from project participants, especially foreigners and raise their awareness about its special role in the framework, given the Vietnamese perspectives. Focusing on and thoroughly analysing the problems, which are presented in the framework, will help them to avoid or mitigate those in future projects. When preparing solutions to cope with the problems, project participants can also look at the factors and match them to each problem to analyse how potentially and effectively they can do the job.

In the centre of the framework is the Key Stakeholders box – surrounded by four other boxes – and this presentation indicates that element is probably the most important one which is vital to any projects because without stakeholders there will be no projects initiated and completed. This focuses on raising awareness from the Vietnamese government and other stakeholders regarding their strong influence on public transport development projects because, as discussed in Chapter 2 and confirmed in Chapters 6 and 7, there is usually a lack of top management support, cooperation and responsibility from stakeholders which led to negative outcomes. Also, this reminds foreigners that they should pay serious attentions to their native counterparts by researching and understanding their role, needs and expectations alongside with the Vietnamese business culture then preparing strategies to cooperate with.

The Success Criteria box is located right under the Project Success box which makes it easier to project participants to focus on what they have to achieve in their projects. Based on these criteria, they will understand how successfully a project has been achieved or how well the targeted standards have been accomplished. In fact, with the framework, they are well equipped with a list of criteria for measuring the overall project success which including the success of project management and final product. However, the criteria presented in this framework must be agreed by the key stakeholders, also specified in the framework, at the very beginning of a project.

By paying serious attention to each element with details within and taking into accounts the above notions, it is believed that people who are active and working in the Vietnamese public transport sector will be able to improve success of their future projects. It can be seen that the framework provides significant implications for managerial application.

Nevertheless, there are also challenges when applying the framework in a live project when it is unknown whether transparency will be present and applied throughout the project lifecycle and being welcome by all stakeholders. Without transparency, it is very difficult to fully achieve project success in Vietnam and against many problems as discussed in the previous chapters.

In addition, Ling and Bui (2010) pointed out that foreign corporations are not totally willing to transfer their knowledge and technology to native partners whilst the education and training system in Vietnam is obsolete and no longer relevant to provide quality human resources. This creates a difficulty because, in order to improve success, education and training must be adequately provided for staff and workers during the project lifecycle.

Furthermore, because of differences between foreigners and Vietnamese, their application of the framework in practice might be different and conflicted whilst the framework has been developed for both parties without discriminations. Therefore, the efficiency and effectiveness of the framework might not be fully achieved when being applied in a real live project.

In addition, although sets of specific factors have been identified and allocated to specific phases, implementing those and making sure they are available at the right time and the right place are also challenging. Especially, it is not easy to achieve the factors such as ‘absence of bureaucracy’, ‘having fast decision making’ and ‘having fast and effective problem solving’ due to the Vietnamese current conditions as discussed in the previous chapters. This requires great efforts from all stakeholders, particularly project managers, from the beginning to the end of a project.

However, with the presentation of these factors within the framework, it raises awareness among project participants of inputs which they must obtain and seriously apply in order to achieve success in future projects. It is positively and optimistically believed that the framework is very helpful and it will assist project participants in the VCI to achieve more successful results in future public transport development projects. This has been confirmed and validated by the experts who are working in the Vietnamese transport sector.

Finally, specific adjustments or adaptations will be required to suit any particular environment. Thus, there is a limitation to the extent which the framework can be applied, although with the right adaptations, it is hoped it can be used in other countries and industries.

8.4 Summary

This chapter has discussed the empirical findings and compared them with the existing theories of project management and project success. The research has confirmed that the approaches which have been identified from previous studies to the improvement and achievement of project success are relevant. Nevertheless, they were scattered and, therefore, it is necessary to combine them together in order to be totally effective to deal with project management and related issues and to achieve more successful project outcomes.

The Success Framework has been developed and achieved in this research. It contains the items which are representing the uniqueness of Vietnam and the public transport sector, besides the common items which have been confirmed important and can be found elsewhere in other construction industries all over the globe. It provides guidance for both Vietnamese and foreigners to successfully implement and manage future public transport development projects. The following chapter will discuss the conclusion of this thesis besides proposing the recommendations for the future research.

CHAPTER IX CONCLUSION AND RECOMMENDATIONS

9.1 Introduction

This chapter presents the conclusion regarding the achievements of the research's aim and objectives, the limitations of the research and the main contributions that have been made to knowledge. Recommendations for future research are also discussed.

9.2 Achievements of the research aim and objectives

9.2.1 Aim of the research

The motivation of this research is the need to improve and achieve success of public transport development projects in Vietnam whilst tackling severe problems which have been present many years in practice. The importance of improving and achieving better outcomes of those projects is evident, urgent and vital for the socioeconomic development and modernisation process of the country. These resulting in several studies about the VCI to find a solution besides many others which can be found in the mainstream study of success in construction projects. Although, many authors recognised the importance of using critical factors to achieve success or criteria to evaluate project outcomes, this research argues that project success is a wider concept with multidimensional aspects but not only focusing on those two elements, thus proposals from previous studies about project success are inconsistent and ineffective to be fully adopted.

This study set out to investigate how project success is constituted and achieved by identifying and understanding the elements which have strong influences on the management and implementation process. The aim of this research is to develop a framework for successfully managing public transport development projects in Vietnam. In order to do so, the research applied deductive thinking and a logical approach (as discussed and presented in Chapter 5) that can be employed to improve the delivery process more successful. This aim has been achieved with the development of a framework which was described and discussed in Chapters 5, 6 and 7 of the thesis.

This framework contains the principles of project management with the five elements which all have very strong impacts on the achievement of project success. It presents

project process as a series of activities with critical factors across the specific phases and relevant methods which must be carried out simultaneously to achieve success, whilst coping with problems which can have severe effects on project outcomes and usually being encountered during the project process. Criteria for evaluating project success which must be achieved after project completion are also presented in this framework. Finally, it presents key stakeholders who have very strong influences on project outcomes. These when combined together within the framework provide a complete picture of project success.

The proposed framework was further discussed in Chapter 7 to determine the degree of its usefulness, acceptance and accuracy. This is to make sure that it meets the intended requirements in terms of methods employed and results achieved. The Success Framework, finally, has been achieved and it offers guidance for managing public transport development projects more successfully in Vietnam.

9.2.2 Objectives of the research

(i) To review the current perspective of the VCI and analyse the influences of the environment (in terms of politic, economy, society and technology) on project outcomes

This objective has been achieved from the review of relevant literature in Chapter 2 as well as by the results collected from the fieldwork as presented in Chapters 6 and 7 of the thesis.

Firstly, Vietnam is on the process of urbanisation and modernisation with the very fast development of the national economy. There are huge demands in the construction sector regarding the need of building new infrastructure and transport facilities to cope with the socioeconomic development process. Nevertheless, it can be seen that many problems, which have been identified in Chapters 2 and 5 and validated in Chapters 6 and 7, severely influence the outcomes of public transport development projects. In fact, the most severe ones relate to finance and human.

Actually, many of them are considered as ‘typical problems’ of a developing country which usually lacks transparency, capital for projects, modern technology for constructing projects, competent and experienced individuals or organisations for

handling projects, whilst corruption and bureaucracy can be seen everywhere. As a result, the modernisation process in Vietnam has been greatly affected and hindered.

In addition, the results which were collected from the fieldwork in Chapters 6 and 7 have confirmed that many projects are usually completed behind schedule, whilst cost and quality just meet the satisfactory level. These imply that project management has not been successfully achieved in those projects. In the Vietnamese context, it has been confirmed that the overall success of a project is achieved only when both project management and the final product are successfully achieved. This indicates a need to improve the success of future projects because they directly contribute to the development process in Vietnam.

In addition, it can be recognised that the effects generated by those problems having on the management and implementation process are significant. Extensively reviewing literature about project failure has indicated that many authors believe when problems or causes of failure are identified and thoroughly analysed, project participants will be able to avoid or mitigate them in the future. As a result, more successful results might be achieved. This research concluded that problems are the first element which has strong influences on achievement of project success. A complete set of elements has been identified and achieved in the following objective.

It can be seen that the identification of those problems and their severity has contributed to the body of knowledge of project management by providing insights of the developing world, as Vietnam is a case study while the country has been transforming from a centrally planned market to a free market economy. These enrich the understanding of those problems in different environments, particularly in the public transport sector, and how adversely they impact project outcomes.

(ii) To identify elements, factors and methods which have strong influences on the achievement of project success, especially in the construction industry

This objective has been achieved from the review of relevant literature in Chapters 2, 3 and 5, as well as the results collected from the fieldwork as presented in Chapters 6 and 7 of the thesis.

An in-depth review of literature has provided a comprehensive picture about project management and project success with related issues. This research has identified that there are five main forces of project management which have strong influences on the achievement of the project success. They are ‘Critical Success Factors’, ‘Success Criteria’, ‘Project Process’, ‘Key Stakeholders’ and ‘Severe Problems’.

The key conclusion of this research is those five elements must be combined and presented together within a framework in order to achieve a complete picture of project success. This thesis is the first to do that, thus it has contributed to the body of knowledge of project management by providing an applicable and appropriate logical basis for comprehensively understanding project success. It also shows the interactions and interrelations between those elements during the project management and implementation process which previous studies failed to provide.

This research has identified a set of critical success factors which will be able to help Vietnamese public transport development projects for improving success. Unsurprisingly, the most critical ones also relate to finance and human, which are corresponding to the most severe problems in current practice. Actually, the identification of the critical factors and their hierarchy of significance also contributes further to the understanding of how to achieve success while coping with radical problems in the developing construction markets.

Besides the critical factors, this research has identified methods which can help to improve success when being applied during the management and implementation process. Firstly, Vietnamese people have to quickly learn necessary skills and knowledge from foreigners whilst steadily improving professional working manner to suit the requirement of the modernisation process.

Secondly, the irrelevant education system also must be urgently transformed and improved to catch up with the very fast development of the country when widely integrating into the global market. Regarding the lack of skilled and experienced employees, which resulting in poor quality and slow progress in Vietnamese projects, in order to improve these, regular appraisal of employee performance should be carried out to identify potential areas for improvement so that proper training programs will be provided with full support from top management.

Thirdly, the existence of transparency at any stage of the project lifecycle and the improvement of business culture from the top (government) to the bottom (workers on site and the community) will definitely enhance success of future projects.

Fourthly, the Vietnamese government should play their role better with adequate support and supervision in future projects, especially by applying TQM throughout the process. More importantly, they have to set priorities to focus investments on the most important and urgent projects first. Apart from that, the government should urgently modify and reduce unnecessary legal documents and regulations to attract more investors, both domestic and international, in to the construction market. Meanwhile, the influences of the government during the management and implementation process should be reduced and leaving the job to other stakeholders such as consultant, project manager (PMU) and contractors.

Given the fact that decision making process is very slow in the Vietnamese public transport sector. To improve this, decision makers should be trained and authorised to make decisions that are quick, necessary and appropriate. Communication, negotiation and effective collaboration between stakeholders are also the key in this case. The effectiveness and efficiency of future projects, thus, will be definitely improved.

Finally, to achieve success, there should be appropriate and sufficient resources (money, construction materials etc.) to support the delivery process. The resources should be evaluated regularly to analyse their relevance at every stage, so that no resource is left underutilised nor wasted. Using and distributing resources should take into account how they will fit into the process to increase effectiveness.

The above recommendations also reflect the needs and expectations of the key stakeholders who are working in the VCI; this has been discussed in Chapters 6 and 7 of the thesis. This research, therefore, has contributed further to the body of knowledge of project management by providing insights and understanding of success in the developing world, especially problems and potential methods to effectively cope with.

(iii)To develop, verify and validate a framework for successfully managing public transport development projects in Vietnam

This objective has been achieved from adopting existing theories of project success which have been discussed in Chapters 3 and 5, and the results collected from the fieldwork which have been analysed in Chapters 6 and 7 of this thesis.

Firstly, the five main elements which have very strong influences on the achievement of project success have been identified and combined together within a framework. This framework has been confirmed to be relevant and useful to assist project participants in the VCI to manage public transport development projects. It provides a clear strategy to achieve success in those projects.

Secondly, by focusing on those projects in Vietnam, the framework helps to fill the knowledge gaps in the literature of project management in transitional and emerging construction markets. The key distinction here is it provides a clear picture of the key stakeholders involved with related activities which need to be carried out across the different phases of the project process, identifies the severe problems which need to be addressed, and provides a better understanding of the standards which are required in safeguarding project success. Therefore, the framework significantly contributes to the body of knowledge of project success and construction project management on its own right.

The achievement of the framework not only offers guidance for foreigners to understand more about Vietnam and the VCI with the unique characteristics and business culture but also raises awareness among the government and local authorities of many issues which need to be properly addressed and urgently resolved in order to enhance the success of future projects and to accelerate the modernisation process of the country.

9.3 Contributions to knowledge

The original contributions of this research to the body of knowledge of project management and project success can be seen as the following:

- This is the first time a framework which simultaneously encompasses all the elements of project success has been developed. The presentation of those elements in details with their connections contribute to the originality of the research as this has not been done before or proposed in any of previous studies. This is the main contribution to knowledge of this research.

- The thesis shifts the traditional way people perceive project success and how to achieve by not just only applying criteria and critical factors, but also by identifying and understanding other three elements and their strong influences on project performance and outcomes such as: severe problems, key stakeholders and project process. A complete picture of project success, therefore, has been established the first time in this study. It goes beyond existing theories and contributes further to the understanding of project success.
- The thesis helps fill the knowledge gaps in the literature of project management in transitional and emerging markets. The validity of the framework and empirical findings contribute new insights into project success with related issues in the developing world as Vietnam is the case study. Moreover, the identification and validation of each specific factor within the framework contribute further to the understanding of their significance when being applied into the public transport sector. These will assist stakeholders in improving success of future projects.

The thesis has provided a good basis for further research, as well as a framework for effective implementation. Thus the study potentially changes the view of delivering and managing construction projects.

9.4 Limitations of the research

As with any researches, there are bound to be limitations that have to be acknowledged. Being the first major study that combines the five elements of project success, there were some limitations that became obvious during the study, which may also give rise to scope for further research. Although there is a large number of publications in relation to project success, few exist about public transport development projects, particularly with respect to managing them in an emerging country which is transforming from centrally planned market to a free market economy.

As a result, information gathered from the literature review was limited. However, this limitation did not have any severe impact on the research, since questionnaires and interviews complemented what was lacking in literature.

The survey approach adopted for the research investigation has limitations in respect of depth. The results contribute to generalising to the industry as a whole (breadth of application) rather than deepening or generating theory (depth). Although the use of interviews with a small number of experts has dug deeper into the subjects being investigated, its prime purpose was to verify and validate the final framework.

Another limitation relates to the extent that the findings in this study could be applied within and outside the public transport sector in developing countries or elsewhere.

In the Success Framework, only the traditional delivery route is used. This may raise questions about whether the framework can also be effectively and efficiently applied to other types of process and procurement methods.

9.5 Recommendations for future research

The limitations of this study have indicated the scope for future research as followings:

- It is necessary to further investigate and document the practical application of the success framework in a live public transport development project situation, as evidential proof of its effectiveness;
- Research to extend the scope of investigation, to include other project stakeholders, in order to test the applicability of the empirical findings and the Success Framework within their environment;
- Research across the VCI in both public and private sector to investigate how they manage construction projects;
- Extending the use of the Success Framework to other project stakeholders, to understand how it may impact their approach to project management and project success;
- And it is necessary to investigate the extension of the Success Framework application in a larger scale, not only in the transport sector or developing countries, but also in the construction industry generally.

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Appendix A

Shenhar et al. (1997) and Shenhar et al. (2002) used multidimensional strategic concept to identify that project success could be evaluated and assessed within four different dimensions: project efficiency, impact on the customer, direct and business success, and preparing for the future (Figure 3.2). Chan and Chan (2004) explained the first dimension is evaluated during the period of implementation phase and after project completion. The second dimension can be evaluated shortly after the project has been delivered to the customer. The third dimension can only be evaluated after one or two years when the product has been significantly exploited. The last dimension can be assessed three or five years after the completion of the project.

It can be seen that the interrelation between criteria and project process is quite clear when looking at the above separations. Furthermore, in an indirect way, they grouped the success of project management and final product together in order to justify the overall success of a project. There are few more studies which also spreading criteria over the project process, albeit with different approach and philosophy. Nevertheless, most of them proposed a specific set of criteria for measuring success of a specific phase during the project process. This implies the importance of presenting project process with related issues to capture a more comprehensive picture of project success.

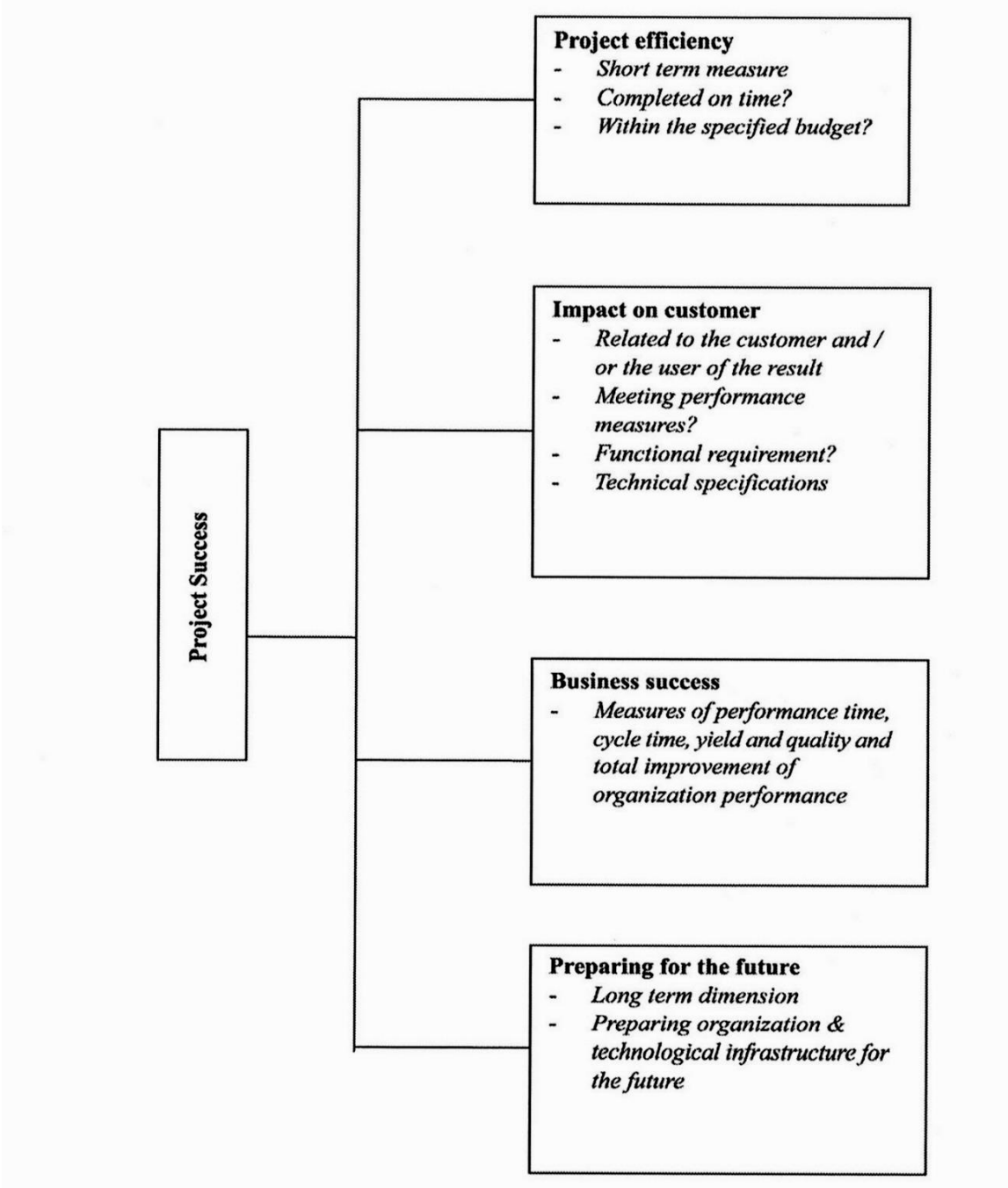

Figure 3.2: Project Success (Shenhar et al., 1997), cited in Chan and Chan (2004).

Atkinson (1999) focused on the effectiveness and efficiency as the two main criteria for measuring success of a project and divided project success measurement into three stages whilst arguing success criteria normally change from time and different stages of the project. In Atkinson's (1999) research: 'the delivery stage: the process: doing it right' is the first stage; 'post-delivery stage: the system: getting it right*'* is the second stage; and the final stage is 'post-delivery stage: the benefits: getting them right'. This is quite similar to what has been proposed by Shenhar et al. (1997, 2002) as previously

discussed. These authors all focused on the success of project management and project product then combining them together to judge the overall success of a project.

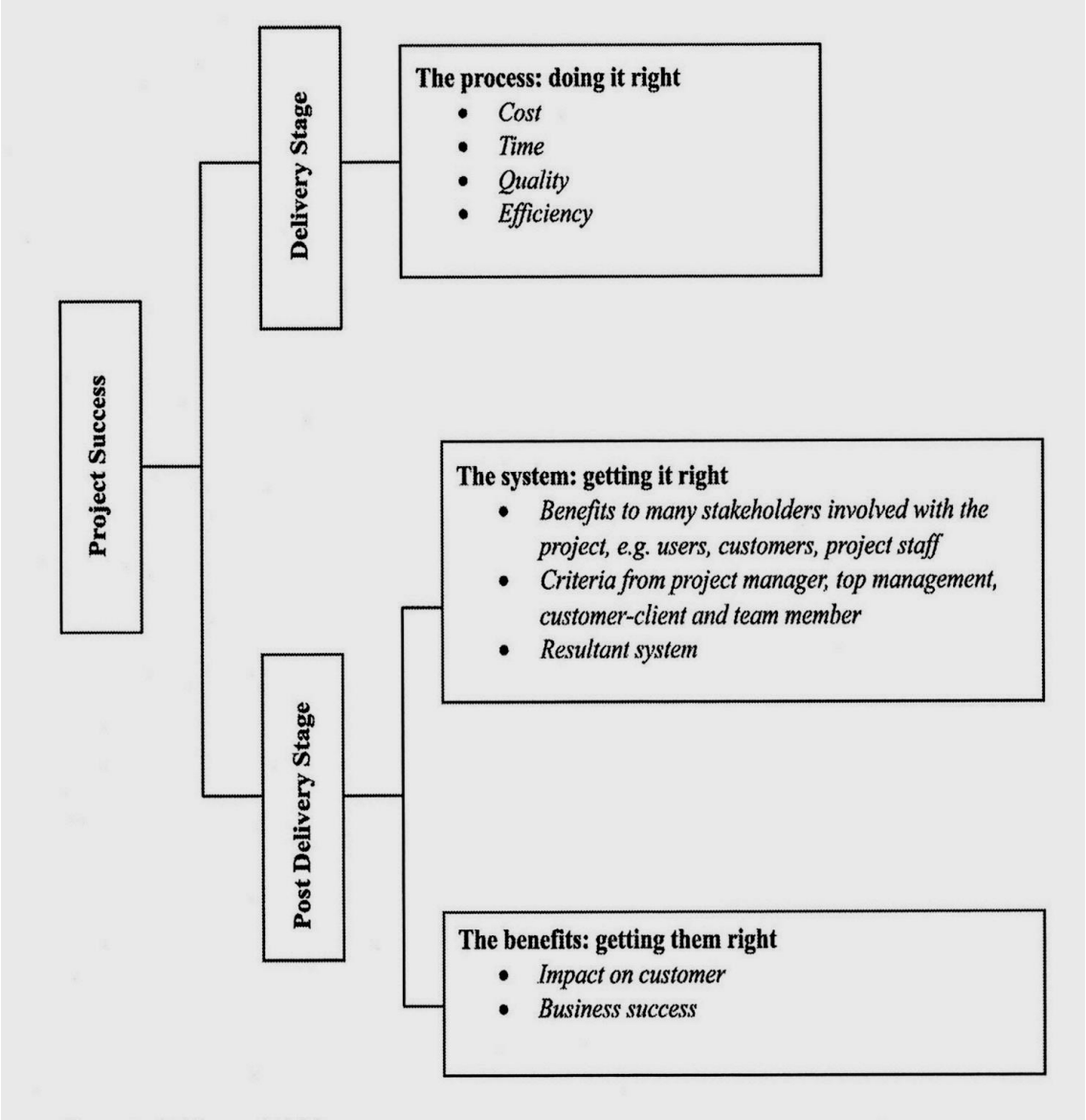

Figure 3.3: Project Success (Atkinson, 1999), cited in Chan and Chan (2004)

Lim and Mohamed (1999) argued that success criteria for measuring success can be grouped under two different viewpoints: macro (operational phase) and micro (completion phase). In fact, these authors suggested the evaluation of success should be carried out in different stages during the project lifecycle because they also think that success criteria normally change from time and between different stages of the project. Their project success framework can be seen in the following figure.

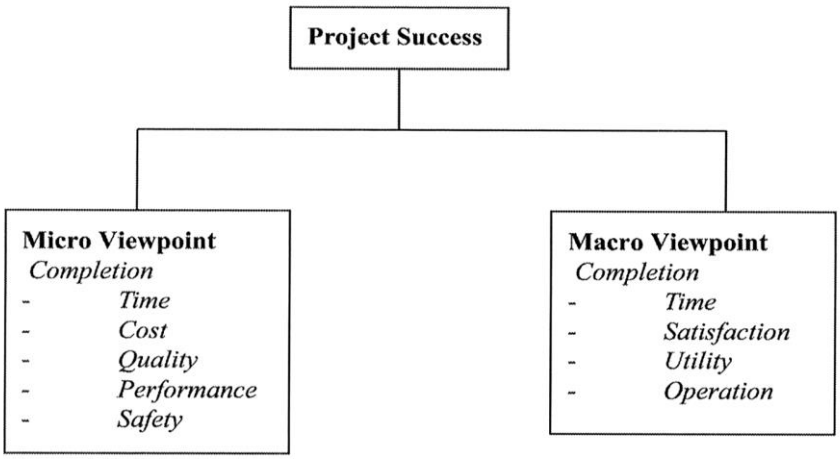

Figure 3.4: Project Success (Lim and Mohamed, 1999), cited in Chan and Chan (2004)

Chan et al. (2002b) also proposed an assessment framework which evaluates project success by objective and subjective measures from three conceptual stages: pre-construction, the construction, and the post-construction stages.

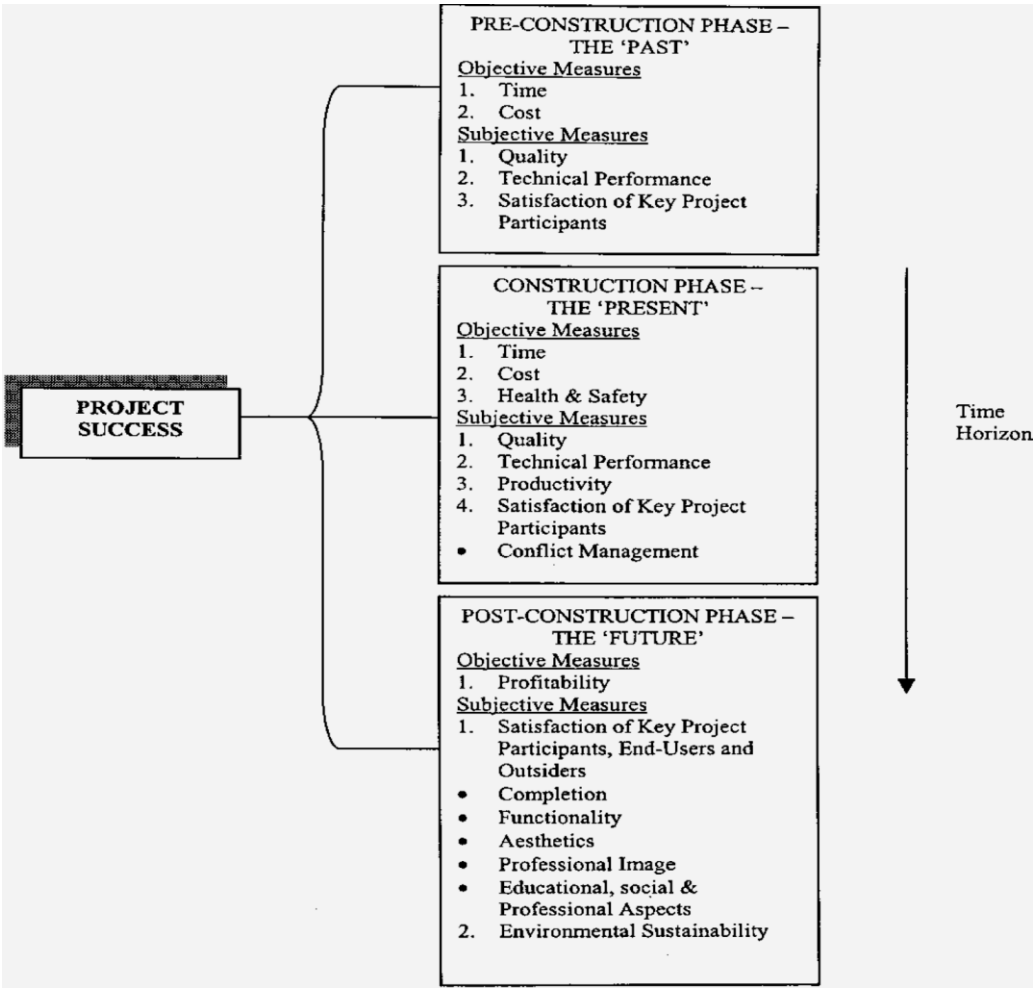

Figure 3.5: Project Success (Chan et al., 2002b)

The few studies above have proposed criteria to evaluate success of a (construction) project in specific phases during the project process as they argued those criteria change from time to time. Nevertheless, there are also many other studies which identified and presented criteria together – but not separated – as common standards to judge success of any project. Chan et al. (2002a) claimed that success criteria for construction projects in general can be grouped under two main categories: one is 'hard', tangible, objective and measureable; the other is 'soft', intangible, subjective and less measureable. For instance, time, cost and quality being 'hard' while satisfaction being 'soft'.

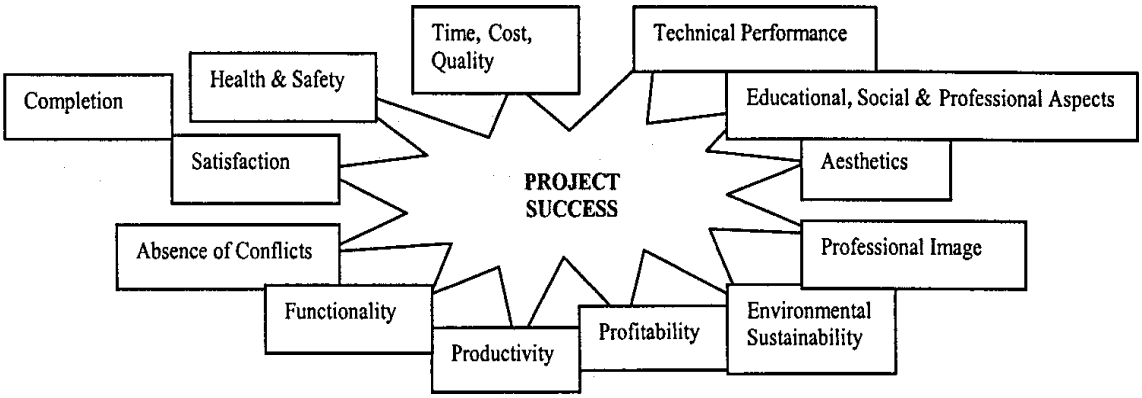

Figure 3.6: Project Success (Chan et al., 2002a).

In addition, Chan and Chan (2004) have also proposed a consolidated framework for measuring success of construction projects.

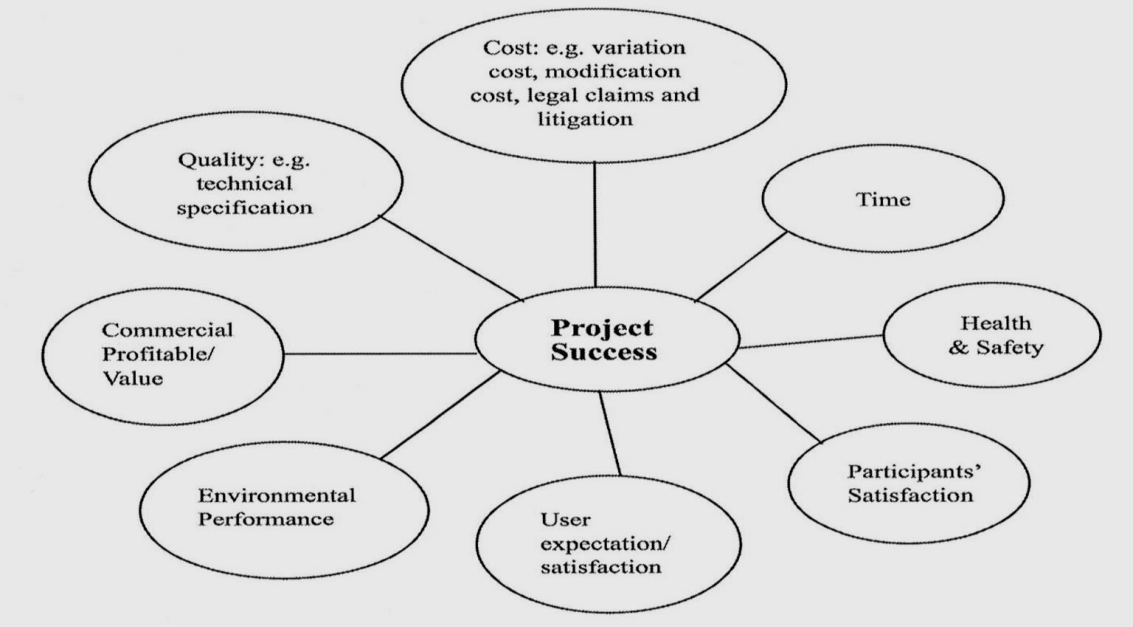

Figure 3.7: Project Success (Chan and Chan, 2004).

Appendix B

Do and Tun (2008) developed a framework for managing international development projects in Southeast Asian countries by identifying different sets of criteria and critical success factors for different stages of the project lifecycle. According to the authors, the specific list of success criteria for each phase of the project is developed based on evaluating results which are typically expected at the end of the phase to provide a framework to measure the project management performance. To meet these success criteria, it requires both internal and external conditions that include high quality inputs as well as factors which are derived from understanding activities and parties involved. Therefore, the dynamic connections between success criteria and critical success factors in each phase will provide a more solid foundation to evaluate the project.

Nevertheless, reviewing literature has identified that it is difficult to achieve success completely in each project phase whilst a project can still be considered a success although some of its targets are not fully achieved during the management process. It can be seen that there are flaws in this framework in term of success measurement and therefore it is not consistent to be fully applied in practice. In addition, only factors and criteria proposed in this framework were validated but not the framework itself. Thus, it is unknown the practical and potential application of this framework into a real life project which represents another flaw. Yet, in term of identifying and allocating critical success factors into specific phases during project process, Do and Tun (2008) have done a good job by presenting them within a framework with clear links to phases and targeted criteria, albeit without presenting key stakeholders and potential problems – other flaws.

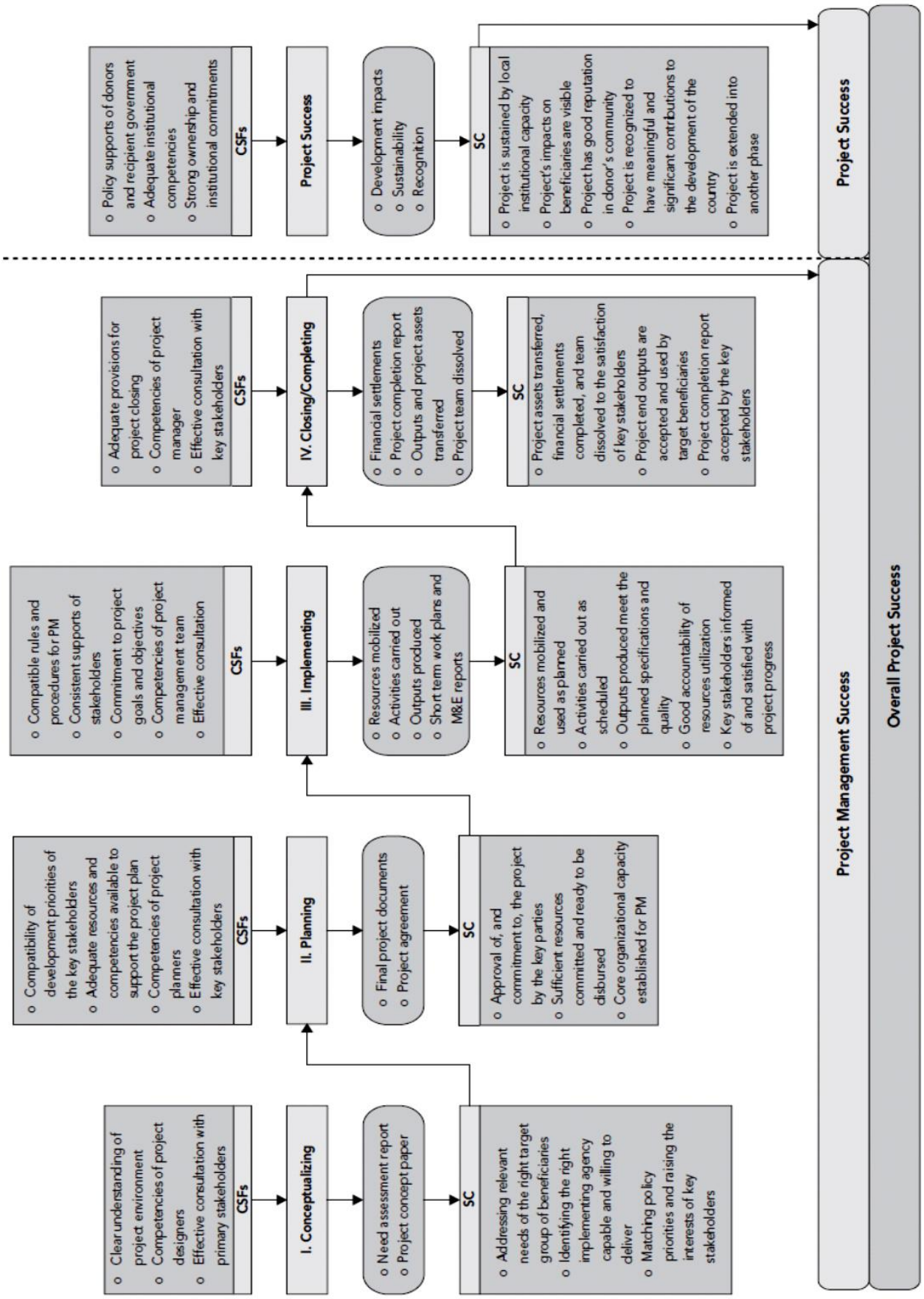

Figure 3.8: Success framework for international development projects (Do and Tun, 2008).

Toor and Ogunlana (2008) pointed out that different stakeholders in a construction project may have different perception of success factors. Nevertheless, in order to achieve success, they must have an agreement about project objectives and implementation plan. These authors stated that if project managers are able to apply critical success factors during the project process, it is likely for them to achieve success in large scale construction projects. Their presentation of the input, process, and outcome of project management is described as the following figure.

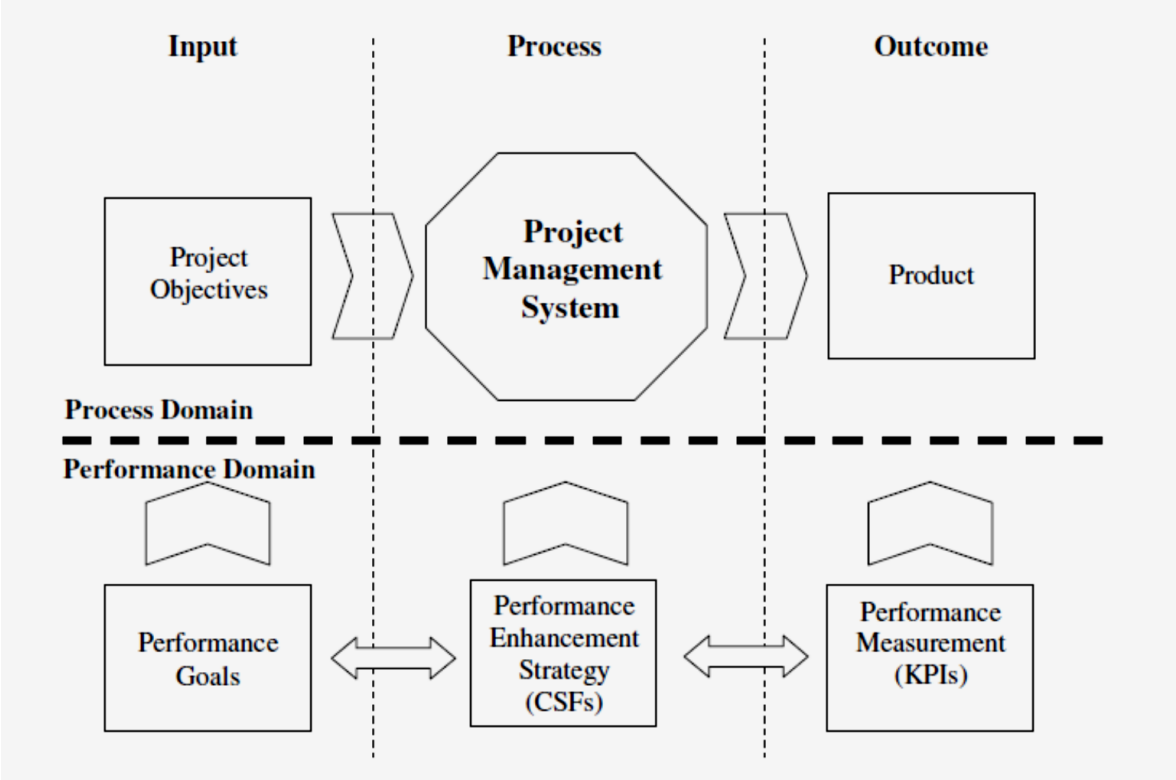

Figure 3.9: Input, process and outcome of project management (Toor and Ogunlana, 2008).

Kulatunga et al. (2009) also identified different sets of critical success factors for different phases of the project lifecycle. At initiation and conceptualising phases, factors such as clear research problem and focus of the work are critical. During the conceptualising and development phases, there are factors: skills, commitment and motivation of team members which become significant for the project success, besides other factors: having adequate resources is highlighted at these phases. The importance of project coordination and management of resource are considered critical throughout construction projects. These authors stated that identifying critical success factors could help project team facilitate the effective implementation of those factors into construction projects by supporting facilities for this process.

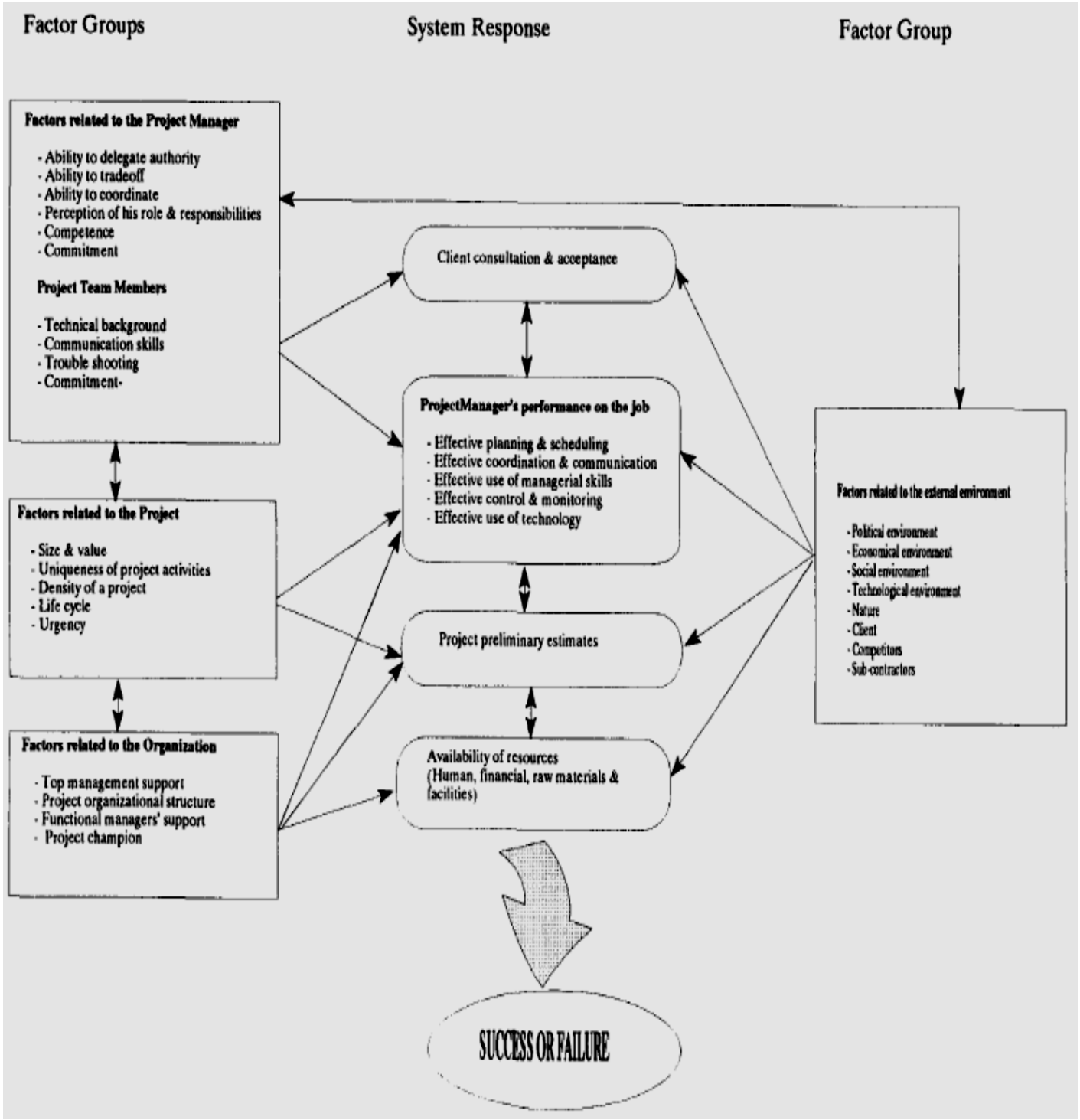

Figure 3.10: Framework for determine success or failure (Belassi and Tukel, 1996).

Belassi and Tukel (1996) suggested a set of critical success factors and linked their impacts on project performance. They grouped these factors within a framework (Figure 3.10 above) and argued that based on it, the success or failure of a construction project will be justified. However, it can be seen that this framework is not effective and consistent because these authors: firstly did not identify success criteria for measuring performance of the project and therefore readers cannot understand how well the

framework can help them to achieve success; secondly it does not guarantee that missing one or some of those proposed factors in this framework will lead a project to a failure, therefore the presentation of the factors can only be perceived as references to potentially achieve project success; and finally the factors which are related to Project and External Environment are too general and not detailed enough.

Although this framework contains factors that influence project outcomes, but those factors are not clearly separated in terms of ‘Success’ or ‘Failure’. Meanwhile, looking at this framework, the readers can learn and adopt mostly from the factors which are critical to success rather than ones which cause failure. Or looking from the opposite position, it can be argued that without those factors, it is likely that a project fails.

Nevertheless, the good point is this framework shows the interaction between stakeholders (project manager and project team members) and the external environment whilst showing the impacts (mutual or single) of one group of factors on other groups. In addition, it also presents the importance of key stakeholders such as manager and team to success.

Westerveld (2003) argued that critical success factors are necessary to improve the achievement of a successful project outcome. In order to successfully manage a project, the project organisation should focus on success criteria (result areas) and critical success factors (organisational areas). This author linked the success criteria and factors to develop The Project Excellence Model which is believed that will enhance project performance.

But this model is too general and lacking of detail whilst the author only used ‘time, cost and quality’ to measure the success of the project management phase and considered these as an overall successful outcome of a project – which is no longer relevant as previously discussed. Nevertheless, the good point of this model is besides presenting success criteria and critical factors, the author also included key stakeholders within the model in the broad area as ones who are active and having influences and benefit from the project. This has been rarely seen in other studies of project success.

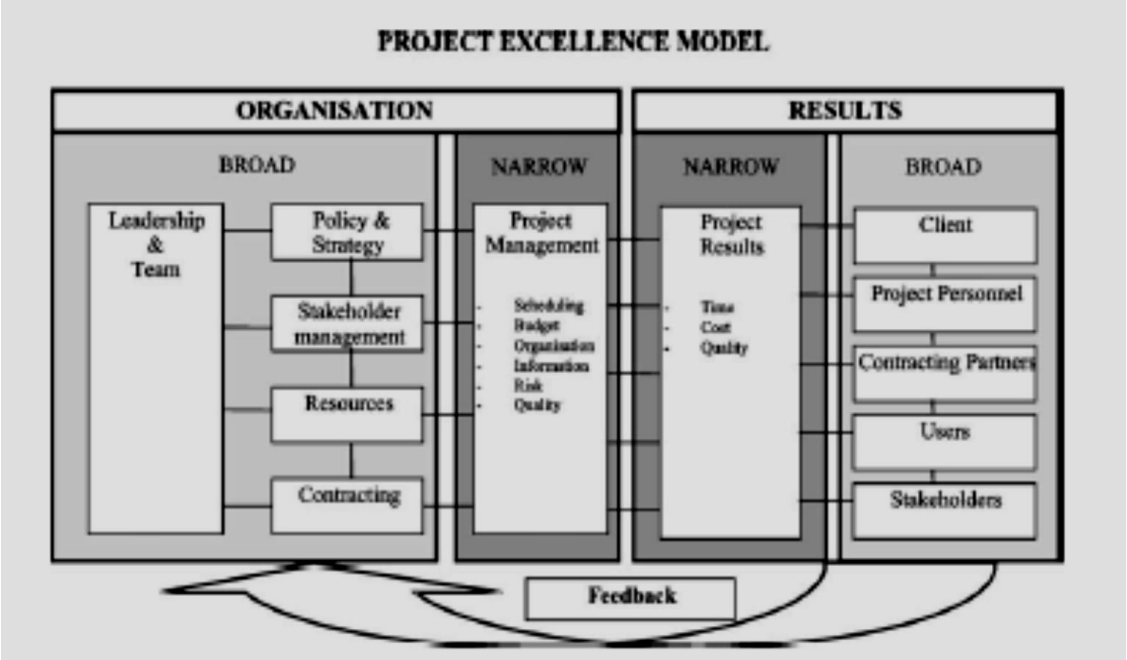

Figure 3.11: Project Excellent Model (Westerveld, 2003).

Fortune and White (2005) proposed 23 critical success factors which are grouped under ten main categories: goals and objectives, performance, monitoring, decision-maker, transformations, communication, environment, boundaries, resources, and continuity. Those factors have been used to form a Formal System Model which according to the authors is capable of differentiating between success and failure projects. Similarly to Belassi and Tukel's (1996) framework, this model does not present criteria for evaluating how successfully the project has been completed and there is no clear process with links to success factors. Therefore, according to these authors, the good point is if this model is used in the planning and implementation stages, it can help to provide a solution to resolve issues which are only related to human and organisation. Nevertheless, a construction project is more complex and complicated than just human and organisation therefore this model is not consistent when applying for the whole lifecycle of a project.

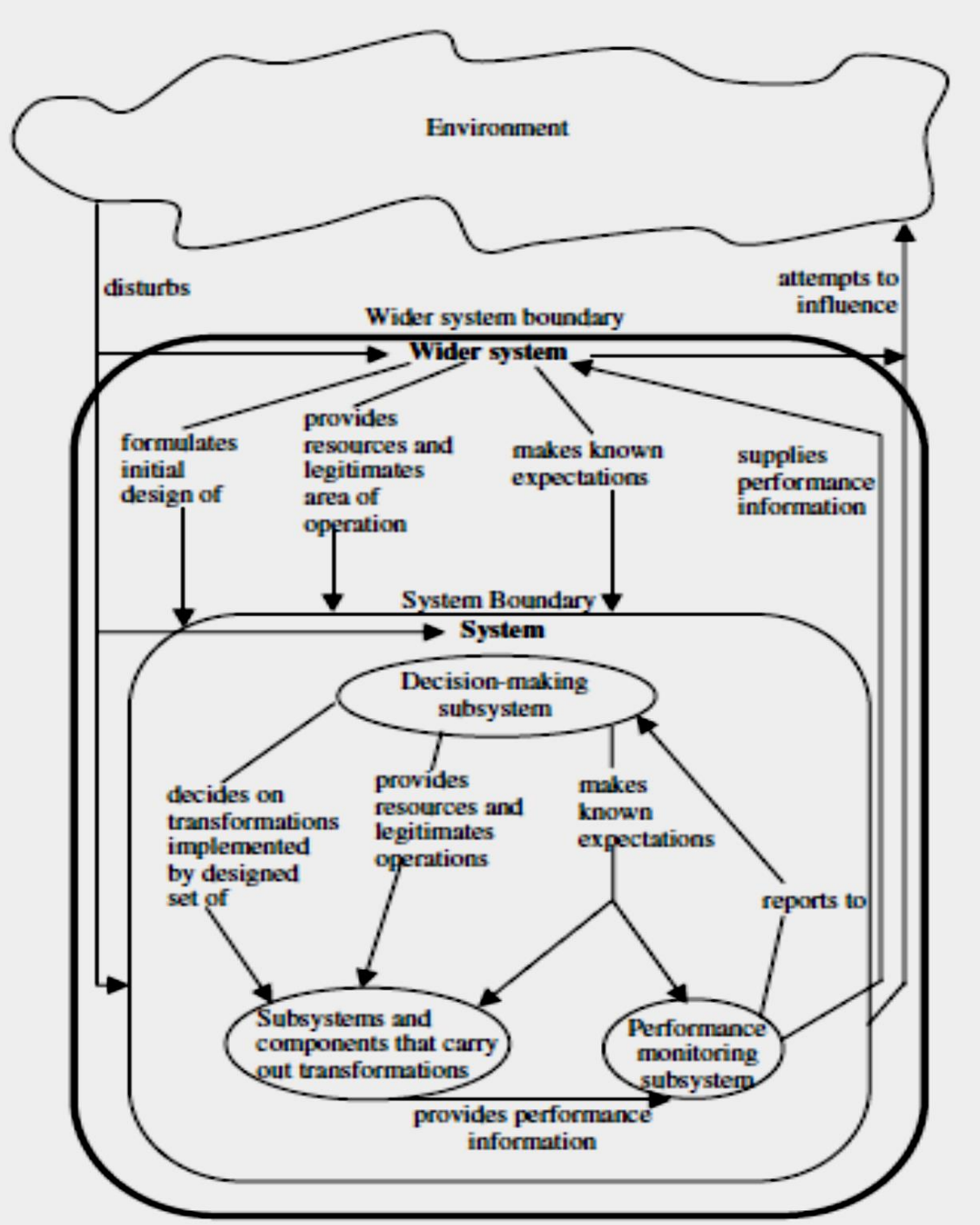

Figure 3.12: Formal System Model (Fortune and White, 2005).

Chan et al. (2004a) identified a number of variables which having impacts on the success of a construction project. They argued that critical success factors can be grouped under five main categories: project related factors, human related factors, project procedures (procurement related factors), project management actions, and external environment. They determined that a set of factors in one group can influence

the others and vice versa. Therefore, they have developed a new conceptual framework for factors affecting success of construction projects (Figure 3.13).

Nevertheless, the authors just simply listed some too general factors in the categories such as External Environment and Project Procedures without proper details. In addition, this framework does not include project process with clear links to factors which makes it difficult to readers to know which factors should be applied at which phase.

Similar to the framework developed by Belassi and Tunkel (1996), the actual problems which have strongly negative impacts on project outcomes have not been detailed and properly investigated in this research. The readers can only also learn and adopt from factors which are critical to improve and achieve project success only from this framework proposed by Chan et al. (2004a). Also this framework has not identified and presented a set of criteria for measuring success therefore it is difficult to check how successful a project has been completed. It can be seen that this framework is not consistent enough to apply in practice to fully achieve project success.

Yet, the good point of this framework is it presents the interrelations between the categories, albeit not clear enough in terms of mutual interaction or single impact and not sufficient enough when some connections are obvious which have been pointed out from previous studies but missing here (for example missing links between Project Procedures to External Environment, to Project-related Factors, and to Human-related Factors; between External Environment to Project Management Actions and to Project Procedures).

It also shows key stakeholders such as client, manager and management team with required skills from them in order to achieve success. This is similar to Belassi and Tukel's (1996) framework and Westerveld's (2003) model when all those authors recognised the importance of stakeholders and their influences on project success then presenting this trait within their work, albeit with the form of critical factors but not separated as another main category.

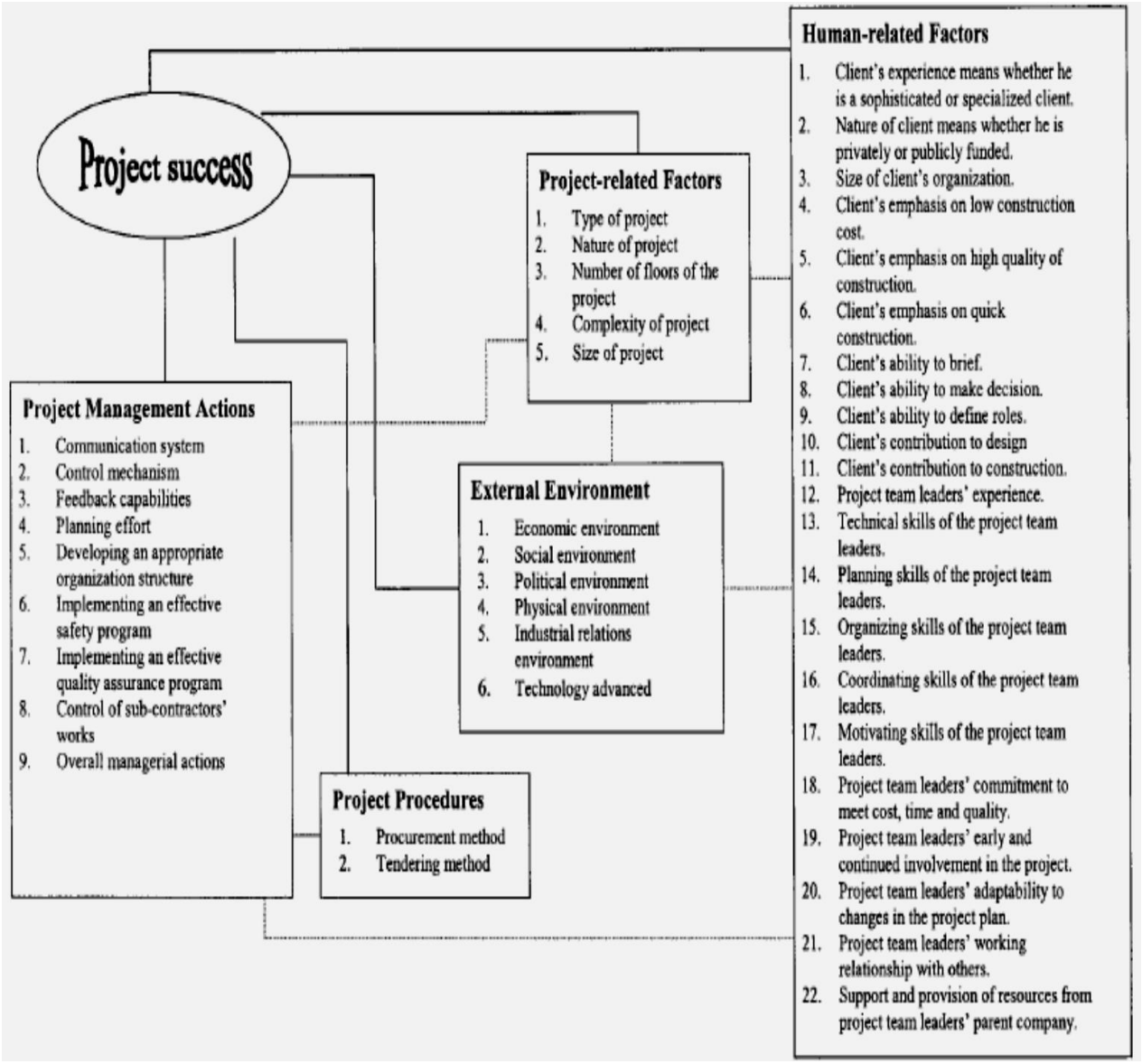

Figure 3.13: Project Success Framework (Chan et al., 2004a)

Appendix C

The following table is presenting results collected from the data in question 1:

Problems/Rankings	Res	R-1	R-2	R-3	R-4	R-5	Mean	Res-R
Slow site clearance	210	0.40%	1.60%	9.10%	30.20%	58.70%	4.5	1
Financial difficulties of client/owner (insufficient funding)	188	0.40%	2.90%	7.00%	24.80%	64.90%	4.5	2
Financial difficulties of contractor/subcontractor	135	0.40%	2.90%	9.90%	36.40%	50.40%	4.3	3
Corruption	115	1.20%	8.70%	19.80%	36.40%	33.90%	3.9	4
Bureaucracy	98	1.20%	8.70%	26.90%	43.00%	20.20%	3.7	5
Lack of responsibility from parties	87	1.70%	10.70%	28.10%	39.30%	20.20%	3.7	6
Inflation/price fluctuations	87	1.70%	7.30%	18.20%	43.00%	29.80%	3.9	6
Slow payment for project	80	0.00%	6.20%	17.00%	44.60%	32.20%	4.0	8
Complicated involvement of official documents	73	0.80%	11.20%	39.30%	34.20%	14.50%	3.5	9
Slow decision making process from owner and authorises	71	1.30%	10.70%	36.80%	34.30%	16.90%	3.5	10
Complicated involvement among Ministries	58	0.80%	15.70%	40.20%	32.60%	10.70%	3.4	11
Lack of competence from participants	57	1.60%	11.20%	28.10%	40.50%	18.60%	3.6	12
In adequate experience from participants	49	2.00%	12.40%	30.60%	43.80%	11.20%	3.5	13
Obsolete or unsuitable construction methods	48	0.90%	14.00%	31.40%	32.60%	21.10%	3.6	14
Poor project management	47	2.10%	10.70%	26.50%	38.80%	21.90%	3.7	15
Improper monitoring and control	46	0.90%	9.90%	28.50%	44.60%	16.10%	3.7	16
Lack of skilled workers	43	2.50%	14.50%	28.90%	38.00%	16.10%	3.5	17
Obsolete technology	41	2.10%	13.60%	31.00%	35.10%	18.20%	3.5	18
Mistakes in design or impractical design	40	4.00%	17.40%	30.60%	30.20%	17.80%	3.4	19
Inaccurate time and cost estimating of the project	38	1.70%	14.00%	31.80%	40.10%	12.40%	3.5	20
Shortage of materials	38	8.20%	17.40%	24.40%	30.20%	19.80%	3.4	20
Improper feasibility study of the project	37	4.10%	12.00%	40.90%	28.50%	14.50%	3.4	22
Improper planning and scheduling of the project	36	3.30%	9.10%	38.40%	38.00%	11.20%	3.4	23
Lack of standardisation in design	36	4.50%	12.80%	34.70%	36.00%	12.00%	3.4	23
Poor site management	34	2.90%	7.90%	32.20%	45.90%	11.20%	3.5	25
Design changes	30	2.80%	18.20%	43.00%	24.40%	11.60%	3.2	26

Poor health and safety condition	30	1.60%	18.20%	33.90%	31.80%	14.50%	3.4	26
Lack of proper training for staff and workers	21	2.10%	16.90%	32.60%	37.60%	10.70%	3.4	28
Slow payment for workers	18	1.70%	10.30%	37.60%	38.80%	11.60%	3.5	29
Lack of top management support	13	6.20%	22.30%	36.40%	26.40%	8.70%	3.1	30
Inadequate project management assistance	12	2.50%	16.10%	43.80%	31.40%	6.20%	3.2	31
Poor communication between parties	11	3.70%	16.50%	45.90%	29.80%	4.10%	3.1	32
Pollution	9	2.40%	21.50%	40.10%	29.80%	6.20%	3.2	33

Appendix D

The following items are collected from the data in the question 2:

- None – business culture does not have any influences on project implementation at all (48 comments)
- Business culture does not have much influences on project implementation (9 comments)
- Business culture directly influences the management and implementation of projects (154 comments)

The first theme 'The Vietnamese business culture is very poor and not really professional' has been contributed by the following comments:

- Business culture in Vietnam is not yet concerned and really professional (32 comments)
- Business culture in Vietnam needs improving more professional (25 comments)
- Vietnamese stakeholders do not share their experiences and knowledge but keep for themselves (3 comments)
- Business culture in Vietnam is not yet developed and formed to cope with issues in projects (18 comment)
- Personality influences project progress and quality (21 comment)
- Vietnamese stakeholders lack of willingness and intention to work (21 comment)
- Vietnamese stakeholders lack of responsibility which influence management progress (32 comments)
- Vietnamese contractors are selfish (21 comment)
- Business culture is very poor in Vietnam (51 comment)
- Vietnamese people normally do not keep promise (14 comment)
- Business culture in Vietnam is steadily being improved and better, more professional, but different between hierarchies: the higher the position of individuals is, the more extreme and serious bureaucracy and corruption will be (10 comments)

The second theme 'The Vietnamese business culture is Bureaucracy and Corruption' has been contributed by the following comments:

- Business culture directly influences the management and implementation of projects (154 comments)
- Business culture in Vietnam is affected by the "old school culture/style" so not relevant nowadays (14 comments)
- Business culture in Vietnam is "for personal sake" (15 comment)
- Especially bureaucracy and corruption (100 comment)
- Bureaucracy has negative influences in working conditions (54 comments)
- Foreign contractors do not understand Vietnamese culture hence leading to difficulties (10 comment)
- There are misunderstandings because of barriers in language and culture between Vietnamese and foreigners (10 comment)
- Salary paid for workers and staff who are working in construction industry is lower than other fields which leads to negative reactions (16 comment)

The third theme ‘Many benefits will be achieved if the Vietnamese business culture is improved’ has been contributed by the following comments:

- The improvement of business culture will help participants become more friendly and create better products (15 comment)
- The improvement of business culture will enhance mutual trust, consensus among parties and create smoother management (20 comment)
- It helps partners understand “your style” and working capability (10 comment)
- Improving business culture is important for improving project outcomes (31 comments)
- Vietnamese stakeholders should change the way of working (11 comment)
- Vietnamese stakeholders should learn the way of implementing and managing projects from foreigners (42 comments)

Appendix E

The following table is presenting results collected from data in question 3:

Factors/Rankings	Res	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean	Res-R
Having competent contractors/sub-contractors	188	0.80%	0.40%	6.20%	28.10%	64.50%	4.6	1
Having sufficient funding and adequate financial support	187	0.40%	0.00%	5.40%	22.70%	71.50%	4.7	2
Define clearly aim and objectives of the project	152	1.20%	2.10%	10.00%	38.40%	48.30%	4.3	3
Having competent designers and engineers	132	1.20%	2.90%	7.40%	45.50%	43.00%	4.3	4
Strictly apply Superintendence and monitoring	113	0.00%	2.90%	12.80%	43.00%	41.30%	4.2	5
Having competent project manager	108	0.00%	2.50%	13.60%	54.50%	29.40%	4.1	6
Project is feasible and viable	103	0.80%	2.10%	12.40%	47.10%	37.60%	4.2	7
Having competent and experienced consultant	100	0.80%	1.70%	10.30%	55.40%	31.80%	4.2	8
Absence of bureaucracy	96	1.20%	0.00%	18.20%	48.40%	32.20%	4.1	9
Having quality control mechanism	92	0.00%	2.50%	13.60%	61.20%	22.70%	4.0	10
Having support from community	91	0.00%	4.20%	14.90%	42.60%	38.30%	4.2	11
Having adequate design with specifications	84	1.20%	2.00%	10.00%	53.30%	33.50%	4.2	12
Materials are sufficiently and effectively supplied	77	0.00%	2.50%	14.90%	52.00%	30.60%	4.1	13
Identify correctly target beneficiaries	76	1.20%	4.20%	20.20%	50.80%	23.60%	3.9	14
Tools and equipment	63	0.00%	2.50%	15.70%	55.00%	26.80%	4.1	15
Smoothly transfer the asset	56	2.10%	4.10%	26.00%	43.00%	24.80%	3.8	16
Having clear procurement strategy	48	0.00%	5.00%	20.60%	55.80%	18.60%	3.9	17
Applying strictly Health and Safety	47	0.00%	5.00%	23.10%	50.40%	21.50%	3.9	18
Having problems resolved fast	43	0.80%	3.70%	16.90%	57.90%	20.70%	3.9	19
Having competent and multidisciplinary management team	42	0.00%	2.50%	22.30%	52.50%	22.70%	4.0	20
Having strong consultation among parties	42	0.40%	3.30%	21.10%	50.80%	24.40%	4.0	20

Having cost control mechanism	39	0.00%	2.90%	23.20%	60.70%	13.20%	3.8	22
Carefully forecasting risks	38	0.40%	5.80%	28.10%	47.10%	18.60%	3.8	23
Having adequate employee training programs	38	1.70%	4.40%	30.20%	55.40%	8.30%	3.6	23
Strong ownership and maintenance	38	2.10%	0.80%	24.00%	50.40%	22.70%	3.9	23
Carefully planning and scheduling project implementation	36	0.40%	7.00%	25.20%	55.80%	11.60%	3.7	26
Having top management support from Government	33	3.10%	6.20%	24.00%	51.70%	16.00%	3.7	27
Having fast decision	33	1.70%	4.10%	21.90%	55.40%	16.90%	3.8	27
Having high motivation from stakeholders	31	1.70%	3.70%	29.80%	48.30%	16.50%	3.7	29
Having commitment from parties to complete the project	28	0.40%	5.00%	22.30%	51.20%	21.10%	3.9	30
Lessons learned	24	0.40%	9.50%	32.20%	45.50%	12.40%	3.6	31
Setting priorities	23	0.40%	6.20%	26.90%	52.90%	13.60%	3.7	32
Completing financial settlements	21	1.20%	4.10%	26.00%	48.90%	19.80%	3.8	33
Having up-to-date project management plan	18	0.40%	5.50%	22.70%	54.50%	16.90%	3.8	34
Having good communication	18	0.80%	4.10%	19.80%	65.30%	10.00%	3.8	34
Having effective cooperation	18	0.80%	6.20%	23.90%	61.20%	7.90%	3.7	34
Maintaining good relationship	17	1.70%	5.80%	35.10%	47.10%	10.30%	3.6	37
Comprehensive review and feedback	13	0.40%	5.00%	23.60%	58.00%	13.20%	3.9	38
Approved technology used	11	0.80%	3.20%	27.40%	56.60%	12.00%	3.8	39

Appendix F

The following items are collected from data in question 4:

The first theme 'Transparency is must have in order to achieve project success in Vietnam' has been contributed by the following comments:

- When having transparency, not only in transport projects but also in anywhere, success will be achieved (51 comments)
- This must be achieved in every projects (31 comments)
- Transparency is predetermination for success (54 comments)
- Transparency in Vietnam now is in very poor and weak condition (93 comments)
- Transparency is very important to any project (185 comments)

The second theme 'Transparency will help to avoid many severe problems in Vietnamese public transport development projects' has been contributed by the following comments:

- This will help avoid cheating between contractors/sub-contractors and superintendents (33 comment). In this situation, cheating can be understood that contractors cooperate with superintendents (in most cases are bribery) for signing paper works of quality appraisals regardless of the actual quality is according to standard and design or not.
- This will help avoid corruption and wastages in projects (62 comments)
- This will help detect wastages and losses from projects (23 comments)
- The lack of transparency restricts fair judgements of project outcomes at any stage (21 comment). This can be understood that the judgment has been exaggeratedly or dishonestly reported.
- This will help reduce wastes and improve project process and quality (42 comments)

The third theme 'Transparency will help to gain many benefits in public transport development projects' has been contributed by the following comments:

- This will enhance participants' responsibility and superintendent works (35 comments)
- This will help evaluate project effectiveness and outcomes more accurately (15 comment)
- This will help enhance the control of quality, progress and effectiveness of projects (10 comments)
- This will help individuals and organisations avoid conflicts, issues and problems then gain supports from them (12 comments)
- This will help decide to invest in right projects, enhance designs, management and implementation of those projects (13 comments)
- It will enhance consensus between parties and getting supports from the community (14 comments)
- It will create belief in project participants and enhance project outcomes (20 comments)

- To achieve transparency, participants must be honest (10 comments)
- This will create equality and fairness to all parties who want to participate in projects (23 comments)
- This will improve the awareness from the community about the projects and their social-economic development roles (10 comments)
- This will help increase investment (22 comments)
- Transparency will help show the cash flows and choose competent contractors (12 comments)
- Communication and cooperation will help complete projects smoothly (10 comment)

Appendix J

The following table is presenting results collected from data in question 5:

Process/Ranking	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean
Design Bid Build	1.60%	5.80%	22.60%	45.60%	24.40%	3.8
Design and Build	6.20%	22.30%	45.50%	21.50%	4.50%	3.0
Build Operate Transfer	2.40%	7.90%	34.30%	33.90%	21.50%	3.6
Construction Management	9.10%	12.40%	39.30%	25.20%	14.00%	3.2
Public Private Partnership	4.00%	17.40%	30.20%	37.20%	11.20%	3.3
Private Finance Initiative	9.50%	24.80%	21.50%	29.80%	14.40%	3.1

Appendix H

The following table is presenting results collected from data in question 6:

Method/Ranking	Res	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean	Res-R
Procurement routes	142	0.80%	7.40%	20.10%	38.00%	33.50%	4.0	1
Total quality management	106	0.00%	2.10%	21.10%	41.30%	35.50%	4.1	2
Education and training	87	0.00%	3.30%	19.40%	56.20%	21.10%	4.0	3
Business culture and HR	73	0.80%	4.50%	33.50%	40.10%	21.10%	3.8	4
Lean construction	48	0.80%	5.00%	35.50%	46.30%	12.40%	3.6	5
Value management	47	0.40%	5.80%	33.90%	42.60%	17.30%	3.7	6
Sustainable construction	45	1.20%	5.00%	25.60%	55.80%	12.40%	3.7	7
H&S	36	2.90%	10.30%	33.90%	36.80%	16.10%	3.5	8
Integrated design & construction	35	0.80%	7.00%	32.20%	45.90%	14.10%	3.7	9
Collaborative arrangement	30	0.80%	14.10%	42.60%	32.20%	10.30%	3.4	10
ICT	25	0.40%	9.10%	41.00%	33.80%	15.70%	3.6	11
Risk Management	21	0.80%	7.40%	42.60%	38.90%	10.30%	3.5	12
Product development	20	0.40%	8.70%	38.40%	43.00%	9.50%	3.5	13
Supply chain management	11	1.70%	11.20%	49.20%	30.90%	7.00%	3.3	14

Appendix I

The following table is presenting results collected from data in question 7:

Stakeholders	Rank
Client/Owner	1
Project Manager	2
Consultant	3
Contractors/Sub-contractors	3
Project management team	5
Superintendent	6
Designer	6
Engineer	8
Suppliers	9
Related departments	10
Community	11
Target beneficiaries	12
Quantity Surveyor	13
Legal advisors	13

Appendix J

The following table is presenting results collected from data in question 8:

Criteria/Ranking	Res	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean	Res-R
Quality	210	0.00%	2.10%	8.20%	31.00%	58.70%	4.5	1
Time	203	0.00%	2.10%	12.00%	38.80%	47.10%	4.3	2
Meet project's aim and objectives	185	0.40%	0.80%	5.80%	41.70%	51.30%	4.4	3
Benefit to the community	173	0.00%	2.40%	7.90%	38.00%	51.70%	4.4	4
Cost	140	0.00%	3.70%	21.90%	45.50%	28.90%	4.0	5
Value for money	112	0.40%	1.70%	9.90%	47.10%	40.90%	4.3	6
High quality materials	102	0.40%	3.70%	18.60%	46.30%	31.00%	4.0	7
Satisfaction	95	0.40%	4.10%	18.60%	56.60%	20.30%	3.9	8
Minimum of risk	84	0.80%	6.60%	24.40%	48.80%	19.40%	3.8	9
H&S	71	1.20%	4.10%	23.20%	51.20%	20.30%	3.9	10
Minimum of changes	67	0.80%	8.30%	38.40%	38.40%	14.10%	3.6	11
Meet social obligations	67	0.00%	3.30%	16.50%	52.50%	27.70%	4.1	11
Fast decision making	62	1.20%	8.70%	18.20%	57.40%	14.50%	3.8	13
Environmental sustainability	59	0.80%	6.20%	19.10%	51.20%	22.70%	3.9	14
Effective problems solving	56	1.20%	4.10%	24.40%	53.80%	16.50%	3.8	15
Maximum of utilisation	46	1.20%	6.20%	28.90%	50.00%	13.60%	3.7	16
Minimum of wastages	46	1.20%	8.30%	28.90%	51.70%	9.90%	3.6	16
Outputs accepted & used	40	0.80%	6.20%	25.20%	48.80%	19.00%	3.8	18
Having consensus among parties	36	2.10%	6.60%	27.70%	51.20%	12.40%	3.7	19
High quality workmanship	35	0.80%	7.00%	28.50%	49.60%	14.10%	3.7	20
Minimum affect from external environment	30	2.50%	7.00%	28.50%	55.40%	6.60%	3.6	21
Minimum of disputes	17	1.70%	11.60%	40.10%	42.90%	3.70%	3.4	22

Appendix K

The following items are collected from data in question 11:

- Vietnamese government should amend and modify legal documents to improve project success (52 comments)
- Applying new technology and improving professionalism in work (16 comments)
- Parties should be more responsible in work, especially owners (22 comments)
- Business culture in Vietnam should be more focused and improved (31 comments)
- Investment method and implementation of projects should be changed (3 comments)
- Should carefully inspect and choose the right contractors (5 comments)
- Contractors should be independent from the MOT (1 comment)
- Project participants should cooperate and understand each other (13 comments)
- Vietnamese stakeholders should adopt foreign standards in design, quality and management then apply in practice to avoid capital lost (51 comment)
- Public should be more informed and aware of the importance of public transport projects and their success (7 comments)
- Skills and knowledge of project participants should be enhanced besides Health and Safety (13 comments)
- Public transport projects should also be monitored publicly to make sure the right materials are used and standard quality is met (44 comments)
- Decision makings process and problems should be quickly made/resolved (40 comments)
- Projects should be finish in standard quality which is suitable to Vietnamese condition (14 comments)
- Project owner and parties should focus more on beneficiaries and reduce accidents in construction projects (1 comment)
- Project investment should be more focused to gain effectiveness (54 comments)
- Project participants should follow the project progress (schedule) with amended changes (4 comments)
- Vietnamese government and the MOT should act independently, not influenced by foreign governments (1 comment)
- Vietnamese government should have suitable strategies for development (2 comments)
- Should have moral, knowledge-able, and experienced project managers in transport projects (1 comment)
- Should improve and reinforce human resources in consultant, design and superintendent (10 comments)
- Vietnamese people should improve their behaviour and manner when using traffic (1 comment)
- Project management should be improved, especially when quality management is the key for success (15 comments)
- Projects should be more transparent, this will reduce corruption and help in choosing the right contractors (75 comments)
- Need re-planning urban areas and should be under carefully researched (12 comments)
- Site clearance should be done faster (28 comments)
- Avoid wasting, bureaucracy and corruption completely (20 comments)

- Budget spending on projects should be sufficient (17 comments)
- Encourage investment from the private sector (1 comment)
- Employ funds for projects from more different sources (1 comment)
- Apply new procurement methods (1 comment)
- Bidding price will not be allowed as too low (1 comment)
- Gain consensus between parties (3 comments)
- Technical design should be carefully prepared and conducted (1 comment)
- Improving standard of living for staff and workers, especially increase salary (2 comments)
- Vietnamese stakeholders should keep their promises (1 comment)
- There should be a friendly environment between contractors (1 comment)
- Project participants should be competitive (1 comment)

Appendix L

Dear Sir/Madam

Thank you for agreeing to participate in my research. My name is Vu Thanh Son and I am a PhD student at the University of Leeds, UK. My research focuses on developing a success framework for managing public transport projects in Vietnam. In particular I am interested in improving the success of transport sector projects. This questionnaire has been designed to gather information regarding the current project management practices. Data collected from this survey will reflect how projects are being implemented in Vietnam, and it will contribute to the development of my framework. Your response to this questionnaire is therefore critical to the success of this research and I look forward to your comments and suggestions.

It will take you approximately 15 minutes to fill in the survey. Please use your own opinion, knowledge and experience to complete the questionnaire. Responses are anonymous and are bound by the data protection act. You are free to withdraw from the survey at any time. If you have any concerns or questions, please let me know and contact me directly through my email cntsv@leeds.ac.uk.

Before answering the questions, please fill in the following boxes which are best matches your job and expertise specifications.

a) Project Manager	b) Engineer	c) Designer
d) Consultant	e) Superintendent	f) Quantity surveyor
g) Contractor	h) Management team	i) University Lecturer
j) Government	k) Supplier	l) Others

Please fill in the following boxes to indicate where you are working at:

1) Public sector	2) Private sector

Question 1:

The following problems are obstacles for the achievement of success in transport projects. Please indicate the significance of these problems by using five-point scale from "1" to "5" where 1 = no impact, 2 = weak, 3 = moderate, 4 = strong, 5 = very strong.

- Problems related to official issues

1. Bureaucracy ( )
2. Corruption ( )
3. Complicated involvement among Ministries ( )
4. Complicated involvement of official documents ( )
5. Slow decision making process from owner and authorises ( )
6. Lack of responsibility from parties ( )
7. Lack of top management support ( )

- Problems related to design and planning

8. Improper feasibility study of the project ( )
9. Inaccurate time and cost estimating of the project ( )
10. Improper planning and scheduling of the project ( )
11. Lack of standardisation in design ( )
12. Mistakes in design or impractical design ( )
13. Design changes ( )

- Problems related to technology and human resources

14. In adequate experience from participants ( )
15. Lack of skilled workers ( )
16. Lack of competence from participants ( )
17. Lack of proper training for staff and workers ( )
18. Obsolete or unsuitable construction methods ( )
19. Obsolete technology (including plant and equipment) ( )

- Problems related to implementing the project

20. Poor communication between parties ( )
21. Shortage of materials ( )
22. Slow site clearance ( )
23. Pollution during construction ( )
24. Poor site management ( )
25. Improper monitoring and control ( )
26. Poor project management ( )
27. Inadequate project management assistance ( )
28. Poor health and safety condition ( )

- Problems related to finance

29. Financial difficulties of client/owner (insufficient funding) ( )
30. Financial difficulties of contractor/subcontractor ( )
31. Slow payment for project( )
32. Slow payment for staff and workers ( )
33. Inflation/price fluctuations ( )

Besides the above problems, if you think there are still others missing, please specify and comment.

In your opinion, please indicate 8 problems from above which you think are the most influential to project success in Vietnam.

Question 2:

In your opinion, what do you think about business culture and its influence in implementing and managing projects in Vietnam?

Definition: Critical Success Factors are inputs to the system of management that directly or indirectly lead the project to success.

Question 3:

In your opinion, in what extent the following factors are important for achieving project success? Please indicate the importance of the factors by using five-point scale from "1" to "5" where 1 = unimportant, 2 = somewhat important, 3 = moderate, 4 = important, 5 = very important.

- Factors related to initiating a project (from client perspective)

1. Define clearly aim and objectives of the project ( )
2. Project is feasible and viable ( )
3. Identify correctly target beneficiaries ( )
4. Having clear procurement strategy ( )
5. Having competent project manager ( )
6. Having competent and multidisciplinary management team ( )
7. Having support from community ( )
8. Having competent and experienced consultant ( )
9. Having high motivation from stakeholders ( )

- Factors related to design and planning

10. Having competent designers and engineers ( )
11. Setting priorities ( )
12. Carefully forecasting risks ( )
13. Carefully planning and scheduling project implementation ( )
14. Having strong consultation among parties ( )
15. Having adequate design with specifications ( )

- Factors related to construction

16. Having competent contractors/sub-contractors ( )
17. Having commitment from parties to complete the project ( )
18. Having sufficient funding and adequate financial support ( )
19. Having top management support from Government ( )
20. Having up-to-date project management plan ( )
21. Having cost control mechanism ( )
22. Having quality control mechanism ( )
23. Materials are sufficiently and effectively supplied ( )
24. Tool and equipment are ready and meet technical requirement ( )
25. Applying strictly Health and Safety Regulation ( )
26. Superintendence and monitor is strictly conducted ( )
27. Having good communication and rapport between participants ( )
28. Having effective cooperation between stakeholders ( )
29. Having fast decision making process ( )
30. Having problems resolved fast and effectively ( )
31. Absence of bureaucracy ( )
32. Approved technology used ( )
33. Having adequate employees training program ( )

- Factors related to completing project

34. Comprehensive review and feedback ( )
35. Lessons learned ( )
36. Maintaining good relationship between parties ( )
37. Smoothly transfer the asset ( )
38. Completing financial settlements ( )
39. Strong ownership and maintenance ( )

Besides the above factors, if you think there are still others missing, please specify and comment.

In your opinion, please indicate 10 factors from above which you think are the most critical and currently applied in order to improve success of transport projects in Vietnam

Question 4:

In your opinion, what do you think about the role of transparency in a project and its importance to project success?

Definition: All construction projects have a beginning and an end, therefore they all have project life cycle. There is always a process which contains stages of carrying out tasks during project life cycle, and how to implement these tasks is critical to the success or failure of any projects.

Question 5:

To what extent do you think each of the following project delivery routes is relevant to improve success of Vietnamese transport projects? Please indicate the significance of each route by using five-point scale from "1" to "5" where 1 = not apply, 2 = somewhat relevant, 3 = moderate, 4 = relevant, 5 = very relevant.

1. Traditional: design – bid – build (DBB) ( )
2. Design and build (DB) ( )
3. Build – operate – transfer (BOT) ( )
4. Construction management (CM) ( )
5. Public – private – partnership (PPP) ( )
6. Private – finance – initiative (PFI) ( )

Question 6:

In your opinion, which of the following methods are suitable to improve the success of public transport development projects? Please select and indicate the importance of these methods by using five-point scale from "1" to "5" where 1 = not apply, 2 = somewhat important, 3 = moderate, 4 = important, 5 = very important.

1. Procurement routes for construction (D&B, BOT, contract management, etc) ( )
2. Collaborative arrangements (partnering, joint-venture, etc) ( )
3. Health and Safety ( )
4. Business culture and human resources ( )
5. Information and communication technology ( )
6. Risk management ( )
7. Total quality management ( )
8. Value management ( )
9. Product development ( )
10. Supply chain management ( )
11. Sustainable construction ( )
12. Integrated design and construction ( )
13. Lean construction ( )
14. Education and training ( )
15. Others (please specify)

In your opinion, please specify 3 methods from above which are the most relevant to improve the success of public transport in Vietnam.

Definition: Stakeholders are organisations and individuals who are directly and actively involved in the project, or whose interests and concerns might be negatively or positively influenced as a result of successful completion or execution of the project.

Question 7:

In your opinion, which of the following stakeholders are the key for the success of transport projects? Please select and rank their importance with 1= the most important stakeholder then following by less important stakeholders (2,3….)

Client/owner (usually Government, sponsors like WB, ADB or local authorities) ( )

Project manager ( )

Project management team ( )

Consultant ( )

Contractor/subcontractor ( )

Supplier ( )

Superintendent ( )

Designer ( )

Engineer ( )

Quantity surveyor ( )

Related Departments (i.e ministry of transport, construction, finance, etc) ( )

Target beneficiaries ( )

Legal advisor ( )

Community ( )

Others (please specify)

Definition: Success Criteria are standards by which success or failure of a project will be judged

Question 8:

In your opinion, which of the following criteria are used for measuring project success? Please select and indicate the importance of these criteria by using five-point scale from "1" to "5" where 1 = unimportant, 2 = somewhat important, 3 = moderate, 4 = important, 5 = very important.

- Criteria related to the success project management

1. Complete on time ( )

2. Complete within budget ( )
3. Meet technical specifications(in term of design and functionality) ( )
4. Achieve satisfaction from stakeholders ( )
5. Achieve high consensus from stakeholders ( )
6. Meet Health and Safety requirement ( )
7. Fast decision making ( )
8. High quality of workmanship ( )
9. High quality of materials and components ( )
10. Minimum amount of disputes ( )
11. Minimum amount of changes (scope, design, management) ( )
12. Minimum of wastages ( )
13. Maximum utilization of resources, plant and equipment ( )
14. Minimum amount of risks ( )
15. Effectively problems resolved ( )

- Criteria related to the final outcome

16. The final outputs are accepted and used by target beneficiaries ( )
17. Benefit to community ( )
18. Value for money ( )

- Criteria related to the overall success

19. Meet project aim and objectives ( )
20. Meet social obligations ( )
21. Environmental sustainability ( )
22. Minimum affect from external forces (politics, economics, technology, social)

Besides the above criteria, if you think there are still others missing, please specify and comment.

In your opinion, which 8 criteria from above are the most common for evaluating the success of transport projects in Vietnam? Please specify.

Question 9:

In your opinion, how do you rate the success of public transport development projects in Vietnam in term of time, cost, and quality? Please indicate the importance of these criteria by using five-point scale from “1” to “5” where 1 = not at all successful, 2 = poor, 3 = satisfactory, 4 = successful, 5 = very successful.

1. Time ( )
2. Cost ( )
3. Quality ( )

Question 10:

In your opinion, how do you rate the outcomes of recent public transport development projects in Vietnam?

1: bad failure ( )

2: failure ( )

3: somewhat successful ( )

4: successful ( )

5: very successful ( )

Question 11:

In your opinion, please provide any comments and suggestions which you think are relevant in order to improve the success public transport development projects in Vietnam.