BARRIERS ON SMALL SCALE CONTRACTORS TO ENTER AND SURVIVE COMPETTITIVE CONSTRUCTION INDUSTRY IN SRI LANKA

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Declaration

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Abstract

Many challenges are facing by business managers when there are projects involved in their business in construction industry. Construction is industry is not an exception when project comes in to their businesses as a part of the business activity. Many barriers are directly resulting to operations related and some are indirect marginal activities of SME level for its survival. While managing a SMEs, most of the time, challenges are addressed by the SMEs to ensure the success and survival. Many considerations are included in communication, workforce, safety, time constraints, and nature of the project, quality and time management. From a literature review six predominant problems currently facing the construction industry were identified. With the analysis of data and above constrains in the field of construction SMEs survival, it reveals that the clear relationship between employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management, knowledge transfer and survival of SME construction companies. The underlying aim of ranking these problems being towards developing a strategy for improving the performance of the construction sector and improving client satisfaction through the satisfaction of SME operations. Accordingly, research question is formulated to address the issue of "what are the existing situations of competitive construction industry in Sri Lanka and what are the barriers to enter and survive in competitive construction industry in Sri Lanka?" The opinions of Construction Company concerning the severity of these problems was obtained through a questionnaire survey. Finings reveals that, there are direct relationship between employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management, knowledge transfer and survival of SME construction companies. This was proved by using the fishbone model. With the findings of this research, it is not only applicable to locally, but also to address to mitigate issues related to survival of construction SMEs at global level.

Keywords: Construction SMEs, Survival of SMEs

Dedication

I wish to dedicate my dissertation to my loving Wife Ishani Surangi, My Elder Son Pasindu Chamath, Daughter Laknavi Geethma and youngest son Manidu Lakmith on their support and dedication extended to me on engaging MBA study.

I have had to deviate from family time to concentrate my studies and eventually lost my time to spend with them leaving them with strain on weekends.

I anticipate all my hard work will finally keep them up towards brighten their life in all future endeavors.

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Table of Contents

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE – INTRODUCTION

Sri Lanka is an island nation with a land area of 65,610 square km (sq.km). In 2010, the country had an estimated population of 20.65 million with an annual growth rate of 1 per cent. The country is located south of India and is surrounded by the Bay of Bengal in the North and Indian Ocean in the South and West (ICRA Lanka, 2011).

With the aim of sustaining over 8 per cent GDP growth rate in the next 10 years, the Government of Sri Lanka has laid emphasis on less developed regions, rural livelihood, infrastructure and reconstruction in erstwhile conflict zones as well as tsunami affected areas. Several plans and strategies announced by the Government indicate that the country's construction industry is poised for significant growth because of investments in sectors such as power, roads, ports transportation, housing, tourism and reconstruction (ICRA Lanka 2011).

The Sri Lankan construction industry is expected to grow at a rapid pace in the post-conflict scenario. The end of the island's ethnic conflict in 2009 has revived the economic activity and resulted in a strong focus on infrastructure development. The country's construction industry contributes to about 70 per cent of the Gross Domestic Fixed Capital Formation and about 8 per cent to the country's GDP, with growth since 2003. The industry ranks seventh among the 13 major sectors contributing to the country's GDP.

In 2010, Sri Lanka's construction industry recorded a growth rate of 9.3 per cent as compared to 5.6 per cent in 2009. Its contribution to the GDP was about LKR 423.4 billion, at constant prices. Greater construction activity was also reflected in 12 per cent annual growth of the building material industry. Acceleration of ongoing projects such as for development of power sector including mega projects and road development including expressways, interregional national highways is likely to generate large demand for companies in the construction industry (CBSL, 2010).

In 2010, disbursement of loans increased 39.6 per cent for construction of houses, business premises, other buildings, and property developments. The Sri Lankan construction industry is on an upward trend, due to the post-conflict scenario in the country. The end of the island's ethnic war in 20091 has revived the economic activity and resulted in an infrastructure building boom. Significant reconstruction activities are expected to be undertaken in the North and the East of the country. The other regions of the country are also expected to see significant development activities (Construction Industry Survey, 2011).

In 2010, Sri Lanka's gross domestic product (GDP) growth was 8 per cent as compared to 3.5 per cent in 2009. In the coming decade, the Sri Lankan Government aims to sustain economic growth rate at over 8 per cent. The construction industry occupies an important position in the Sri Lankan economy as in any developing economy (CBSL, 2010).

Various policies and plans of the Government of Sri Lanka indicate that economic growth acceleration focuses on less developed regions, rural livelihood and infrastructure development. Sri Lanka is considered as a developing country which shows a high potential on construction industry after 3 decades of internal conflicts is over. Construction contributes high percentage to GDP growth on a country and it further would help to curb inflation and reduce unemployment in the society.

Sri Lanka's construction industry has, historically, been supported mainly by housing, industrial and physical infrastructure. In the next 10 years, some of the key areas, which are expected to generate significant demand for construction, include power, roads, ports, water supply, sanitation, tourism, housing, and reconstruction of post-conflict and tsunami-affected regions. It has long been recognized that small and micro businesses have a vital role to play in the economy (Stanworth, 1991; Hay and Kamshad, 1994), generating employment, promoting innovation, engendering competition and creating economic wealth.

Druker and White, (1997) stated that, The definition of "construction" used here embraces a wide variety of organizations, including multinationals which have a product division concerned with construction activity and contractors whose main business may be within construction including building, civil engineering, mechanical and electrical services.

1.1 Background of the study

With the introduction of market economy in late 70's then government dominated construction industry become open to capable entrepreneurs who able to become contractors in the country. Few individuals who forecast growth of construction industry and potential of the market invested on forming construction companies in Sri Lanka. However with most of the mega scale construction projects launch like Mahaweli development scheme were handled by large scale international contractors. Local companies slowly emerged as labor suppliers, subcontractors, machinery suppliers and service providers later became larger construction companies in Sri Lanka. Few examples of them are ICC, Maga, Sanken Lanka, Thudawa, KDAW, SIERA who are leading in the industry as professional construction companies.

However after the initial construction boom subside the industries became highly competitive as a result of internal conflicts and low investment in infrastructure development in the country. The tendency to enter small scale contractors become a challenge as a result of the slow growth rate of the industry during internal conflict.

Kululanga, (2012) stated that, the state should play three roles in developing the construction industry, namely: (1) as a major client; (2) a provider to a general business environment; and (3) as a stimulant for a specific construction business environment. The general business environment if not enhanced will only perpetuate under development of the industry. Therefore, the enabling business environment represents the broad context within which the business climate becomes conducive for cartelizing capacity building of companies. For example, poorly conceived policies, an unstable political environment and high levels of corruption can result into a highly disenabling environment with significant negative consequences.

Five competitive forces proposed by Porter (1980) cited by Budayan et.al, (2013) in the construction industry are considered, differentiation strategy can be considered as an effective strategy to impede these competitive forces and influence them in its favor, which in turn, creating and sustaining competitive advantage for the construction industry.

1.2 Small and Medium Scale Enterprises (SME)

There is no internationally agreed definition of Small and Medium sized Enterprises (National Strategy for Small & Medium Industries Development in Sri Lanka, 2002; OECD, 2009). The Small- and Medium-scale Enterprises (SME) plays a vital role in the developing economies by contributing to the national economic output and employment generation and is considered as engines for economic growth and development (Thiruchelvam et.al, 2003; Singh et.al, 2010). At present there is no clear definition of SMEs. This position has created confusion in identifying the SMEs for various programs; it also creates implementation problems for the national policy (SME Draft Policy, NEDA – 2009).

In Sri Lanka, the definition of the SME depends on following three variables namely number of full time employees or production turnover or total asset value. The industries categorized as fixed assets values not exceeding Rs. 20 million small industries and Rs. 50 million for medium industries. At the lowest end the small industry asset value identified as Rs. 1 million. The SMEs account for 80 percent to 90 percent of the total number of enterprises in Sri Lanka and contribute 30 percent in terms of value added and account for 32.7 percent of the employment from Agricultural sector, 26.3 percent of the employment from Industrial sector 41.0 percent of the employment from Services sector. Also 75 percent of SMEs are located outside the relatively prosperous Western Province (SME White Paper 2002).

One of the important SME strategies is to create an enabling business environment. This broadly covers access to finance, technology, regulatory framework, access to information and consultation, access to markets, business development services, industrial relations and labor, linkage formation and environment issues (SME White Paper 2002).

1.3 Problems encounter on small scale contactors development

The ICTAD classification of construction contractors are mainly on their financial capability on grading concerned. However there are contractors who are capable and managed by industry professionals be able to manage even large scale construction are facing sever burdens mainly in finance, quality and skills of employees.

1.4 Problem Justification

The above difficulties would restrict small scale contractors to grow up to middle scale and bridge the gap between large scale and small scale both are necessary to maintain sustainable construction growth of the country. Large scale projects which are undertaken by larger construction companies unable to find specialized sub-contractors who are capable of handling specialized work scopes. Therefore there is a gap between small scale constructor's capability and requirement of the construction field. The large scale contractors cannot fill this gap because of the following problems encounter in the small scale industry.

Since the majority of indigenous construction companies are small, lack capacity, vision and capital, these problems tend to be exacerbated by the volatile environment in which they operate. Hence, they may face a difficult growth path because they and their business environment are both underdeveloped. Given an opportunity, they can probably overcome their inadequacies, but they cannot change their environment.

The most convincing reason for providing a specific business environment to construction industry stems from the view that the business behavior, practices, products, structure of the organizations in the industry, low capital requirement for entry and high labor intensive make the industry unique from other industries. This is the reason that several countries have established formal national construction industry councils to facilitate interventions for construction industry development on behalf of the state. Therefore, the state as a provider of a specific construction industry environment should provide specific laws and regulations on one hand, and the necessary structures and institutions for enhancing capacity building such as incentives and a variety of controls. Accordingly the research question is defined as "what are the existing situations of competitive construction industry in Sri Lanka? and what are the barriers to enter and survive in competitive construction industry in Sri Lanka?"

1.5 Objective of the study

1. To find out existing situation to enter and survive competitive construction industry in Sri Lanka
2. To find out barriers affecting to enter and survive competitive construction industry in Sri Lanka
3. To propose a suitable policy implication to enter and survive competitive construction industry in Sri Lanka

1.6 Problem justification

Budayan et.al, (2013) stated that, based on a literature review, nine corporate management activities, which can affect the achievement of competitive advantage, was determined as the drivers of the differentiation strategy. These activities are strategic planning, business development, financial management, professional management, organizational learning, research and development, tendering, knowledge management, and marketing.

Encourage small scale contractors to pay more serious attention on the use of expertise of relevant professionals to develop companies in to stronger ventures. Highlight the importance of sustainable development of the construction industry which is a drive of any economy to enhance the confidence of investors subsequently create opportunities for potential contractors. Having identification of the problem encountered by the small scale contractors the study will be provided frame work to attract professionals and develop trust on small scale contractors that they have clear future if they manage themselves to match the market demand.

1.7 Significance of the research

Okpara and Wynn (2007) cited by Gill and Biger (2012) identified several factors that are responsible for small business failure in Nigeria: lack of financial support, lack of management experience; corruption, lack of infrastructure, lack of training, and inadequate bookkeeping and recordkeeping.

The importance of studying this research is to provide a benefit to the SME in construction industry. Also identify the possibility of new methodology for the betterment of the SME sector in construction study of focus theme. Government of Sri Lanka, ICTAD, construction companies, Universities and other likeminded institutions will also be benefited in this.

1.8 Limitation of the study

This study is limited to the Western Province which had a direct impact in both private and public development and research will focus only on analyzing the barriers of survival of small and medium scale construction. Implementation of policy for this sector will be taken as the applications compared to the current methods relatively modernize strategy for betterment of the industry.

At present ICTAD has taken the initiative providing guidelines for this sector and improve the industry norms. As such there is no national policy for this sector. By this research a uniform and equitable single policy for the entire sector could be developed to overcome the above stated issues.

1.9 Organization and Preview of the Thesis

This study report comprises six thematic chapters. Firstly this study report provided an introduction about the study which provides consensus for the survival of the small construction industry, focus, limitations along with other relevance and information. Secondly the report focused on the literature available. The literature were reviewed and gathered from Books, Journals, Articles, Research Reports and Websites. Thirdly the report revealed the case study areas with maximum possible information available and Research design followed thereafter. Analysis and conclusion arrived subsequently through fifth and sixth places. Citations and references have quoted where necessary to provide due respect to the Authors and Publishes.

CHAPTER TWO – LITERATURE REVIEW

Chapter two attempts to examine theoretical concepts of barriers on small scale contractors to enter and survive competitive construction industry in Sri Lanka.

Budayan et.al, (2013) stated that, consequently, six resources were determined as the resources which can support the activities conducted at the project and corporate level in the development of differentiation. There are strong positive links between business planning and small business success (eg Schwenk and Sharder, 1993 cited by Fielden et.al, 2000), there is an emerging view that the value of planning is context-dependent, and that its benefits may differ across contexts (Mintzberg, 1994; Castrogiovanni, 1996 cited by Fielden et.al, 2000).

2.1 Barriers on small scale contractors to enter and survive competitive construction industry

Employee turnover

Druker and White, (1997), stated that, changes in reward management systems have been at the heart of developments in human resource management (HRM).The reward management literature emphasizes the need to shift from short-term, ad hoc approaches to pay management to a longer-term, strategic approach. "Paying people according to their value in the market pays...After all, it is people who move from job to job and from company to company, it is people who develop skills, and it is people who are the important organizational assets". Firms in the construction industry, with an irregular flow of work, experienced significant pressures to reduce the core workforce and to create and sustain alternative working arrangements. There has in the past been less scope than in other sectors for routinized work systems and technological innovation (Ball, 1988; Bresnan et al., 1985 cited by Druker and White, 1997). This too has increased the pressure on employers to minimize the risks of employment overheads and download the responsibility for managing workflow through subcontracting.

The negative impact of the credit crunch, the industry sector still faces an ongoing skills shortage and diversity- based recruitment levels are currently inadequate in meeting this severe skills gap (Construction Skills, 2008 cited by Worrall et.al, 2010). Construction industry is attempting to fill this gap in the short term by hiring workers from low-wage economies, rather

than recognizing the longer-term business case advantage of expanding the recruitment of women (Gurjao, 2006 cited by Worrall et.al, 2010).

One of the important resources in the construction industry was determined as "human resources". Warszawski (1996) cited by Budayan et.al, (2013) mentioned about human resources as probably the most critical resource and the key to success in the construction industry. In addition, the relationship between the achievement of the differentiation strategy and human resources is also mentioned by Sun and Pan (2011) cited by Budayan et.al, (2013).

Hipel (2011) stated that, preference information is crucial for determining favored outcomes in decision making. However, the preference can be certain or uncertain. A certain preference is a situation in which a decision making definitely prefers one state over another or is indifferent between them. On the other hand, an uncertain preference is the case where a decision making is not quite sure whether he or she definitely prefers one state over another, even if he or she picks one. Preference uncertainty is very common in real world decision making, such as in engineering, the social sciences and economics. Failure of timely effective decision making, will lead to several disputes between project stakeholders.

As cited by Mahamid (2014) in his report, many articles examined the relation between construction disputes and main problems in construction projects such as: delay, claims, failure, productivity, rework and cost overrun. They concluded a high correlation between them (Ahmed et al., 2003; Sambasivan and Soon, 2007; Aibinu and Jagboro, 2002; Kaliba et al., 2009; Nega, 2008). Clegg (1992) cited by Adnan (2012) stated that, stated that the parties involved in conflict in construction industry are Client, Developer, Project Manager, Consultant team (Engineer, Architect, and Surveyor), Contractor and Sub contractor, Supplier and Financier.

Yiu and Cheung (2004) cited by Mahamid (2014), they concluded that the significant sources are: parties expectations and inter parties' problems (human behavior related), and variation and delay in work progress (construction related) and variation and delay in work progress (construction related).

Jaffar et.al, (2011) stated that, behavioral problems include human interaction, personality, cultures and professional background among project team. Other issues in human behaviour

such as individual's ambition, frustration, dissatisfaction, desire for growth, communication and level of power, fraud and faith are also causes of disputes

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Sinden et.al, (2012) stated that, the stakeholders in the construction industry wanted a statue that provided improved cash flow between parties, improved the operation of construction contracts and promoted adjudication as a form of dispute resolution. Worrall et.al, (2010) stated that, providing effective skills training and in meeting the skills gap. Identified a number of inherent problems within the industry itself; including its natural fragmentation due to prior

privatization policies and the reduction of governmental involvement, a severe skills shortage, a lack of training of its workforce, and its overall poor image.

The report concluded by calling for greater uniformity of the sector, for the promotion and utilization of best practice guidelines and for a change in UK legislation to encourage the resolution of "adversarial" disputes that had now become commonplace in the industry sector (Michael Latham, 1994) cited by Worrall et.al, 2010)

Wirahadikusumah and Pribadi (2011) stated that, construction industry is essential to the national economic development. The construction sector is regarded as a mechanism of generating employments to millions of unskilled, semi-skilled and skilled work force. Other sectors and the community all benefit from high quality housing, hospitals, schools, and transportation infrastructures that are constructed efficiently. Employers who do not offer long-term job security are understandably reluctant to invest in developing their employees' skills for fear the relationship will not last long enough for them to realize their investment. Unique characteristics of construction industry have far reaching implications for addressing capacity building for industries in developing countries.

The term capacity relates to the abilities, skills, knowledge, learning attitudes, values, relationships, behaviors, motivations, resources and conditions that enable individuals, organizations, institutions and systems to carry out functions effectively, efficiently and innovatively in order to achieve their development objectives (Carson, 2005; Kululanga, 2005; CIDB, 2002 cited by Kululanga, 2012).

Kululanga, (2012) stated that, construction industries in developing countries should also focus their attentions at industrial level itself. This reflects an increasing awareness of the importance of effective coordination within and across the construction industry as well as sister industry sectors. Within the construction industry, in both developed and developing countries, technical collaboration has however traditionally been very small and seldom crosses industry boundaries. The quality of public research infrastructure and its links to industry may be one of the most important national assets for supporting capacity building (Kulatunga et al., 2007 cited by Kululanga, 2012).

Kululanga, (2012) stated that, Capacity building that can be driven at this level should target five areas, namely:(1) joint industry activities;(2) public/private interactions;(3) technology diffusion;(4) personnel mobility; and(5) strong associations and contributions from professional bodies.

The other critical resource is experience and knowledge, even knowledge has been treated as a key source of potential benefit for construction organizations (Dikmen and Birgonul, 2003; Kamara et al., 2002) cited by Budayan et.al, (2013).

2.2 Application of new technology

The majority of indigenous construction organizations in developing countries lack capacity and cannot meet the demand of construction work (Didibhuku and Mvubu, 2008 cited by Kululanga, 2012).

Most of construction organizations in developing countries have no requisite experience and are small which make it difficult for them to compete effectively (Adnan et al., 2006 cited by Kululanga, 2012). For example, weak conditions both at organizational, industrial and institutional levels continue to inhibit their growth. Thus, much of the market share of the construction industry in mostdeveloping countries is dominated by foreign firms (Ligny and Erkelens, 2008 cited by Kululanga, 2012).

Maqsood and Finegan (2009) stated that, a significant embedded characteristic of the construction industry is a culture that resists the change associated with the adoption and diffusion of innovation and knowledge. Kululanga, (2012) stated that, the dissemination of technology as new or innovative plant, equipment and tools is also very important to the construction industry. In addition, technology diffusion between stakeholders local, regional and international players through a variety of mechanisms such as technology professional journals, trade magazines, lectures, conferences, exhibitions and site visits and other formal and informal networks including professional associations is also a very important component for capacity building.

Depending on the complexity and size of construction organizations capacity building, the initiatives at this level include: employing individuals with adequate/relevant qualifications, adopting a culture for improvement despite project nature of work, pursuing partnerships in

research initiatives, pursuing partnerships in working with others, spearheading improvements of firms, seeking new development for an organizations, sharing best practices with other organizations and having capacity for readiness to respond to the future (Macmillan, 2002; Disterer, 2002; Bossink, 2004;Sarsharet al., 2004; Jin and Ling, 2005 cited by Kululanga, 2012).

Greater collaboration between organizations is therefore beneficial (Lazar, 2000 cited by Kululanga, 2012). A number of studies have shown that competitive advantage no longer resides with internal capabilities but rather with relationships and linkages a firm can forge with external organizations (Hauck et al., 2004 cited by Kululanga, 2012).

Machinery and equipment was considered as an important resource. Due to high wages and lack of skilled labours, production is mechanized in order to increase efficiency by replacing workers with machines, so there has been a move towards a greater use of plant and machinery in building and civil engineering in many developed countries (Wells, 2001) cited by Budayan et.al, (2013).

2.3 Government regulations

Druker and White, (1997) stated that, discrete business strategies require particular behaviors and attitudes from employees and strategic pay management involves selecting pay policies which will secure these behaviors and attitudes". Druker and White, (1997) stated that, The key developments in British remuneration policies over the last 20 years have been the shift to more flexible and variable reward systems and the decline of collectively bargained pay. The abandonment of most forms of government involvement in wage regulation; and lastly clear government support for more employment flexibility.

Wirahadikusumah and Pribadi (2011) stated that, one of the major products is the legal framework for construction industry. The Act also established the major role of the public/community and professional associations in developing the industry, while the government is to support and facilitate.

Wirahadikusumah and Pribadi (2011) stated that, with the goal to improve the quality of human resources in construction, UUJK introduced "certification" requirements. Construction workers and professionals (engineers/architects) are required by law to hold a certificate either as a skilled worker or as a professional. While the term used is "certification" which generally indicates a voluntary process, this certification requirement implies a practice of licensing or

mandatory process. Although certifying the national construction workforce seems to be a strategic action, this objective has resulted in numerous implementation challenges and negative consequences.

Sound policies, high levels of commitment, effective coordination and a stable economic and political environment can be important contributions to an enabling environment which can greatly increase prospects for capacity building of construction industry (Al-Sedairy, 2001 cited by Kululanga, 2012).

Mahamid (2014) stated that, it is important to review the factors leading to such problems in construction projects to have a detailed and deep view about the direct and indirect dispute causes in construction industry.

Al-Kharashi and Skitmore (2009) cited by Mahamid (2014), shortage of construction materials, shortage of manpower, low skill levels, delay in progress of payment by the clients, contractor inexperience, consultants' experience, delay in review of the design documents, and unrealistic timeframe.

An industry's competitive environment includes the relative bargaining power of suppliers and customers in the context of a particular organization (Porter, 1980, 2001 cited by Kelliher 2007). The assumption is that if buyers and sellers are all of reasonable size and have sufficient resources, they offset each other's potential power in the industry: there may be a leader, but that firm has no power to superimpose its wishes on the channel (Mallen, 1978 cited by Kelliher 2007).

A manifestation of the power relationship is where firms with greater power can influence smaller trading partners to adopt information systems (Hart and Saunders,1997; Power and Sohal, 2002 cited by Kelliher 2007). Specifically, the bargaining power of trading partners is an important influence in driving the adoption of inter-organizational operating systems in small firms (Hart and Saunders, 1998; McGrath and Heiens, 2003 cited by Kelliher 2007), as these companies often exert pressure on their smaller partners to use technology (Hwanget al., 1993; Kent and Mentzer, 2003 cited by Kelliher 2007).

The small firm's make dictated by or buy decision in relation to an information system is internal resource constraints (Welsh and White, 1981 cited by Kelliher 2007). Small businesses often lack the necessary internal knowledge and technical skills to create the systems themselves (DeLone, 1988; Thong, 2001 cited by Kelliher 2007).

2.4 Financing

All construction projects are carried out with the involvement of a number of parties such as a client, contractor(s), subcontractors, suppliers, and partners, the quality/strength of an organization's relationship with these parties should be considered as a strategic asset that can have significant implications on its operations and activities, and hence on its financial performance (Davis and Walker, 2009 cited by Budayan et.al, 2013).

Access to finance on competitive and realistic terms is a key to their viability and growth (Binks and Ennew, 1996 Yavas et.al, 2004). Unlike large firms that have ready access both to debt and equity markets, the small firms have nowhere else to go but the banks. Just as the success of a small business is dependent on the type of relationship it maintains with the commercial banking industry, the success of banking industry depends on the type of relationship maintained with its clientele and an understanding of client needs. The relationships homebuilders maintain with their commercial lenders carry critical implications for performance and survival.

Gill and Biger (2012) stated that, Most of the business owners cannot meet the requirements for commercial loans and such loans are expensive. Micro operations were more likely to encounter problems of demand, the availability of alternative sources of finance, a lack of information about financing options, and a lack of financial expertise. In addition, Orser et al. cited by Gill and Biger (2012) point out that the intensity of several problems faced by small firms differed by sector, gender of owner, size of the business, legal structure, and age of the firm. Hassanein and Adly (2008) cited by Gill and Biger (2012) investigated the magnitude of the financing barrier faced by small Egyptian construction firms by using survey questionnaire. They found that the lack of access to suitable sources of finance is a major barrier to small business growth.

Most of the companies in the construction industry prefer following cost leadership strategy, due to competitive tendering in which the contract is awarded to the lowest bidder (Price and Newson, 2003 cited by Budayan et.al, 2013).

Dikmen and Birgonul (2003) cited by Budayan et.al, (2013) concluded that financial resources are the most critical resources and differentiated services for the Turkish construction companies through innovative project development. Therefore, financial resources were considered as an important resource. In addition, the importance of technological capabilities in the creation of competitive advantage in the construction industry was also mentioned by Miozzo and Dewick (2002) cited by Budayan et.al, (2013).

Mahamid (2014) found 10 factors in the development of disputes: poor management, adversarial culture, poor communications, inadequate design, economic environment, unrealistic tendering, and influence of lawyers, unrealistic client expectations, inadequate contract drafting, and poor workmanship.

Assaf et al. (1995) cited by Mahamid (2014), studied the causes of delay in large building construction projects in Saudi Arabia. They outlined 56 main causes of delay. The most important causes of delay included approval of shop drawings, delays in payments to contractors and the resulting cash-flow problems during construction, design changes, conflicts in work schedules of subcontractors, slow decision making and executive bureaucracy in the owners' organizations, design errors, labor shortage and inadequate labor skills.

Moazzami et.al, (2011) stated that, incomplete plans and specifications in the design phase of a project result in inaccurate cost estimating and increase the risk of cost overrun. Jaffar et.al, (2011) stated that, today's construction projects become more complex in nature. The complex, relational and lengthy process of designing and building makes construction a process in which disputes are virtually ensured.

The majority of indigenous construction organizations in developing countries lack capacity and cannot meet the demand of construction work (Didibhuku and Mvubu, 2008 cited by Kululanga, 2012).

Most of construction organizations in developing countries have no requisite experience and are small which make it difficult for them to compete effectively (Adnan et al., 2006 cited by

Kululanga, 2012). For example, weak conditions both at organizational, industrial and institutional levels continue to inhibit their growth. Thus, much of the market share of the construction industry in most developing countries is dominated by foreign firms (Ligny and Erkelens, 2008 cited by Kululanga, 2012).

Maqsood and Finegan (2009) stated that, a significant embedded characteristic of the construction industry is a culture that resists the change associated with the adoption and diffusion of innovation and knowledge. Kululanga, (2012) stated that, the dissemination of technology as new or innovative plant, equipment and tools is also very important to the construction industry. In addition, technology diffusion between stakeholders local, regional and international players through a variety of mechanisms such as technology professional journals, trade magazines, lectures, conferences, exhibitions and site visits and other formal and informal networks including professional associations is also a very important component for capacity building.

Depending on the complexity and size of construction organizations capacity building, the initiatives at this level include: employing individuals with adequate/relevant qualifications, adopting a culture for improvement despite project nature of work, pursuing partnerships in research initiatives, pursuing partnerships in working with others, spearheading improvements of firms, seeking new development for an organizations, sharing best practices with other organizations and having capacity for readiness to respond to the future (Macmillan, 2002; Disterer, 2002; Bossink, 2004;Sarsharet al., 2004; Jin and Ling, 2005 cited by Kululanga, 2012).

Greater collaboration between organizations is therefore beneficial (Lazar, 2000 cited by Kululanga, 2012). Anumber of studies have shown that competitive advantage no longer resides with internal capabilities but rather with relationships and linkages a firm can forge with external organizations (Hauck et al., 2004 cited by Kululanga, 2012).

Machinery and equipment was considered as an important resource. Due to high wages and lack of skilled labors, production is mechanized in order to increase efficiency by replacing workers with machines, so there has been a move towards a greater use of plant and machinery in building and civil engineering in many developed countries (Wells, 2001) cited by Budayan et.al, (2013).

2.5 Contractor awareness of environmental issues

An industry's competitive environment includes the relative bargaining power of suppliers and customers in the context of a particular organisation (Porter, 1980, 2001 cited by Kelliher 2007). The assumption is that if buyers and sellers are all of reasonable size and havesufficient resources, they offset each other's potential power in the industry: there may be a leader, but that firm has no power to superimpose its wishes on the channel (Mallen, 1978 cited by Kelliher 2007).

A manifestation of the power relationship is where firms with greater power can influence smaller trading partners to adopt information systems (Hart and Saunders,1997; Power and Sohal, 2002 cited by Kelliher 2007). Specifically, the bargaining power of trading partners is an important influence in driving the adoption of inter-organisational operating systems in small firms (Hart and Saunders, 1998; McGrath and Heiens, 2003 cited by Kelliher 2007), as these companies often exert pressure on their smaller partners to use technology (Hwanget al., 1993; Kent and Mentzer, 2003 cited by Kelliher 2007).

The small firm's make or buy decision in relation to an information system is dictated by internal resource constraints (Welsh and White, 1981 cited by Kelliher 2007). Small businesses often lack the necessary internal knowledge and technical skills to create the systems themselves (DeLone, 1988; Thong, 2001 cited by Kelliher 2007).

Hipel (2011) stated that, decision making is one of the most common activities in society. It ranges from simple decisions in one's daily life to strategic decisions in war. As such the owner should be able to make a decision prior to the project and communicate to the stakeholders.

Assaf and Al-Hejji (2006) cited by Mahamid (2014), concluded that only one cause of delay is common between all parties, which is "change orders by owner during construction". They found that many causes are common between two parties, such as delay in progress payments, ineffective planning and scheduling by contractor, poor site management and supervision by contractor, shortage of labors and difficulties in financing by contractor.

Al-Ghafly (1995) cited by Mahamid (2014), owner involvement, contractor performance, and the early planning and design of the project. Important causes are financial problems, changes in the design and scope, delay in making decisions and approvals by owner, difficulties in obtaining work (commencement) permit, and coordination and communication problems.
Conflict started to arise from briefing until the completion of the project (Gardiner & Simmons, 1995 cited by Adnan, 2012). There are confusion among construction professionals about the differences between conflict and dispute, and these terms have been used interchangeably especially in the construction industry (Acharya et al., 2006 cited by Cakmak and Cakmak 2014). However, according to Fenn et al. (1997) cited by Cakmak and Cakmak (2014) conflict and dispute are two distinct notations. Conflict exists wherever there is incompatibility of interest. Conflict can be managed, possibly to the extent of preventing a dispute resulting from the conflict.

du Preez O., (2014) stated that, professionals are challenged by the risk of dispute from procurement to the development stage of a project. The successful application of ADR is supported by cost, contract and claims communication in the claims management process as depicted by Verster (2006) cited by du Preez O., (2014) in the project management knowledge and skills areas diagramme.

Fenn et al. (1997), cited by Jaffar et.al, (2011) identified causes of construction disputes caused by clients includes failure to respond in timely manner, poor communications amongst members of the team, inadequate tracing mechanisms for request of information, deficient management, supervision and coordination efforts on the part of the project, lowest price mentality in engagement of contractors and designers, the absence of team spirit among the participants, reluctant to check for constructability, clarity and completeness, failure to appoint a project manager and also discrepancies or ambiguities in contract documents.

2.6 Project management

Druker and White, (1997) stated that, Key changes within the construction sector have included sharp fluctuations in workload, cuts in government expenditure, the changing balance of work (with repair and maintenance featuring more prominently) and changing contractual practices, with the growth in construction management, design and build and private finance initiatives. Whereas the domestic market was largely protected from foreign competition in the past, foreign contractors (e.g. from Japan and from Europe) are now more visible. Some UK construction-based enterprises have been acquired by European or Asian companies.

In construction, as in other industries, discussion of personnel management style must take account of the different configurations of ownership, size, strategy and structure, as well as the prevailing product market conditions and the legacy of the past (Legge, 1995, p. 50 cited by Druker and White, 1997). Inevitably there is considerable diversity within the construction sector and only the largest organizations or those which are particularly concerned with the employment of professionals retain the services of professional personnel practitioners.

The large-scale shift to self-employment at site level and the introduction of new types of construction project management means that most large contractors have little contact with manual employees. The HR function is therefore largely concerned with white-collar staff. Personnel practitioners in the larger construction organizations are identified most closely with the "advisers", or strategic but non-interventionary positioning of Storey's model (Storey, 1992 cited by Druker and White, 1997).

Gill and Biger (2012) stated that, the small business enterprises are recognized worldwide as engines of growth and development. Factors such as lack of financing, lack of management skills, market challenges, regulatory issues, and infrastructure of a country affect the small business growth.

Zehir et al. (2006) cited by Gill and Biger (2012) point out that marketing, management, and information system capabilities have significantly positive effect on growth of business. That is, weak management, marketing, and information technology skills of small business owners have negative impact on the small business growth. Mambula (2002) cited by Gill and Biger (2012) also explains that lack of financing, regulatory (e.g. government policies and attitudes of public officials, corruption, etc.) adversely affect the growth of businesses.

Kotler (1999) cited by Budayan et.al, (2013) classified the marketers into four categories based on their competitive positions, namely leader, challenger, follower, and niche. Mintzberg (1987) cited by Budayan et.al, (2013) mentioned about two types of the strategy, namely intended strategy and realized strategy to explain why there exist differences between the original strategy and realized strategy. Mintzberg (1987) cited by Budayan et.al, (2013) stated that these two strategies can be remarkably different due to the unforeseen environmental or organizational events, unavailability of appropriate information, and an improvement in top management's ability to assess its environment. Porter (1985) cited by Budayan et.al, (2013) emphasizes the importance of "being different", in other words delivering a distinctive mix of value by choosing a different set of activities. He concentrated on the strategies that the companies can apply, the activities of the value chain of the companies, and linkages of the value chains of the companies. Although, all of the strategy typologies depend on different aspects of strategy and none of them can be considered as the best. However, Porter's (1985) cited by Budayan et.al, (2013) typology has received the attention of many researchers, and it has been the basis for much of the strategy research and practice for the past 25 years (Akan et al., 2006) cited by Budayan et.al, (2013)

Porter (1996) cited by Budayan et.al, (2013) proposes that the best way for any organization to achieve a sustainable competitive advantage is to strengthen its chosen strategy with a host of activities. According to Porter (1980), the companies must decide which activities in the value chain impact each purchase criteria; therefore, they can understand the existing and potential drivers of differentiation.

PMBOK (2008) cited by Budayan et.al, (2013) indicated nine project management knowledge areas, namely, integration management (project organization), scope management, time management, cost management, quality management, human resource management, project communication management, risk management, and procurement management.

Ayudhya (2011) cited by Mahamid (2014) conducted a study in Honk Kong to identify and appraise the dispute problems in residential building projects. The severity of the 43 identified dispute factors were evaluated by 175 consisting of owners, consultants and main contractors. The results of the survey indicated that construction projects faced moderately severe dispute level between owners and main contractors.

Mezher and Tawil (1998) and Groton (1997) indicated that the most typical dispute causes in construction projects include: unrealistic contract duration and cost, differing site conditions, change orders, delays, impact and ripple effects of delays, evaluation of the quality and quantity of work, owner furnished items, difference in the interpretation of plans and specifications, unfulfilled duties, acceleration, inefficiency and disruption (cited by Mahamid, 2014).

Design changes are inevitable when project activities are overlapped and as a result, fast-track projects have a higher number of change orders. "The dilemma of many design-build/fast track projects has been that the changes are so numerous in comparison to the original project trade work that the trade contract's calculation provisions in no way account for the incurred impact and loss-of-efficiency costs"(Tieder & Cox, 1983 cited by Moazzami et.al, 2011).

Carmicheal (2002) cited by Jaffar et.al, (2011) identified causes of construction disputes caused by contractors which include inadequate contractor's management, supervision and coordination, delay or suspension of works, failure to plan and execute the changes of works, failure to understand and correctly bid or price the works, lack of understanding and agreement in contract procurement.

Semple et al. (1994) cited by Mahamid (2014) studied disputes on 24 construction projects in Canada. They concluded six common categories of dispute: premium time, equipment costs, financing costs, loss of revenue, loss of productivity, and site overhead.

Waldron (2006) cited by Mahamid (2014) studied disputes in Australian construction and infrastructure projects. He concluded 10 key issues in disputes, they are: variations to scope, contract interpretation, EOT claims, site conditions, late or incomplete information, NA/ or did not know, obtaining approvals, site access, quality of design, and availability of resources.

Adnan (2012) stated that, partnering in not a contract, but is a set of actions that helps project teams improve their task in work together to share the risk or any problems that arise in construction industry. It is all about a culture that change worker to work as a team to achieve the same goals as to get a better work and saving cost. It developed as project teams cooperate in finding the most effective ways of achieving agreed objectives. Partnering also involved members working together to solve the problem at the lowest possible level and can also reduce the cost and time with good service delivery to fulfill the client requirements. It will also maximize the effectiveness in working together to share any risk that will arise anytime during the construction process.

Adnan (2012) stated that, it is very important in fast resolving when problem arise. When the responsible parties weak and slow in solve a problem, it will become worse. Another problem will accrue and effect to the past problem. The result, it will effect to the progress and quality of project. Problems do not disappear automatically with the signing of the construction agreement and conflict between parties become more badly.

Moazzami et.al, (2011) stated that, the main source of legal problems is inequitable risk apportionment between contracting parties due to ineffective contract clauses and inappropriate contract types.

Moazzami et.al, (2011) stated that, in fast-track projects, inadequate contractual framework and inappropriate risk apportionment between contracting parties result in particular legal problems. Significant risks in fast-tracking mostly result from incomplete scope of work and design package in bidding stage.

Moazzami et.al, (2011) stated that, the incompleteness of the data and information at the time of project estimating should be considered in the contract and the risk of inaccurate cost estimation must be fairly assigned to the contracting parties.

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As per the findings of Bass and Schrooten (2005) even though firms has been banking over a years, There will be a possibility of rejection of loan applications or charge high interest rates mainly due to non-availability of audited financials/past records of such firms. Therefore, availability of audited financials plays a key role when assessing credit applications. On the other hand, Lending institutions are able to assess the financial standing, repayment capacity, liquidity of the firm when Audited financials are available. Thus, audited financials shall improve credibility of the firm and in turns reduces the risk of lending organizations.

However, when considering South Asia including Sri Lanka, majority of SME sector do not prepare audited financials due to non-availability of regulating institutions and /or lack of knowledge of promoters of opportunities of preparing such statements. Therefore, SMEs of these countries face capital constrains for survival /development which leads to collapse of the firms.

On the other hand, although audited financials available for some SMEs, those statements are not up to the expected accounting standards as most of the times those statements are prepared understating the actual records/transactions which will not show the real picture of the firm.

SME sector firms need huge capital for their expansions, renovations for their ongoing businesses .According to Bernard and Cahn (1959) , banks do not accept to finance total project of the project proposals requested by SME sector and finance only a portion of the project. Hence, SME sector faces many challenges in providing required capital for their business expansions, enter in to new businesses.

Banks need to know proper understanding of financial position of the business before approving credit facilities. Nayak and Greenfield (1994) stressed that entrepreneurs of SME sector do not maintain relevant and sufficient information/records to support them in decision making of the business. This statement further stressed by Marshall and Ketchum (1944) and pointed out that although SMEs prepare financial statements as routine basis and mostly understated ones, they do not prepare important financial reports for the banks such as cash flow statements, project forecasting reports, calculation of breakeven points in order to make decisions on the loan applications of such firms. This lack of knowledge on preparing financial statements of the entrepreneurs resulted rejection of loan applications as banks do not have facts and figures in assessing repayment capacity of the business

Access of credit from banks is much more important to SME sector than large corporate. This reality is elaborated by many researches. Brigham (1995) stressed that importance of access of credit for SME sector than large corporate as they are not in a position to raise capital through debt market such as share issue, debenture issue ,commercial papers .Hence the only formal mean of financing for SME sector is bank financing.

Usually, small firms do not prepare financial statements and when they grow only realize the importance of preparing and maintaining financial history of the business. Pugh,et al.(1969) and Chapman (1997) identified that preparation of comprehensiveness of accounting system is in relationship with size and age of the SME.

As per Story (1994); Berger and Udell (1998), pointed out that credit facilities from lending organizations mainly depend on availability of collaterals. Johnsen and McMahon (2005) also reiterated the same by stating that although all other factors are favorable and available for the SMEs, firms with tangible assets will have high probability of obtaining credit facilities compared with firms with fewer assets to offer as collaterals. Bhaduri (2002) suggested three proxies for the assets which are to be offered as collaterals 1. Ratio of land and buildings to total assets 2. Ratio of plant and equipment to total assets 3. Ratio of inventories to total assets.

In the real scenario, usually SMEs do not have sufficient assets to offer as collateral for the facilities expected to be obtained from banks and lending institutions. There are many reasons attributed for lack of assets of SMEs such as the firm may be in developing stage , the existing retain profits not sufficient for such a investment, the existing income utilize for the initial infrastructure developments.

Schiffer and Weder (2001) identified through sampled firms among number of countries and pointed out that there was a negative relationship between size of the business and the risk it might pose for a lending institution.

Druker and White, (1997) stated that, discrete business strategies require particular behaviors and attitudes from employees and strategic pay management involves selecting pay policies which will secure these behaviours and attitudes". Druker and White, (1997) stated that, The key developments in British remuneration policies over the last 20 years have been the shift to more flexible and variable reward systems and the decline of collectively bargained pay. The abandonment of most forms of government involvement in wage regulation; and lastly clear government support for more employment flexibility.

Wirahadikusumah and Pribadi (2011) stated that, one of the major products is the legal framework for construction industry. The Act also established the major role of the public/community and professional associations in developing the industry, while the government is to support and facilitate.

Wirahadikusumah and Pribadi (2011) stated that, with the goal to improve the quality of human resources in construction, UUJK introduced "certification" requirements. Construction workers and professionals (engineers/architects) are required by law to hold a certificate either as a skilled worker or as a professional. While the term used is "certification" which generally indicates a voluntary process, this certification requirement implies a practice of licensing or mandatory process. Although certifying the national construction workforce seems to be a strategic action, this objective has resulted in numerous implementation challenges and negative consequences.

Sound policies, high levels of commitment, effective coordination and a stable economic and political environment can be important contributions to an enabling environment which can greatly increase prospects for capacity building of construction industry (Al-Sedairy, 2001 cited by Kululanga, 2012).

2.7 Knowledge transfer

Sinden et.al, (2012) stated that, the stakeholders in the construction industry wanted a statue that provided improved cash flow between parties, improved the operation of construction contracts and promoted adjudication as a form of dispute resolution. Worrall et.al, (2010) stated that, providing effective skills training and in meeting the skills gap. Identified a number of inherent problems within the industry itself; including its natural fragmentation due to prior privatization policies and the reduction of governmental involvement, a severe skills shortage, a lack of training of its workforce, and its overall poor image. The report concluded by calling for greater uniformity of the sector, for the promotion and utilization of best practice guidelines and for a change in UK legislation to encourage the resolution of "adversarial" disputes that had now become commonplace in the industry sector (Michael Latham, 1994) cited by Worrall et.al, 2010)

Wirahadikusumah and Pribadi (2011) stated that, construction industry is essential to the national economic development. The construction sector is regarded as a mechanism of generating employments to millions of unskilled, semi-skilled and skilled work force. Other sectors and the community all benefit from high quality housing, hospitals, schools, and transportation infrastructures that are constructed efficiently. Employers who do not offer long-term job security are understandably reluctant to invest in developing their employees' skills for fear the relationship will not last long enough for them to realize their investment. Unique characteristics of construction industry have far reaching implications for addressing capacity building for industries in developing countries.

The term capacity relates to the abilities, skills, knowledge, learning attitudes, values, relationships, behaviors, motivations, resources and conditions that enable individuals, organizations, institutions and systems to carry out functions effectively, efficiently and innovatively in order to achieve their development objectives (Carson, 2005; Kululanga, 2005; CIDB, 2002 cited by Kululanga, 2012).

Kululanga, (2012) stated that, construction industries in developing countries should also focus their attentions at industrial level itself. This reflects an increasing awareness of the importance of effective coordination within and across the construction industry as well as sister industry sectors. Within the construction industry, in both developed and developing countries, technical collaboration has however traditionally been very small and seldom crosses industry boundaries. The quality of public research infrastructure and its links to industry may be one of the most important national assets for supporting capacity building (Kulatunga et al., 2007 cited by Kululanga, 2012).

Kululanga, (2012) stated that, Capacity building that can be driven at this level should target five areas, namely:(1) joint industry activities;(2) public/private interactions;(3) technology diffusion;(4) personnel mobility; and(5) strong associations and contributions from professional bodies.

The other critical resource is experience and knowledge, even knowledge has been treated as a key source of potential benefit for construction organizations (Dikmen and Birgonul, 2003; Kamara et al., 2002) cited by Budayan et.al, (2013).

Fishbone Theory

Phillips (2013) stated that, in the 1950s, Japanese Professor Kaurou Ishikawa was the first person to describe the cause of a problem using a visual diagram, commonly known as the fishbone analysis diagram, named for its resemblance to a fish backbone and ribs.

It has since become a key diagnostic tool for analyzing and illustrating problems within root cause analysis (Galley, 2012 cited by Phillips (2013). Further Phillips (2013) stated that, Fishbone Analysis begins with a problem and the fishbone provides a template to separate and categorize the causes. Usually there are six categories, but the number can be changed depending on the problem. This method allows problems to be analyzed and, if it is used with colleagues, it gives everybody an insight into the problem so solutions can be developed collaboratively.

CHAPTER THREE – AREA OF THE RESEARCH

Construction is the process of constructing a building or infrastructure. Construction differs from manufacturing in that manufacturing typically involves mass production of similar items without a designated purchaser, while construction typically takes place on location for a known client.[2] Construction as an industry comprises six to nine percent of the gross domestic product of developed countries. Construction starts with planning, design, and financing and continues until the project is built and ready for use.

Large-scale construction requires collaboration across multiple disciplines. An architect normally manages the job, and a construction manager, design engineer, construction engineer or project manager supervises it. For the successful execution of a project, effective planning is essential. Those involved with the design and execution of the infrastructure in question must consider zoning requirements, the environmental impact of the job, the successful scheduling, budgeting, construction-site safety, availability and transportation of building materials, logistics, inconvenience to the public caused by construction delays and bidding, etc. The largest construction projects are referred to as megaprojects.

Construction is a high hazard industry that comprises a wide range of activities involving construction, alteration, and/or repair. Examples include residential construction, bridge erection, roadway paving, excavations, demolitions, and large scale painting jobs. Construction workers engage in many activities that may expose them to serious hazards, such as falling from rooftops, unguarded machinery, being struck by heavy construction equipment, electrocutions, silica dust, and asbestos.

3.1 Construction processes

In the modern industrialized world, construction usually involves the translation of designs into reality. A formal design team may be assembled to plan the physical proceedings, and to integrate those proceedings with the other parts. The design usually consists of drawings and specifications, usually prepared by a design team including Architect, civil engineers, mechanical engineers, electrical engineers, structural engineers, fire protection engineers, planning consultants, architectural consultants, and archaeological consultants. The design team is most commonly employed by (i.e. in contract with) the property owner. Under this system, once the design is completed by the design team, a number of construction companies or construction management companies may then be asked to make a bid for the work, either based directly on the design, or on the basis of drawings and a bill of quantities provided by a quantity surveyor. Following evaluation of bids, the owner typically awards a contract to the most cost efficient bidder.

The modern trend in design is toward integration of previously separated specialties, especially among large firms. In the past, architects, interior designers, engineers, developers, construction managers, and general contractors were more likely to be entirely separate companies, even in the larger firms. Presently, a firm that is nominally an "architecture" or "construction management" firm may have experts from all related fields as employees, or to have an associated company that provides each necessary skill. Thus, each such firm may offer itself as "one-stop shopping" for a construction project, from beginning to end. This is designated as a "design build" contract where the contractor is given a performance specification and must undertake the project from design to construction, while adhering to the performance specifications.

Several project structures can assist the owner in this integration, including design-build, partnering and construction management. In general, each of these project structures allows the owner to integrate the services of architects, interior designers, engineers and constructors throughout design and construction. In response, many companies are growing beyond traditional offerings of design or construction services alone and are placing more emphasis on establishing relationships with other necessary participants through the design-build process.

The increasing complexity of construction projects creates the need for design professionals trained in all phases of the project's life-cycle and develop an appreciation of the building as an advanced technological system requiring close integration of many sub-systems and their individual components, including sustainability. Building engineering is an emerging discipline that attempts to meet this new challenge.

Construction projects can suffer from preventable financial problems. Underbids happen when builders ask for too little money to complete the project. Cash flow problems exist when the present amount of funding cannot cover the current costs for labour and materials, and because they are a matter of having sufficient funds at a specific time, can arise even when the overall total is enough. Fraud is a problem in many fields, but is notoriously prevalent in the construction field.[21] Financial planning for the project is intended to ensure that a solid plan with adequate safeguards and contingency plans are in place before the project is started and is required to ensure that the plan is properly executed over the life of the project.

Mortgage bankers, accountants, and cost engineers are likely participants in creating an overall plan for the financial management of the building construction project. The presence of the mortgage banker is highly likely, even in relatively small projects since the owner's equity in the property is the most obvious source of funding for a building project. Accountants act to study the expected monetary flow over the life of the project and to monitor the payouts throughout the process. Cost engineers and estimators apply expertise to relate the work and materials involved to a proper valuation. Cost overruns with government projects have occurred when the contractor identified change orders or project changes that increased costs, which are not subject to competition from other firms as they have already been eliminated from consideration after the initial bid.

Large projects can involve highly complex financial plans and often start with a conceptual estimate performed by a building estimator. As portions of a project are completed, they may be sold, supplanting one lender or owner for another, while the logistical requirements of having the right trades and materials available for each stage of the building construction project carries forward. In many English-speaking countries, but not the United States, projects typically use quantity surveyors.

A construction project must fit into the legal framework governing the property. These include governmental regulations on the use of property, and obligations that are created in the process of construction.

The project must adhere to zoning and building code requirements. Constructing a project that fails to adhere to codes does not benefit the owner. Some legal requirements come from malum in se considerations, or the desire to prevent things that are indisputably bad – bridge collapses or explosions. Other legal requirements come from malum prohibitum considerations, or things that are a matter of custom or expectation, such as isolating businesses to a business district and residences to a residential district. An attorney may seek changes or exemptions in the law that governs the land where the building will be built, either by arguing that a rule is inapplicable (the bridge design will not cause a collapse), or that the custom is no longer needed (acceptance of live-work spaces has grown in the community).

A construction project is a complex net of contracts and other legal obligations, each of which all parties must carefully consider. A contract is the exchange of a set of obligations between two or more parties, but it is not so simple a matter as trying to get the other side to agree to as much as possible in exchange for as little as possible. The time element in construction means that a delay costs money, and in cases of bottlenecks, the delay can be extremely expensive. Thus, the contracts must be designed to ensure that each side is capable of performing the obligations set out. Contracts that set out clear expectations and clear paths to accomplishing those expectations are far more likely to result in the project flowing smoothly, whereas poorly drafted contracts lead to confusion and collapse.

Legal advisors in the beginning of a construction project seek to identify ambiguities and other potential sources of trouble in the contract structure, and to present options for preventing problems. Throughout the process of the project, they work to avoid and resolve conflicts that arise. In each case, the lawyer facilitates an exchange of obligations that matches the reality of the project.

Design, finance, and legal aspects overlap and interrelate. The design must be not only structurally sound and appropriate for the use and location, but must also be financially possible to build, and legal to use. The financial structure must accommodate the need for building the design provided, and must pay amounts that are legally owed. The legal structure must integrate the design into the surrounding legal framework, and enforce the financial consequences of the construction process.

Procurement describes the merging of activities undertaken by the client to obtain a building. There are many different methods of construction procurement; however the three most common types of procurement are traditional (design-bid-build), design-build and management contracting.

There is also a growing number of new forms of procurement that involve relationship contracting where the emphasis is on a co-operative relationship between the principal and contractor and other stakeholders within a construction project. New forms include partnering such as Public-Private Partnering (PPPs) aka private finance initiatives (PFIs) and alliances such as "pure" or "project" alliances and "impure" or "strategic" alliances. The focus on co-operation is to ameliorate the many problems that arise from the often highly competitive and adversarial practices within the construction industry.

3.2 Design–bid–build

This is the most common method of construction procurement and is well established and recognized. In this arrangement, the architect or engineer acts as the project coordinator. His or her role is to design the works, prepare the specifications and produce construction drawings, administer the contract, tender the works, and manage the works from inception to completion. There are direct contractual links between the architect's client and the main contractor. Any subcontractor has a direct contractual relationship with the main contractor. The procedure continues until the building is ready to occupy.

3.3 Design-build

This approach has become more common in recent years, and involves the client contracting a single entity to both provide a design and to build that design. In some cases, the design-build package can also include finding the site, arranging funding and applying for all necessary statutory consents.

The owner produces a list of requirements for a project, giving an overall view of the project's goals. Several D&B contractors present different ideas about how to accomplish these goals. The owner selects the ideas he or she likes best and hires the appropriate contractor. Often, it is not just one contractor, but a consortium of several contractors working together. Once these have been hired, they begin building the first phase of the project. As they build phase 1, they design phase 2. This is in contrast to a design-bid-build contract, where the project is completely designed by the owner, then bid on, then completed.

3.4 Material Management

Materials management plans and designs for the delivery, distribution, storage, collection, and removal of occupant-generated streams of materials and services. It is usually an additional service that is offered as part of a campus planning process or a building design project. It is most beneficial for university, health care, and corporate environments. Materials management looks at the planning and design considerations needed to support the efficient delivery and removal of goods and services that support occupant activity. The streams of occupant-generated materials and activity include mail, office supplies, lab supplies, food, special deliveries, custodial services, building supplies, waste and recycling, and service calls.

The major challenge that materials managers face is maintaining a consistent flow of materials for production. There are many factors that inhibit the accuracy of inventory which results in production shortages, premium freight, and often inventory adjustments. The major issues that all materials managers face are incorrect bills of materials, inaccurate cycle counts, un-reported scrap, shipping errors, receiving errors, and production reporting errors. Materials managers have striven to determine how to manage these issues in the business sectors of manufacturing since the beginning of the industrial revolution. Although there are no known methods that

eliminate therefore mentioned inventory accuracy inhibitors, there are best methods available to eliminate the impact upon maintaining an interrupted flow of materials for production.

3.5 Conflicts

Many challenges are facing by business managers when there are projects involved in their business. Construction is industry is not an exception when project comes in to their businesses as a part of the business activity. Some projects are new to the industry while some are considerably old. Many barriers are directly resulting to operations related and some are indirect marginal activities. While managing a project, most of the time, challenges are addressed manage by the project manager to ensure the success of the project. Many considerations are included in communication, workforce, safety, time constraints, and nature of the project, quality and time management. There may be non-project management parts also have to deal with such as government regulations, environmental concerns, ethical business practices and socio-political issues. It is critical that the project management understands the demanding realities that he or she faces in the planning and control of project management operations. Time over run, Cost overrun, Quality issues, etc. with reasons related to the selected Projects and recommended solutions made by the Project Team.

Cakmak and Cakmak (2014) stated that, the construction industry is a complex and competitive environment in which participants with different views, talents and levels of knowledge of the construction process work together. In this complex environment, participants from various professions, each has its own goals and each expects to make the most of its own benefits. In the construction industry, since differences in perceptions among the participants of the projects, conflicts are inevitable. If conflicts are not well managed, they quickly turn into disputes. Disputes are one of the main factors which prevent the successfully completion of the construction project. Thus, it is important to be aware of the causes of disputes in order to complete the construction project in the desired time, budget and quality.

Construction projects represent a unique set of activities that must take place to produce a unique product. The success of a project is judged by meeting the criteria of cost, time, safety, resource allocation, and quality as determined by the owner. The purpose of Project Management is to achieve goals and objectives through the planned expenditure of resources that meet the project's quality, cost, time, scope, and safety requirements. The CM must control, deflect, or mitigate the effects of any occurrence or situation that could affect project success.

The Sri Lankan construction industry is plagued with some severe problems, including its low profitability, a shortage of skilled workers and a lack of investment in research and development. Additionally, many of the industry's clients are dissatisfied with the level of service provided and with the quality of the end product (i.e. the constructed building). These problems can be traced back to a number of possible causes, including the labor intensive nature of the process and apparent difficulty that the industry has in adopting new technologies in particular, information technology (IT).

CHAPTER FOUR - RESEARCH METHODOLOGY

This chapter outlines the research methodology of the study. The research was conducted in two phases, thus research methodology discussed in two phases. Data in the first phase collected using a Linkert Scale (5 – Strongly Agreed, 1 – Strongly Disagreed) Questionnaire from industrialists. Data collected using Linkert Scale (5 – Strongly Agreed, 1 – Strongly Disagreed) Questionnaire from the small and medium construction owners. During the data collection, face to face interviews were conducted to collect desk information industrialists. Also secondary data collected from relevant sources available.

While searching the literature, the theoretical framework has identified. Then the conceptual framework derived how the research could be facilitated to conclude an ideology which will examine the reality compared to the ideology developed. This has revealed the relationship between existence of small and medium scale construction companies and other issues.

4.1 Conceptual Framework

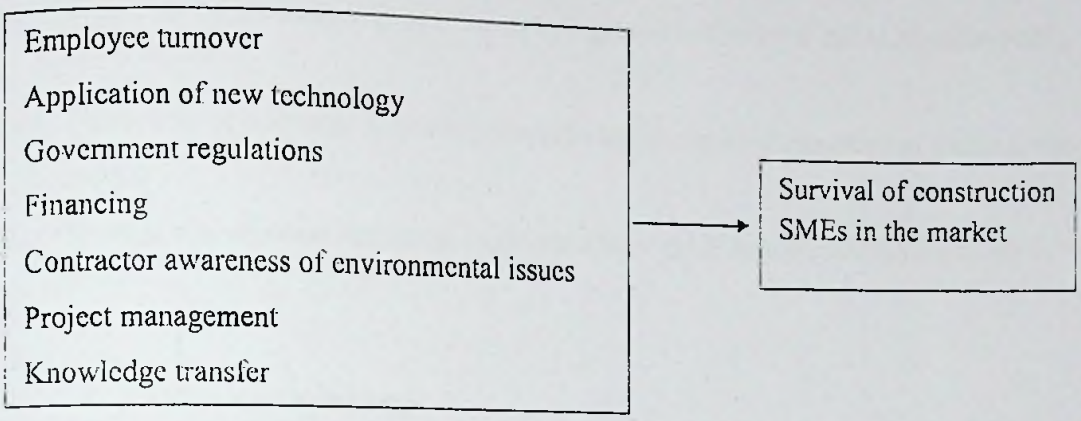
Conducting a research is facilitated by constructing a conceptual framework that specifies an ideal type which is then used to examine the reality comparative to the ideal. Such an ideal type of relationship between modes of assessment of factors affecting dispute resolution among project stakeholders in the construction industry taken into the study.

The factors affecting dispute resolution among project stakeholders in the construction industry can be varied based on the different criteria. Basically there were few researchers have identified factors affected for Survival of construction SMEs in the market and its importance. This has resulted to identify factors lead to Survival of construction SMEs in the market among large players in the construction industry. By this research a most important factors for affecting Survival of construction SMEs in the market among project stakeholders in the construction industry could be developed to overcome the above stated issues.

To illustrate the aim of this paper, we use the Driving forces–Pressures–States–Impacts–Responses (DPSIR) frame work for structuring problems (Fig. 2), a framework commonly used

in the field of environmental management analysis (e.g., Borja et al.,2006; Maxim et al., 2009; Atkins et al., 2011; Gregory et al., 2013).

Conceptual framework



4.2 Hypothesis Development

Ho_1 – There is no relationship between Employee turnovers and Survivals of construction SMEs in the market

Ha_1 – There is a relationship between Employee turnovers and Survivals of construction SMEs in the market

Ho_2 – There is no relationship between Applications of new technology and Survivals of construction SMEs in the market

Ha_2 – There is a relationship between Applications of new technology between Survivals of construction SMEs in the market

Ho_3 – There is no relationship between Government regulations and Survival of construction SMEs in the market

Ha_3 – There is a relationship between Government regulations and Survival of construction SMEs in the market

Ho_4 – There is no relationship between Financing and Survival of construction SMEs in the market

Ha_4 – There is a relationship between Financing and Survival of construction SMEs in the market

Ho_5 – There is no relationship between Contractor awareness of environmental issues and Survival of construction SMEs in the market

H_{a5} – There is a relationship between Contractor awareness of environmental issues and Survival of construction SMEs in the market

H_{o6} – There is no relationship between Project management and Survival of construction SMEs in the market

H_{a6} – There is a relationship between Project management and Survival of construction SMEs in the market

H_{o7} – There is no relationship Knowledge transfer and Survival of construction SMEs in the market

H_{a7} – There is a relationship Knowledge transfer and Survival of construction SMEs in the market

4.3 Population and Sampling

Sample design of the proposed project was 31 industrialists. This is the number that would be necessary to sample to be able to generate secure and meaningful results at the end of the study. At the same time any sample must consider what is practical in terms of time and cost.

There are several constructions Projects Island wide and many construction companies. To carry out this research, author has selected 50 on-going construction projects in the country. This is the number that considered as a population for this research.

Sample design of the proposed project was 40 project stakeholders. To analyze the factors affect to performances. This is the number that would be necessary to sample to be able to generate secure and meaningful results at the end of the study. At the same time any sample must consider what is practical in terms of time and cost.

This study was mainly employing a qualitative and quantitative approach to gather information using random sampling method.

4.4 Data Collection

Desk information collected prior to collect data from the field. The focused discussions were had with Chief Executive Officers of respective institutions, consultant from business Chambers, institute of engineers of Sri Lanka, Deputy Director, Ministry of construction

industry and other experts in the field. This has given a focus to the research project carried two months to gather this data.

4.4.1 Primary Data collection

This has taken the form of observation, semi-structured and unstructured interviews. The researcher participated to industry progress review meetings held in construction sites, seminars, workshops and gatherings and "engaged in experiencing the setting (participation) while at the same time observing and talking with other industry participants about whatever is happening" (Patton, 2002). Data collection has guided by three principles of data collection: using multiple sources; creating a case study database; and maintaining chain of evidence (Yin, 1989 as cited by Tellis, 1997).

Unit of analysis was industrialists. Total sample of 50 construction companies were selected using the population as a sampling method covering the areas of Gampaha, Colombo and Kalutara for this purpose. Data analysis was done basically using SPSS.17 package and 31 analysis was done according to the primary data collection from respondents' opinions.

To identify minimize construction project dispute between parties involved. The data from industrialists were collected from January 15, 2016 to May 5, 2016. Data from construction companies were collected from February 10, 2016 to May 5, 2016.

Prior to the actual data gathering, pre-test on the questionnaire was carried out in three locations collecting data from 5 respondents. Since the researcher identified errors in the questionnaire, same has re-designed and collect data accordingly. Before the actual surveys were conducted, proper contacts had been made with respective respondents.

Research questionnaires were specifically designed to collect information from Industrialists. These questionnaires focused on related to the employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management and knowledge transfer. A total of 31 construction project managers were responded for the research questionnaire.

Generally the construction company owner was the priority consideration in the selection of a respondent for data collection. When the owner was not available, his/her successor or the technical expert became the second choice for the interview. If both of them were not available, most senior person was interviewed depending on the circumstances.

In the case of absent above respondents during the data collection, three subsequent call backs were made in different times to meet them to collect their information. The objective of the research gave as an introduction to respondents and ethical clearance statements were obtained. Then data collected started. Also some data collected while industrialists were having their meetings and gatherings held.

Before entering and analyzing the data, all completed questionnaires were screened with the aim of finding and filling gaps. Finally, the data were analyzed using a SPSS program to generate the required data in tabular form on various aspects. The process of data entry and analysis was undertaken by the researcher under the supervision of the university.

4.5.2 Secondary data collection

Secondary data collected from literature such as books, journals, and reports. Because some of the information may not be accessible in libraries, an archive study of reports conducted at industry level and at the national archives in the industry. The whole process took considerable period of time.

4.6 Statistical Method

The research guided by the Chi-square testing, Mode and Rank to analyse the nominal and ordinal data. For Interval and Ratio data analysed using Mean Value, Standard Deviation, Analyise of variances and Regression tastings.

CHAPTER FIVE – DATA ANALYSIS

5.1 Introduction

Chapter four describes the methodology part and data collection. Chapter five represents the results of the data analysis. The problems posed in chapter I of this thesis and the data collected were processed with the help of SPSS in the data analysis. Seven fundamental goals were developed based on theory identified through review of literature. Accordingly, theoretical framework has developed. Application of the research issues of enter and existence of construction sector SMEs were analyzed in relation to the seven factors identified.

Data collected using both primary and secondary sources. The data collected using both self-administrated questionnaire and structured interviews. This is focused on the data presentation and analysis. Data collected from construction project managers through questionnaire were presented in both tabular and graphical form. Mode of analysis of Objective, Data type and Methodology used is given below Table XXX. Analysis were carried out based on the objectives set up in the research.

5.2 Existing situation.

The current situation of the SMEs engage in the construction industry are unable to attract dedicated competence Engineers to small scale construction companies. Construction contracts are highly competitive due to shrinking of industry. Companies are ready to take any opportunity focusing break even condition in order to maintain resources. Failures attributed in the past on the part of the small scale contractors. Potential clients do not intend to engage small companies on the understanding that they failed to deliver products on time as per the specifications. Favors from the government or authorities for their relatives and friends while omitting all internationally accepted norms in place for avoiding contracts. Large foreign funded / loan projects controlled by foreign nationals who eventually subcontracted specific areas also to the same foreign origin companies creating a barrier for the Sri Lankans to enjoy comfortable affordable unit rates when engage in such projects. A chain of corruption from top to bottom in all projects irrespective of either government or private sector staff enroll in project works. In competent Sri Lankans staff who took over key positions in projects making

irrelevant, non-technical and inefficient decisions on key areas. Frustration among capable, honest competent Sri Lankan work force in terms of their professional development. Non availability or fulfillment of requirements to satisfy professional development of local Engineers in large scale foreign funded projects in terms of engaging competent world class internationally accepted professionals to develop young Engineers professional carrier and creating environment which is undermining or downgrading status when working with local small scale contractors.

Expert Opinion received from one of the consultants he explained the current situation as Small scale contractors can become sub-contractors of main contractors. Thereby small scale contractors can become more efficient, capable and exposed to major works. If the above scenario works well, small scale contractors will be able to employ dedicated engineers and all local contractor together with consultants and professional bodies should fight together against corruption. These are essential to retain the SME sector in the construction industry.

5.3 Operationalization of Variables

5.3.1 Perspectives of Industrialists

A set of 36 construction SMEs were responded from three different schemes to capture opinion of existence of SME construction industry. However, 31 completed questionnaires were analyzed based on those completed questionnaires using Statistical Package for Social Science 17 (SPSS) computer software. Target sample responded to the items using a five point Likert type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 001: Frequency of the Respondents

District	Construction Companies	Industry Expert
Colombo	13	5
Gampaha	10	
Kalutara	8	
Total	31	

Source: Constructed by Author

The above table 001 reveals the number of respondents based on geographical districts. Construction project managers were 13, 10 and 8 from Colombo, Gampaha and Kalutara respectively. 5 industry experts covering three districts

5.4 Validation of Measurement Properties

Measurement Properties of the instrument developed for Survivals of construction SMEs in the market were assessed through testing for reliability.

5.5 Testing for Reliability

As the data for this study was collected using Likert scaled responses, it was deemed necessary to test for reliability. Thus, Cronbach's Alpha was calculated for each of the dimensions of Survivals of construction SMEs in the market to ensure the internal consistency of the instruments. The results are given in following Table. Cronbach's Alpha greater than 0.7 indicates satisfactory internal consistency and reliability (Malhotra, 2005)

5.6 Factor Analysis

Factor analysis identifies the pattern of underlying variables of correlations with the set of observations of variable. This is important to identify a small number reducing data. Also this is used to screen the variables for subsequent analysis to generate hypothesis. The following Table XXX reveals Kaiser-Meyer-Olkin (KMO) test results explained total variance explained that tested for six factors. It revealed that, the factors carry one direction supporting to the main objective of the study.

5.7.1 Employee turnover

Table 002: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.735
Bartlett's Test of Sphericity	Approx. Chi-Square	61.693
	df	6
	Sig.	0.000

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.808	70.188	70.188	2.808	70.188	70.188
2	.697	17.418	87.606			
3	.324	8.089	95.695			
4	.172	4.305	100.000			

Extraction Method: Principal Component Analysis.

Table 003: Reliability Statistics

Cronbach's Alpha	N of Items
0.784	4

5.7.2 Application of New technology

Table 004: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.735
Bartlett's Test of Sphericity	Approx. Chi-Square	20.415
	df	6
	Sig.	0.002

Table 005: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.158	53.954	53.954	2.158	53.954	53.954
2	.738	18.462	72.416			
3	.607	15.167	87.583			
4	.497	12.417	100.000			

Extraction Method: Principal Component Analysis.

Table 006: Reliability Statistics

Cronbach's Alpha	N of Items
0.702	4

5.7.3 Government regulations

Table 007: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.671
Bartlett's Test of Sphericity	Approx. Chi-Square	88.200
	df	6
	Sig.	0.000

Table 008: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.965	74.127	74.127	2.965	74.127	74.127
2	.502	12.544	86.670			
3	.473	11.837	98.508			
4	.060	1.492	100.000			

Extraction Method: Principal Component Analysis.

Table 009: Reliability Statistics

Cronbach's Alpha	N of Items
0.879	4

5.7.4 Financing

Table 010: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.614
Bartlett's Test of Sphericity	Approx. Chi-Square	57.893
	df	6
	Sig.	0.000

Table 011: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.758	68.949	68.949	2.758	68.949	68.949
2	.639	15.971	84.920			
3	.443	11.080	96.000			
4	.160	4.000	100.000			

Extraction Method: Principal Component Analysis.

Table 012: Reliability Statistics

Cronbach's Alpha	N of Items
0.849	4

5.7.5 Contractor Awareness of environmental issues

Table 013: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.679
Bartlett's Test of Sphericity	Approx. Chi-Square	44.880
	df	6
	Sig.	0.000

Table 014: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.543	63.574	63.574	2.543	63.574	63.574
2	.664	16.605	80.179			
3	.594	14.854	95.033			
4	.199	4.967	100.000			

Extraction Method: Principal Component Analysis.

Table 015: Reliability Statistics

Cronbach's Alpha	N of Items
0.745	4

5.7.6 Project management

Table 016: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.641
Bartlett's Test of Sphericity	Approx. Chi-Square	10.805
	df	6
	Sig.	0.095

Table 017: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.770	44.256	44.256	1.770	44.256	44.256
2	.970	24.242	68.498			
3	.673	16.818	85.316			
4	.587	14.684	100.000			

Extraction Method: Principal Component Analysis.

Table 018: Reliability Statistics

Cronbach's Alpha	N of Items
0.745	4

5.7.8 Knowledge transfer

Table 019: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.632
Bartlett's Test of Sphericity	Approx. Chi-Square	21.436
	df	6
	Sig.	0.002

Table 020: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.093	52.337	52.337	2.093	52.337	52.337
2	.897	22.425	74.762			
3	.596	14.890	89.652			
4	.414	10.348	100.000			

Extraction Method: Principal Component Analysis.

Table 021: Reliability Statistics

Cronbach's Alpha	N of Items
0.687	4

SME existence

Table 022: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.735
Bartlett's Test of Sphericity	Approx. Chi-Square	38.209
	df	6
	Sig.	0.000

Table 023: **Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.535	63.371	63.371	2.535	63.371	63.371
2	.691	17.266	80.636			
3	.460	11.490	92.126			
4	.315	7.874	100.000			

Extraction Method: Principal Component Analysis.

Table 024: **Reliability Statistics**

Cronbach's Alpha	N of Items
0.806	4

5.8 Normality Test

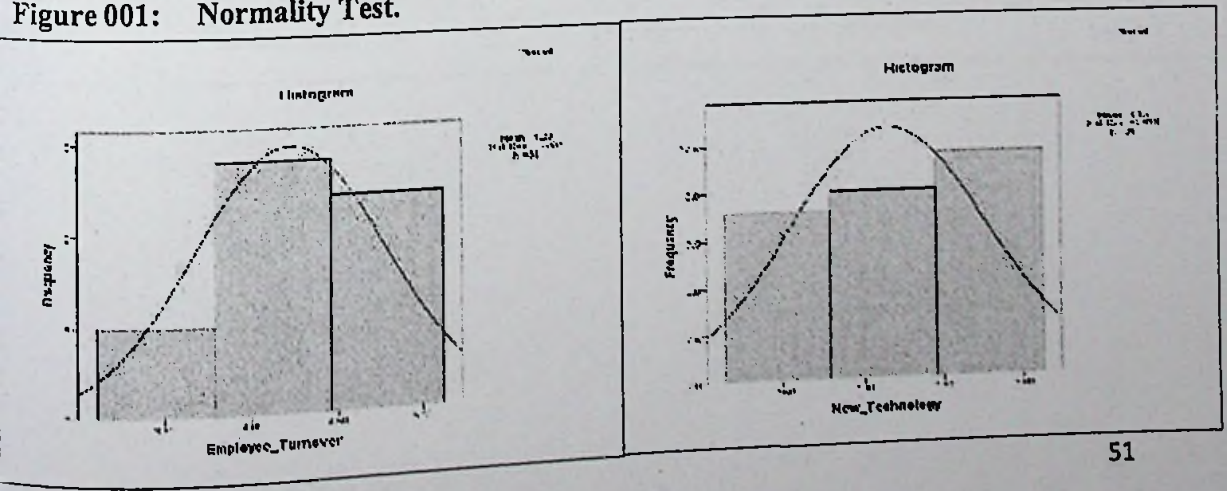
The tests of normality overlay a normal curve on actual data, to assess the fit. A significant level of the test equal to zero means the fit is poor. Therefore for all groups, the test of significant level is zero and revealed that; they fit the normal curve poorly. Normality Statistics shows in the following Table 25.

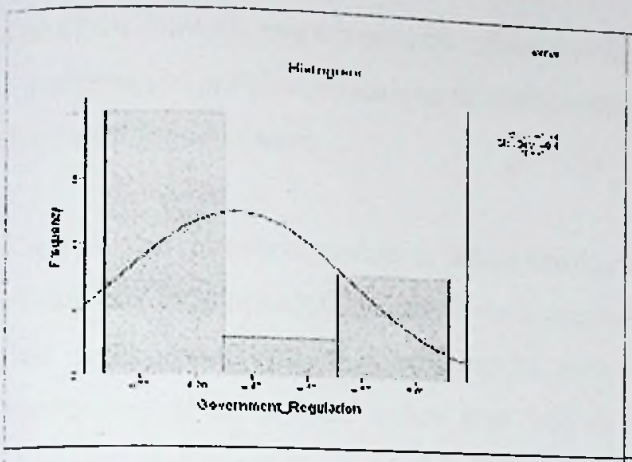
TABLE 025: **Normality Test.**

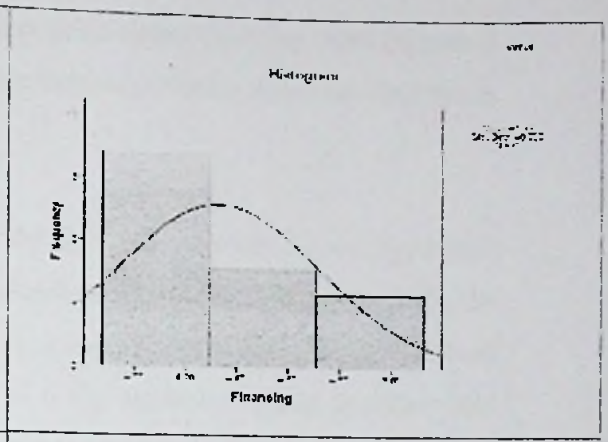
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Employee Turnover	.270	31	.000	.861	31	.001
New Technology	.211	31	.001	.873	31	.002
Government Regulation	.279	31	.000	.745	31	.000
Financing	.315	31	.000	.751	31	.000
Environmental Issues	.224	31	.000	.857	31	.001
Project management	.177	31	.015	.937	31	.039
Knowledge transfer	.188	31	.007	.917	31	.020
SME Existence	.273	31	.000	.804	31	.000

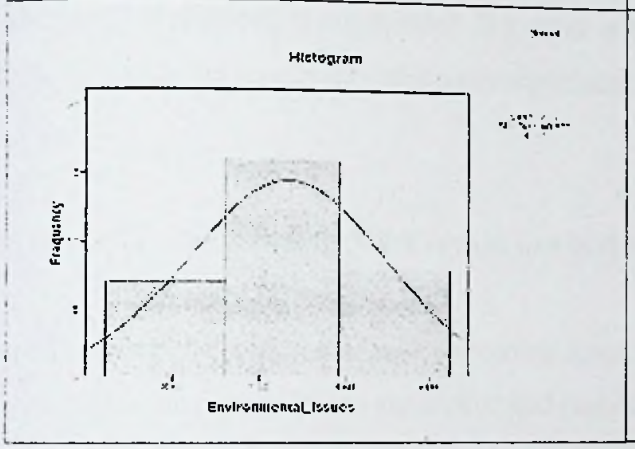
a. Lilliefors Significance Correction

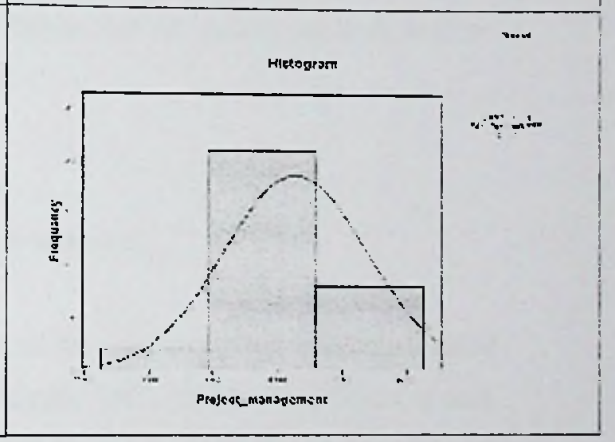
Figure 001: **Normality Test.**

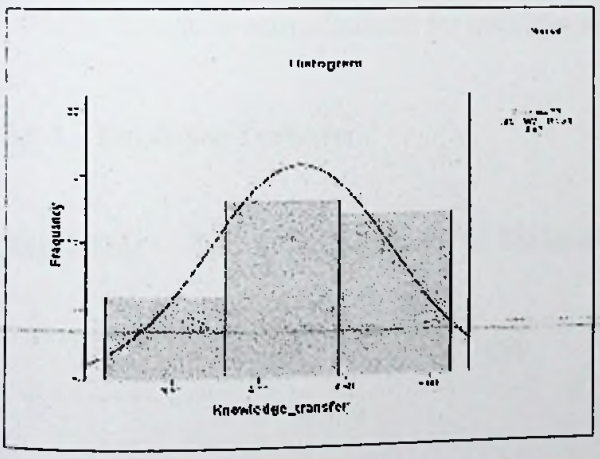


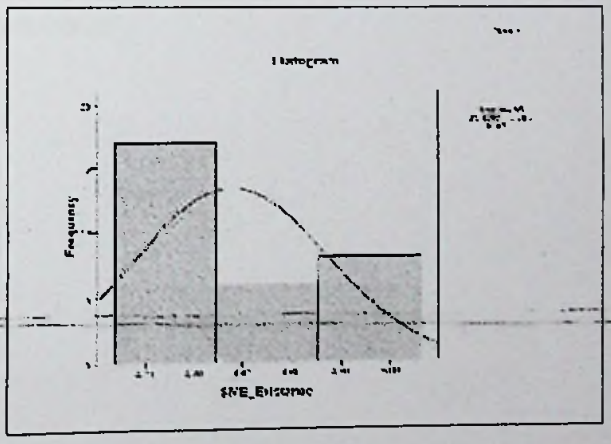

Histogram
Frequency
Government_Regulation


Histogram
Frequency
Financing


Histogram
Frequency
Environmental_Issues


Histogram
Frequency
Project_management


Histogram
Frequency
Knowledge_transfer


Histogram
Frequency

5.9 Hypothesis Testing and Statistical Data Analysis: P-Value

One of the common type of statistical inference is hypothesis testing. Statistical data analysis is a mathematical principle which uses to check whether the sample results match the Hypothesis developed for population.

Use a p-value (probability value) to decide whether the confidence in reject the null hypothesis in statistical hypothesis testing. The research concludes those hypotheses were supported by the data. In hypothesis testing P-value can be used as a numerical measure of the statistical significance. If the p-value is less than 0.05 ($p < 0.05$), analysis findings conclude that alternative Hypothesis is not rejected. If p value is greater than the significance level analysis concludes that the results are statistically significant.

5.10 Hypothesis testing (With section one to five question)

SPEARMAN'S coefficient of rank correlation describes the relationship between sets of ranked data. Since the data collected are ordinal and ranked data, SPEARMAN'S coefficient of rank correlation was used as the test statistic. Using SPSS Statistics 17.0 SPEARMAN'S coefficient of rank correlation was calculated for each hypothesis testing.

5.9.1 Employee Turnover

Table 026: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
6.476	4	26	.001

Table 027: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.927	4	1.232	7.332	.000
Within Groups	4.368	26	.168		
Total	9.294	30			

A one way ANOVA was conducted to check whether there is a significant relation between Employee Turnover and Survival of construction SMEs in the market. The omnibus F-test revealed a significant effect of group, F (12,47) = 7.332, p = 0.000 There are significant differences among Employee Turnover and Survival of construction SMEs in the market, at significance level 0.05.

Typically, when a p=0.034 (p<0.05), Have a statistical evidence to not reject the null hypothesis, and instead conclude that the differences or relationships being studied are statistically significant. That's mean there is no a significant difference between Employee Turnover and Survival of construction SMEs in the market. Therefore we have to not reject the ALTERNATIVE HYPOTHESIS (H0)3 and Reject the NULL HYPOTHESIS.

5.9.2 New Technology

Table 028: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
7.312	4	26	0.000

Table 029: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.061	4	1.515	7.297	0.000
Within Groups	5.399	26	.208		
Total	11.460	30			

A one way ANOVA was conducted to check whether there is a significant relation between new technology and survival of construction SMEs in the market. The omnibus F-test revealed

a significant effect of group, F (12,47) = 7.297, p = 0.000 There are significant differences among Employee Turnover and Survival of construction SMEs in the market. At significance level 0.05.

Typically, when a p=0.034 (p<0.05), Have a statistical evidence to not reject the null hypothesis, and instead conclude that the differences or relationships being studied are statistically significant. That's mean there is no a significant difference between new technology and Survival of construction SMEs in the market. Therefore we have to not reject the ALTERNATIVE HYPOTHESIS (H0)3 and Reject the NULL HYPOTHESIS.

5.9.3 Government Regulation

Table 030: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
14.284	4	26	0.000

Table 031: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.558	4	1.140	58.046	0.000
Within Groups	.510	26	.020		
Total	5.069	30			

A one way ANOVA was conducted to check whether there is a significant relation between government-regulation and survival of construction SMEs in the market. The omnibus F-test revealed a significant effect of group, F (12,47) = 58.046, p = 0.000 There are significant differences among government regulation and survival of construction SMEs in the market, at significance level 0.05.

Typically, when a p=0.034 (p<0.05), Have a statistical evidence to not reject the null hypothesis, and instead conclude that the differences or relationships being studied are statistically significant. That's mean there is no a significant difference between government regulation and survival of

construction SMEs in the market. Therefore we have to not reject the ALTERNATIVE HYPOTHESIS (H0)3 and Reject the NULL HYPOTHESIS.

5.9.4 Financing

Table 032: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
8.182	4	26	0.000

Table 033: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.359	4	.840	16.618	0.000
Within Groups	1.314	26	.051		
Total	4.673	30			

A one way ANOVA was conducted to check whether there is a significant relation between financing and survival of construction SMEs in the market. The omnibus F-test revealed a significant effect of group, F (12,47) = 16.618, p = 0.000 There are significant differences among financing and survival of construction SMEs in the market, at significance level 0.05.

Typically, when a p=0.034 (p<0.05), Have a statistical evidence to not reject the null hypothesis, and instead conclude that the differences or relationships being studied are statistically significant. That's mean there is no a significant difference between financing and survival of construction SMEs in the market. Therefore we have to not reject the ALTERNATIVE HYPOTHESIS (H0)3 and Reject the NULL HYPOTHESIS.

5.9.5 Environmental Issues

Table 034: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
7.367	4	26	0.000

Table 035: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.094	4	1.273	7.008	0.001
Within Groups	4.725	26	.182		
Total	9.819	30			

A one way ANOVA was conducted to check whether there is a significant relation between environmental issues and survival of construction SMEs in the market. The omnibus F-test revealed a significant effect of group, F (12,47) = 7.008, p = 0.001 There are significant differences among environmental issues and survival of construction SMEs in the market, at significance level 0.05.

Typically, when a p=0.034 (p<0.05), Have a statistical evidence to not reject the null hypothesis, and instead conclude that the differences or relationships being studied are statistically significant. That's mean there is no a significant difference between environmental issues and survival of construction SMEs in the market. Therefore we have to not reject the ALTERNATIVE HYPOTHESIS (H0)3 and Reject the NULL HYPOTHESIS.

5.9.6 Project management

Table 036: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
2.879	4	26	0.042

Table 037: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.099	4	.775	3.285	0.026
Within Groups	6.131	26	.236		
Total	9.230	30			

A one way ANOVA was conducted to check whether there is a significant relation between environmental issues and survival of construction SMEs in the market. The omnibus F-test revealed a significant effect of group, F (12,47) = 3.285, p = 0.026 There are significant

differences among project management and survival of construction SMEs in the market, at significance level 0.05.

Typically, when a p=0.034 (p<0.05), Have a statistical evidence to not reject the null hypothesis, and instead conclude that the differences or relationships being studied are statistically significant. That's mean there is no a significant difference between project management and survival of construction SMEs in the market. Therefore we have to not reject the ALTERNATIVE HYPOTHESIS (H0)3 and Reject the NULL HYPOTHESIS.

5.9.7 Knowledge transfer

Table 038: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
3.445	4	26	0.022

Table 039: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.778	4	1.194	8.964	0.000
Within Groups	3.464	26	.133		
Total	8.242	30			

A one way ANOVA was conducted to check whether there is a significant relation between knowledge transfer and survival of construction SMEs in the market. The omnibus F-test revealed a significant effect of group, $F(12;47) = 58.046$, $p = 0.000$ There are significant differences among knowledge transfer and survival of construction SMEs in the market, at significance level 0.05.

Typically, when a p=0.034 (p<0.05), Have a statistical evidence to not reject the null hypothesis, and instead conclude that the differences or relationships being studied are statistically significant. That's mean there is no a significant difference between knowledge transfer and survival of construction

SMEs in the market. Therefore we have to not reject the ALTERNATIVE HYPOTHESIS (H0)3 and Reject the NULL HYPOTHESIS.

5.9.8 Correlation

According to the Spearman correlation coefficient a number between -1 and +1 that measures the linear relationship between two variables, both the strength and direction. The strength of the correlation is represented by the magnitude of the number. Correlation coefficient of -1 or +1 means that the relationship is perfectly linear and correlation coefficient of zero represents no linear relationship. The direction of the correlation is representing by the sign of the correlation co-efficient. A positive (+) correlation coefficient means that as values on one variable increase, values on the other variable tend to also increase; a negative (-) correlation coefficient means that as values on one variable increase, values on the other tend to decrease.

Table 040: **Correlations - Employee Turnover**

			Employee Turnover	SME Existence
Spearman's rho	Employee Turnover	Correlation Coefficient	1.000	.660**
		Sig. (2-tailed)	.	.000
		N	31	31
	SME Existence	Correlation Coefficient	.660**	1.000
		Sig. (2-tailed)	.000	.
		N	31	31

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation between employee turnover and survival of construction SMEs in the market is 0.660. This reveals that the relationship between employee turnover and survival of construction SMEs in the market is positive. Accordingly there is a statistically significance value 0.000 < significance level 0.01. Therefore H0 is rejected and H1 is not rejected.

Table 041: Correlations - New Technology

			New Technology	SME Existence
Spearman's rho	New Technology	Correlation Coefficient	1.000	.645**
		Sig. (2-tailed)	.	.000
		N	31	31
	SME Existence	Correlation Coefficient	.645**	1.000
		Sig. (2-tailed)	.000	.
		N	31	31

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation between new technology and survival of construction SMEs in the market is 0.645. This reveals that the relationship between new technology and survival of construction SMEs in the market is positive. Accordingly there is a statistically significance value 0.000 < significance level 0.01. Therefore H0 is rejected and H1 is not rejected.

Table 042: Correlations - Government Regulation

			Government Regulation	SME Existence
Spearman's rho	Government Regulation	Correlation Coefficient	1.000	.959**
		Sig. (2-tailed)	.	.000
		N	31	31
	SME Existence	Correlation Coefficient	.959**	1.000
		Sig. (2-tailed)	.000	.
		N	31	31

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation between government regulation and survival of construction SMEs in the market is 0.959. This reveals that the relationship between government regulation and survival of construction SMEs in the market is positive. Accordingly there is a statistically significance value 0.000 < significance level 0.01. Therefore H0 is rejected and H1 is not rejected.

Table 043: Correlations - Financing

			Financing	SME Existence
Spearman's rho	Financing	Correlation Coefficient	1.000	.765**
		Sig. (2-tailed)	.	.000
		N	31	31
	SME Existence	Correlation Coefficient	.765**	1.000
		Sig. (2-tailed)	.000	.
		N	31	31

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation between financing and survival of construction SMEs in the market is 0.765. This reveals that the relationship between financing and survival of construction SMEs in the market is positive. Accordingly there is a statistically significance value 0.000 < significance level 0.01. Therefore H0 is rejected and H1 is not rejected.

Table 043: Correlations - Environmental Issues

			Environmental Issues	SME Existence
Spearman's rho	Environmental Issues	Correlation Coefficient	1.000	.614**
		Sig. (2-tailed)	.	.000
		N	31	31
	SME Existence	Correlation Coefficient	.614**	1.000
		Sig. (2-tailed)	.000	.
		N	31	31

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation between environmental issues and survival of construction SMEs in the market is 0.614. This reveals that the relationship between environmental issues and survival of construction SMEs in the market is positive. Accordingly there is a statistically significance value 0.000 < significance level 0.01. Therefore H0 is rejected and H1 is not rejected.

Table 045: Correlations - Project management

			Project management	SME Existence
Spearman's rho	Project management	Correlation Coefficient	1.000	.519**
		Sig. (2-tailed)	.	.003
		N	31	31
	SME Existence	Correlation Coefficient	.519**	1.000
		Sig. (2-tailed)	.003	.
		N	31	31
**. Correlation is significant at the 0.01 level (2-tailed).				

The correlation between project management and survival of construction SMEs in the market is 0.519. This reveals that the relationship between project management and survival of construction SMEs in the market is positive. Accordingly there is a statistically significance value 0.000 < significance level 0.01. Therefore H0 is rejected and H1 is not rejected.

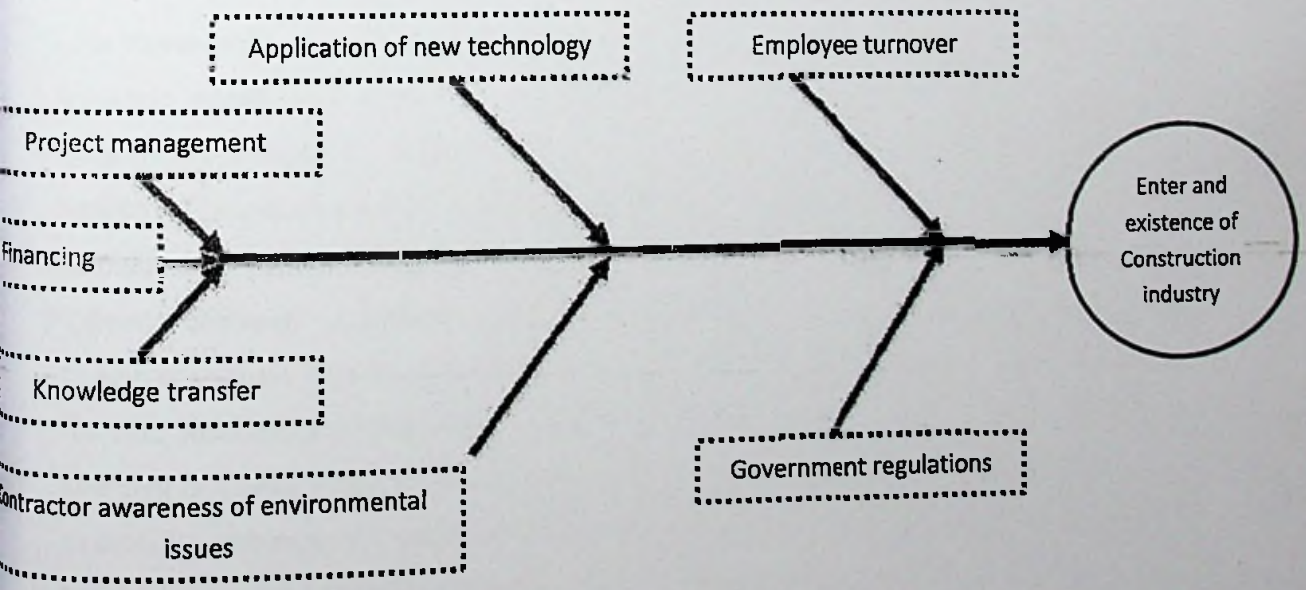
Table 046: Correlations - Knowledge transfer

			Knowledge transfer	SME Existence
Spearman's rho	Knowledge transfer	Correlation Coefficient	1.000	.707**
		Sig. (2-tailed)	.	.000
		N	31	31
	SME existence	Correlation Coefficient	.707**	1.000
		Sig. (2-tailed)	.000	.
		N	31	31

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation between knowledge transfer and survival of construction SMEs in the market is 0.707. This reveals that the relationship between knowledge transfer and survival of construction SMEs in the market is positive. Accordingly there is a statistically significance value 0.000 < significance level 0.01. Therefore H0 is rejected and H1 is not rejected.

Figure 002: Fishbone Model



A cause and effect chart such as fishbone analysis, provides a tool to identify all the possible causes of a problem not just the obvious ones. It seeks to locate the "root" of the problem from a systemic perspective rather than through personal views. Considering the factors highlighted in the fishbone model, it was observed that, employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management and knowledge transfer highly affected on enter and existence for small scall contractors in the construction industry.

CHAPTER SIX – CONCLUSION AND RECOMMENDATION

This chapter carries four sections providing summery of the study, conclusion, recommendations and suggestion for further research. Based on the study to evaluate enter survival of construction SMEs in the market, the researcher identified that there is gap among these entities which are very important to develop national economy of the country. Hence, the researcher identified and made recommendations to assist enter and survival of construction SMEs in the market. Further, the researcher identified that there are avenues to study further on this subject.

The researcher's conclusion based on the objectives set at the beginning of the study. Current situation reveals that: unable to attract dedicated competence Engineers to small scale construction companies. Construction contracts are highly competitive due to shrinking of industry. Companies are ready to take any opportunity focusing break even condition in order to maintain resources. Failures attributed in the past on the part of the small scale contractors. Potential clients do not intend to engage small companies on the understanding that they failed to deliver products on time as per the specifications. Favors from the government or authorities for their relatives and friends while omitting all internationally accepted norms in place for avoiding contracts. Large foreign funded / loan projects controlled by foreign nationals who eventually subcontracted specific areas also to the same foreign origin companies creating a barrier for the Sri Lankans to enjoy comfortable affordable unit rates when engage in such projects. A chain of corruption from top to bottom in all projects irrespective of either government or private sector staff enroll in project works. In competent Sri Lankans staff who

took over key positions in projects making irrelevant, non-technical and inefficient decisions on key areas. Frustration among capable, honest competent Sri Lankan work force in terms of their professional development. Non availability or fulfillment of requirements to satisfy professional development of local Engineers in large scale foreign funded projects in terms of engaging competent world class internationally accepted professionals to develop young Engineers professional carrier and creating environment which is undermining or downgrading status when working with local small scale contractors.

One of the consultants explained his views are that, Small scale contractors can become sub-contractors of main contractors. Thereby small scale contractors can become more efficient, capable and exposed to major works. If in case the above scenario works well, small scale contractors will be able to employ dedicated engineers and all local contractor together with consultants and professional bodies should fight together against corruption.

Results of opinion of SMEs that majority of the respondents are falling within the category of agreed on given statements which were characteristic of survival of construction SMEs in the market in response to employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management and knowledge transfer. Accordingly, it can be concluded that, there are relationship between seven factors discussed and enter and survival of SMEs engaged in construction industry. Accordingly to the significance level, it also proved that, there are relationships between survivals of construction SMEs in the market and employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management and knowledge transfer. As such seven factors discussed are important to consider for enter an existence of SMEs engaged in construction industry.

Fishbone analysis provides a template to separate and categorize possible causes of a problem by allowing teams to focus on the content of the problem, rather than the history. A successful way of using fishbone analysis is to encourage separate factories to work together to identify all possible causes of a problem. These causes are then categorized in groups, such as employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management and knowledge transfer. On completing this exercise, the solutions will likely be identified and an action plan for next steps can be drawn up. Based on

the findings, fishbone model was developed to identify the root to cause enter and existence for construction industry SMEs.

6.1 Recommendations

As mentioned under objectives of the study, Recommendations based on the factors identified through this study.

It is identified that entrepreneurs of construction SME sector have an attitude that large operators in the country have negative perception on SMEs. Hence is has to be changed to continue support to have both levels in the market bridging the gaps identified as employee turnover, application of new technology, government regulations, financing, contractor awareness of environmental issues, project management and knowledge transfer. This method is in practice in the developed countries and large institutions earns considerable income by working both SMEs and large construction companies. Hence, it is high time for industrial level policy developers to rethink their policies.

With a view of promoting and motivating SME construction companies to maintain proper financial accounts and periodic financial statements of the same which reflecting real financial position , performance of the business, the Government and its relevant institutions should offer some kind of attractive fiscal incentives for SME sector.

It is high time for introduce Credit Guarantee Scheme for small construction companies which is a relief for SMEs who did not possess any assets to offer as collateral. Dedicated credit lines for SME sector are also another motivating factor which helps them to obtain comparatively low interest rate line of credits in order to expand their businesses. Hence, It is time to exploit the existing credit lines

SME sector needs support from government or any outsiders to gather upgrading of technology, improving product quality, improving managerial skills, exploring market opportunities. Therefore, it is essential for the country to establish a network of Business Development Service Providers in order to help SME entrepreneurs when they need professional and reliable advice on problems relating to the operation of their businesses.

With the development of policy to construction SME industry, Government and other related parties in Sri Lanka, SME perception will change .This result to increase the SME access to businesses and credit facilities. As a result, local economy will be developed, accordingly regional economy also developed.

Drawing fishbone diagram, the root causes toward enter and existence of construction industry SMEs were identified. Thereby SMEs can take steps to identify their possible problems and apply suitable methods to enter and exist on the market. Also policy makers can re-think in developing an active national policy using these findings as supporting tool to contribute to sustainable SME development through developing and establishing the institutional, financial, human resource and legislative framework necessary to participate in socio-economic development Mechanism.

6.2 Suggestion for Further Research

Due to limitation in terms of time, logistics, access of reliable data, the researcher restricted the population to a limited geographical area of Western Province. As of the opinion of the researcher, the result would have been more accurate if this study targeted wide geographical area. Hence, it is suggested to conduct a research covering entire country or at least provincial basis.

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Appendices I

Questionnaire

Introduction and Ethical Clearance: I, Gamini Ramawickrema, currently have engaged in a research of "**A STUDY OF BARRIERS ON SMALL SCALE CONTRACTORS TO ENTER AND SURVIVE COMPETTITIVE CONSTRUCTION INDUSTRY IN SRI LANKA".** The results of this research will help in the recommendation of strategies to overcome the project management in the Sri Lankan construction industry. To clarify some ethical concerns, there are no known risks of participation in this study, nor are there any costs involved. I must make you aware that the interview will be recorded for subsequent transcription; however this is only for making the data analysis as accurate as possible. Your participation is entirely voluntary and you're free to withdraw at any time without prejudice. All information will be handled in the strictest of confidence and no names of the persons or companies will be used in the write-up of the research.

I

Employee turn over	Strongly disagree	Di sag ree	Neu tral	Ag ree d	Strongly agreed
Professionals are eying for more establish larger organizations.					
Reward system is required					
Recognize employees					
Confidence of the employers' sustainability					

2

New Technology	Strongly disagree	Disagree	Neutral	Agreed	Strongly agreed
Adaptation of new technology is very remote.					
Initial cost is high in new technology					
Poor adaptation of new technology					
Employee attitude towards new technology					

3

Government Regulations.	Strongly disagree	Disagree	Neutral	Agreed	Strongly agreed
Development of policy to regularize the industry operations					
Provision for the infrastructure development					
Provide facilitation to access to financial sources					
Promote SMEs towards sustainable business ventures					

4

Financing.	Strongly disagree	Disagree	Neutral	Agreed	Strongly agreed
Introduction of low cost financing					
Build network to approach all level of SMEs					
Banks are reluctant to provide financial facilities to SMEs					
Low margin of profits					

5

Contractor Awareness on Environmental issues.	Strongly disagree	Disagree	Neutral	Agreed	Strongly agreed
Awareness on environmental issues					
Low technical knowledge on energy reduction measures					
Use of old/poor level machineries					
Assessment of environmental impact cost is high					

6

Project Management.	Strongly disagree	Disagree	Neutral	Agreed	Strongly agreed
Poor project management create to the SME company					
Low payment scale					
Contractor become project manager					
Conflict between project managers and other stakeholders at regularly					

Knowledge Transfer.	Strongly disagree	Disagree	Neutral	Agreed	Strongly agreed
SMEs inability to provide additional knowledge					
Low skilled employees due to low knowledgeable staff					
Poor knowledge sharing among institutions					
Workers reluctant to access to new knowledge					

Sustainable SMEs	Strongly disagree	Disagree	Neutral	Agreed	Strongly agreed
Strong construction project management					
Financial control					
Reputation of the institution					
Quality outputs					