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Managing multi-cultural engineering teams in Egypt

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STATEMENT

"An eye for eye only ends up making the whole world blind"

M.K.Gandhi

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The universe is fair, and has always been fair and if it wasn't for God, I wouldn't have made it this far.

Working as a MSc student in The American University in Cairo was a challenging experience and a magnificent journey as well. During these years, many people instrumented directly or indirectly in shaping up my academic and professional career. This is a small tribute to all those people who never stopped believing in me.

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ABSTRACT

The exercise of project management altered drastically over the past two decades and is currently driven by the growing demand of standardizing the industry's practice and the emerging globalization of the industry. According to the literature review, one of the obstacles facing the development of the engineering teams in both developed and developing countries is the poor performances of multi-located and multi-cultural teams. The literature review reflects on the influences of the culture complexity and social diversity on the multi-cultural team's performances. There have been a number of empirical studies that focus on the performances of the effectiveness of these teams. However most of the studies carried out focused on the individual's experience within the context of developed countries.

Given the global trend towards internationalization, there is a need to understand the parameters that determine the success of the foreign firms operating in the Egyptian construction market. This thesis is intended to explore the influences of the multi-national firms on the designers in the Egyptian construction industry and the various obstacles faced by the formal due to the diversity in their teams. The research employed a qualitative experiment on multi-cultural multi-located teams in one of the foreign firms in Egypt in order to capture the influences of the social and culture diversity on their performances. A quantitative survey was also conducted to gather relevant information about the multi-cultural teams from the Egyptian and foreign leaders in the construction industry. The verdict of the mixed method methodology illustrates the importance of considering the cultural index and various managerial techniques while operating in Egypt.

The data gathered is analyzed using the Porter model, which was amended by various scholars to suit the needs of the designers in the construction industry. The data analyzed proposes a framework that includes key parameters to ensure superior performance by the multi-located and multi-cultural design engineering teams. The validation of the framework is conducted by follow-up deliberations with Egyptian and international experience managers from select companies participating in global engineering activities. The participants confirmed the significant of the proposed framework. A verification experiment is conducted on multi-cultural virtual teams, originally involved in the qualitative experiment, to ensure the significance of the framework developed in the real life situation. Following the framework's establishment, a

model is developed to assist the foreign companies' rate their compatibility with the Egyptian construction industry. The aim of the model is to elevate the performances of the international company from a managerial perspective and provide recommendations in regard to the challenges faced while operating in Egypt. The model is validated through an external validity exercise.

The thesis thus aimed at understanding the challenges, motives, benefits of the multi-cultural firms working in the Egyptian design construction industry. The framework and model developed are intended to provide a significant step to launch a successful operation of the multi-cultural and multi-located engineering teams in Egypt. The thesis concludes the importance of considering social and cultural aspects while developing a managerial approach which is to be formulated through an effective straightforward organizational culture. However with the continuous changes in the construction industry, it is highly recommended that future research and experiment be conducted on the multi-cultural teams in Egypt taking various socio-economic variations into consideration.

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CHAPTER I. INTRODUCTION

This chapter introduces the topic of globalization in the construction industry and identity the top competitors in the global construction movement. Various terminologies like multi-cultural firms, global firms and international firms are defined. The chapter further states the problem statement, objectives and scope and research methodology adopted in this thesis. An overview of the rest of the chapters is presented.

I.1 BACKGROUND

Globalization is widely defined as "the process of international integration arising from the interchange of world views, products, ideas and other aspects of culture" (Albrow, 1990). Globalization is a phenomenon that has been emerging for several decades now and is capable of connecting the world together through various disciplines. Some of its impact includes polarization of the global economy and standardization of new rules and regulations controlled by organizations like the World Trade Organization (WTO). Globalization continuous to have an impact on various fields, and the construction industry is not an exceptional case. Some of the direct impact on the construction industry includes the development of construction techniques; incorporating cultural diversity into the project and creating a development opportunity for the economic and social status of the countries. According to Ron Magnus (2009), a Managing Director of FMI'S Center for Strategic Leadership in China, one of the core criteria to be taken into account while competing in today's emerging market is the presence of a dynamic interconnected business environment. This can be achieved by understanding and implementing several additional factors to the regular factors usually considered for project success. Mainly, the company needs to create new adaption strategies and core competencies and to have an ability to hire top notch human resources who are capable of understanding the market with in-depth understanding of client behavior and job specific challenges. Competitors are also to be viewed as potential collaborators in order to expand and excel (Hoover, 2014). Since globalization relays on various compounds in the country, the success of globalization is directly linked to understanding the social, ethical aspects of the intercultural relations, and cultural differences.

Globalization as a movement flourished in the early 1990's with the industrial revolution although it was known during the 15th century especially with regard to trade and good exchange. For the construction industry in the MENA region, globalization was witnessed during the booming of the 1978 oil crisis. This phenomenon innovated a variety of opportunities that encouraged various governments to regulate their trade. In the UK, for instance, new rules and regulation were established to regulate the collaboration between the construction companies in the UK with their counterparts in African countries. In the USA, various regulations were passed in order to maintain a healthy economic state with the Chinese labor as well as the South-American laborers and construction companies. Other laws were passed in countries like Australia (Australian Procurement at Construction Council, 1997), Hong Kong and Singapore (Construction 21 Steering Committee) (Latham, 1994; Egan 1998). These laws are meant to regulate trade, and maintain a healthy relationship with the other country in terms of economics, labor, social behaviors and political relationships.

I.2 DEFINITION OF GLOBALIZATION PROJECTS AND MULTI-CULTURALISM

I.2.1 GLOBALIZATION

Globalization is becoming a significant phenomenon and various researchers are continuously conducting surveys, experimental field works in order to understand the impact and the effect of globalization on the construction industry. Several terms are important to understand and distinguish between while studying globalization, which are:

International Contractor: These contractors may export and import a huge percentage of the product or service provided. However, they have no foreign direct investment (FDI) outside their home country.

Multinational Contractor: These companies invest directly in foreign assets. They don't homogenize their products unlike the global contractors.

Global Contractor: These contractors operate and are present in many countries but maintain a single strong headquarter. They homogenize their products in order to maintain cost efficiency.

Transnational Contractor: These are the most complicated form of organizations, where there is a central corporate and varies foreign operations. The central corporate gives decision-making,

R&D, marketing power to each individual foreign market. R&D becomes an important factor for the various national markets (Hill, 2007).

I.3 GLOBALIZATION CONFERENCES AND SURVEY TOOLS

The importance of globalization in the construction industry and its drastic effect can be examined through the conferences and the studies that are organized. Statistics and figures from these conferences will be used in the literature review and research analysis.

I.3.1.1 Global Construction Perspective and Oxford Economics

The Global Construction Perspective and Oxford Economic published three series regarding the global emerging market of the construction industry. The third series report was done in partnership with more than 47 international construction industries, including Orascom Construction Industries (OCI), Arabtec Holding, Cemex, Lafarge, Armstrong and Atkins, examining the construction globalized market in 10 countries. According to the report, the merging of the construction industries in the Asian, Latin American, Middle Eastern and African countries will be worth 15 trillion US Dollars by 2025, accounting for 70% of the global construction output. It is considered a fundamental shift in the construction industry since, in 2005, only 35% of the construction companies were in the emerging market. Infrastructure growth is one of the key components in the development of this emerging construction market. The dynamic shift has led to considerable research on market issues like outsourcing of work across borders and the associated labor and societal issues.

I.3.1.2 Engineering New Record (ENR)

ENR is also responsible for compiling and publishing annual rankings for the largest construction and engineering firms. According to the ENR, in 2011, the competition among the companies emerging into the global market especially those located in Asia reached its peak making China the world's largest construction industry in 2010. The table below shows the top fifty eight international and global contractors for the year 2000 and 2015 (ENR, 2000 and ENR, 2015).

Table 0-1: Top 58 and 50 list for the International and Global contractors (ENR, 2000; ENR 2015, ENR 2008, ENR,2015).

Country	Number of International Contractors (2000)	Percentage of revenues in 2000 (100%)	Number of International contractors (2015)	Number of Global Contractors (2008)	Number of Global Contractors (2015)	Percentage of revenues 2015 (100%)
USA	14	24.1%	8	7	6	9.31%
Japan	9	15.5%	5	8	4	5.40%
France	8	13.8%	4	4	4	14.75%
UK	6	10.3%	1	1	-	-
Germany	5	8.6%	2	2	1	4.11%
Italy	4	6.9%	3	1	1	1.03%
Korea	3	5.2%	6	4	6	6.43%
Sweden	2	3.4%	1	1	1	0.77%
Netherlands	2	3.4%	1	1	1	0.77%
China	2	3.4%	12	8	18	42.94%
Spain	-	-	5	6	2	10.37%
Others	3	5.2%	1 Egypt	7	6	5.40%
Total	58		58	50	50	100% (1,167,173 Million)

Among the international contractor's competition, Orascom Construction Industry (Egypt) scored the 40th position in 2015 as compare to 67th position in 2014. However as a global contractor, the only MENA based contractor that was listed in the top 100 is Orascom Construction Ltd. (Egypt) placed at 95th position as compare to 138th place in the previous year, 2014. As suggested by Oz (2001) and Zhen et al (2012) who studied the Turkish and Chinese markets respectively, these companies are internationally successful because of their abilities in finding inexpensive, skilled labors; cultural and language proximity and construction opportunities. This argument is supported by the figures from ENR (2000, 2015) which reflect the success of the Chinese companies as international (12 positions) as well as global contractor (18 position).

I.3.1.3 IHS's Global Construction Outlook Report

IHS's World Construction Outlook report for the year 2007-2009 predicts the near-term economics of the MENA region as vulnerable especially with the crisis in Syria which is heavily affecting neighboring countries like Lebanon, Iraq and Jordan. Countries like Egypt and Tunisia political turmoil made the investors more hesitant. However, countries like Saudi Arabia and United Arab Emirates which are well-endowed with energy resource had boosted housing and infrastructure projects. The infrastructure projects in the MENA region are a major component of the foreign direct investment. The construction sector despite of all the political instability is expected to increase at a compound interest rate of 3.7% by 2017.

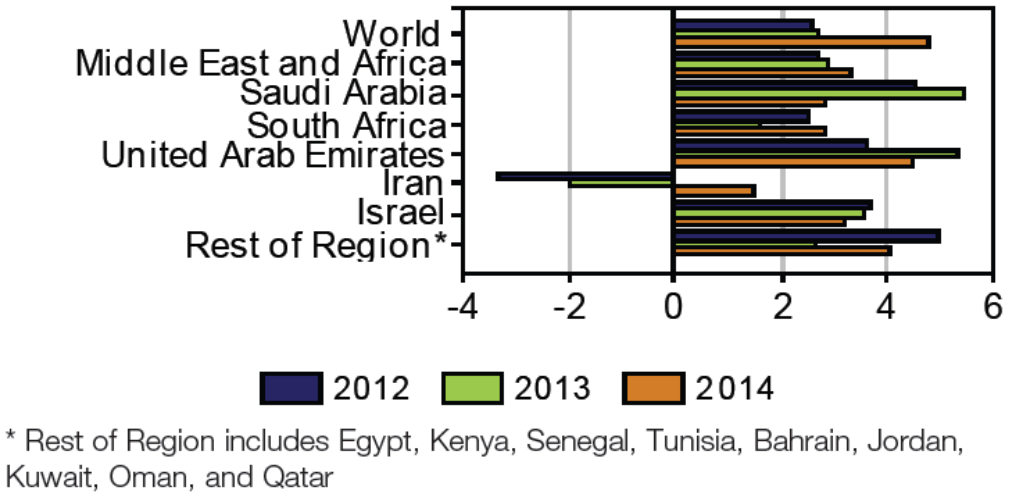

Figure 0-1: Compared to 2012, there was a decline in the total construction spending (especially Egypt). (IHS Global Construction Sector, fourth quarter, 2013).

IHS ranked the countries by their risk level, where Egypt was ranked number 7 in the top 20 highest risk markets by 2013. The total construction spending by 2013 was estimated to be 22.4 billion US dollars. The cost inflation was estimated to be 5.4% and the 5 year construction risk score was 41.69 (where 1 is the lowest risk).

I.4 PROBLEM STATEMENT

Globalization becomes important especially on heavy construction engineering project work where a number of multidisciplinary and multifunctional teams are involved. The growing of the globalization market ignited the importance of considering social and culture aspects while

managing the multi-cultural virtual teams. According to Egan (1998), Danity et al (2007), the understanding of the social and culture issues are essential for promoting the globalized market since it enhance the effectiveness of the construction sites and projects. Consequently, the effective management of a multi-cultural team argued the need to start examining these cultural complexity and discusses the dynamic nature of the cultures more openly in relationship with the construction industry. The success of the project is no longer limited to the 3 parameters, the time, cost and quality as was always studied in the project management. Others factors are to be taken into consideration for the success of the multi-cultural multi-located teams (Egan, 2002).

In the past decades with the complexity of the projects in the Egyptian Construction Industry (ECI), the demand of hiring experts became essential. With the appointment of the Multi-Cultural Firms (MCF), various changes are taking place in the ECI from a technical, managerial and organizational perspective. In 2003, the American Chamber (AmCham) presented a study regarding the limitation of the ECI, categorizing the main obstacles into (i) financial and insurances factor, (ii) governmental factors, (iii) institutional factors, (iv) local companies' factor and (v) foreign countries' policies. According to the report, the MCF faces two major constraints while operating in Egypt. The absences of informative platform about the local companies and the fact that 80% of the projects are assigned to contractors directly by the government with no bidding procedures. The recommendations provided by the AmCham are: (i) improving the managerial and strategic planning, (ii) improving the organizational culture, (iii) be involved in joint ventures with the MCF for technology transfer, (iv) form strategic alliances with international companies, (v) specifying market niche, and (vi) cost advantage strategy. It is remarkable that all the recommendations stresses on the importance of management for the development of the ECI.

Globalization is a phenomenon that will continue to evolve through time and its impact on the ECI remains unclear. With the increasing need for multidimensional and multicultural projects, the ECI is forced to fulfill the demand of providing a suitable working environment for the MCF to remain in the global competition. A lot of models and frameworks were developed globally to study the parameters required for the success of the multi-cultural teams. Nevertheless, none of these studies were regarding the MENA region except few on the UAE market.

A commonly used management adage states that "One cannot manage what cannot be measured". Although various theories are developed regarding the parameters influencing the performances of the multi-cultural and multi-located teams, none focused on the ECI. This research is hence a step towards assisting the MCF to tackle and enhance their performances in the ECI. This study is intended to fill this gap by proposing a framework that includes key parameters and sub-indicators to assist evaluate the MCF's performances in the ECI. The framework developed is rendered into a model in order to aid the MCF know its compatibility rate with the ECI and have an overview of various managerial procedures to be implemented.

I.5 OBJECTIVE AND SCOPE

The scope of this research is to examine the role of the multicultural firms on the Egyptian construction industry. The objective of the research is to create a framework that allow for the managing of the multi-cultural virtual design teams in Egypt. The above objective was fulfilled through an explanatory analysis of the effect of globalization in terms of political, economic, social, technological, legal and environmental transformations. These findings are tested on the Egyptian design team employed in MCF operating in Egypt. Accordingly, a set of successful dimension index are established that govern the success of the multicultural design firm operating or intending to operate in Egypt.

The literature review of the globalized multi-cultural team projects, argued the need of introducing an amended managerial approach, different than the one implemented on regular mono-cultural team projects. In order to know whether the same applies to the design teams in Egypt, the following key questions were examined first:

(i) Do multi-cultural multi-located teams require an amended managerial approach?
(ii) Does the culture complexity of the multi-cultural teams affect the performances and the efficiency of the teams?

After developing answers to the above key questions through explanatory study of the literature review, the research approach the Egyptian market and target to answer the following:

(i) What are the challenges faced by the MCF while managing multi-cultural and multi-located teams in Egypt?

(ii) Does the cultural diversity of the host country (Egypt) affect the managerial approach?

(iii) What are the managerial steps to be implemented by the MCF to avoid or reduce the challenges arising from the multi-cultural and multi-located teams in Egypt?

Using a mixed-method to answer the above questions, the research's goal is to develop a set of key parameters that assist the multi-cultural design firms while operating in Egypt. The research also aims to validate and verify the framework developed in order to understand the probability of its generalization on the Egyptian design teams.

I.6 RESEARCH METHODOLOGY

An outline is provided in the form of a flow chart to highlight the main steps involved in this research. Figure 1 illustrates this sequences starting with the understanding of the globalization movement, followed by the literature review about the benefits, entry routes, motives, key parameters and challenges of globalized projects. Following the literature review, the next step was to identify the key success parameters for managing the globalized project multi-cultural and multi-located teams.

Once these parameters were determined through various scholars' work, a qualitative experiment was conducted among multi-located and multi-cultural team operating in Egypt to test the computability of the literature review with the Egyptian design teams. A semi-structured questionnaire is developed as well to identify the main parameters from the perspective of foreign and Egyptian managers. The data gathered from both the qualitative and quantitative experiment is analyzed using Porter's diamond model, which calculates the rate of competitiveness of a firm in the host country (Porter, 1991).

Upon the analysis of the findings, a framework is developed whose parameters are tested using statistical analysis to identify the key and subordinate parameters. A validation process was carried out using the internal validity and reliability tests to ensure the validity of the framework proposed and to ensure the generalization of the framework among the Egyptian design teams. This is followed by developing a model using Fuzzy logic in order to assist the MCF rate its compatibility with the ECI. The model is also verified using external and internal validity procedures. The figure below provides a flow chart summarizing the research process.

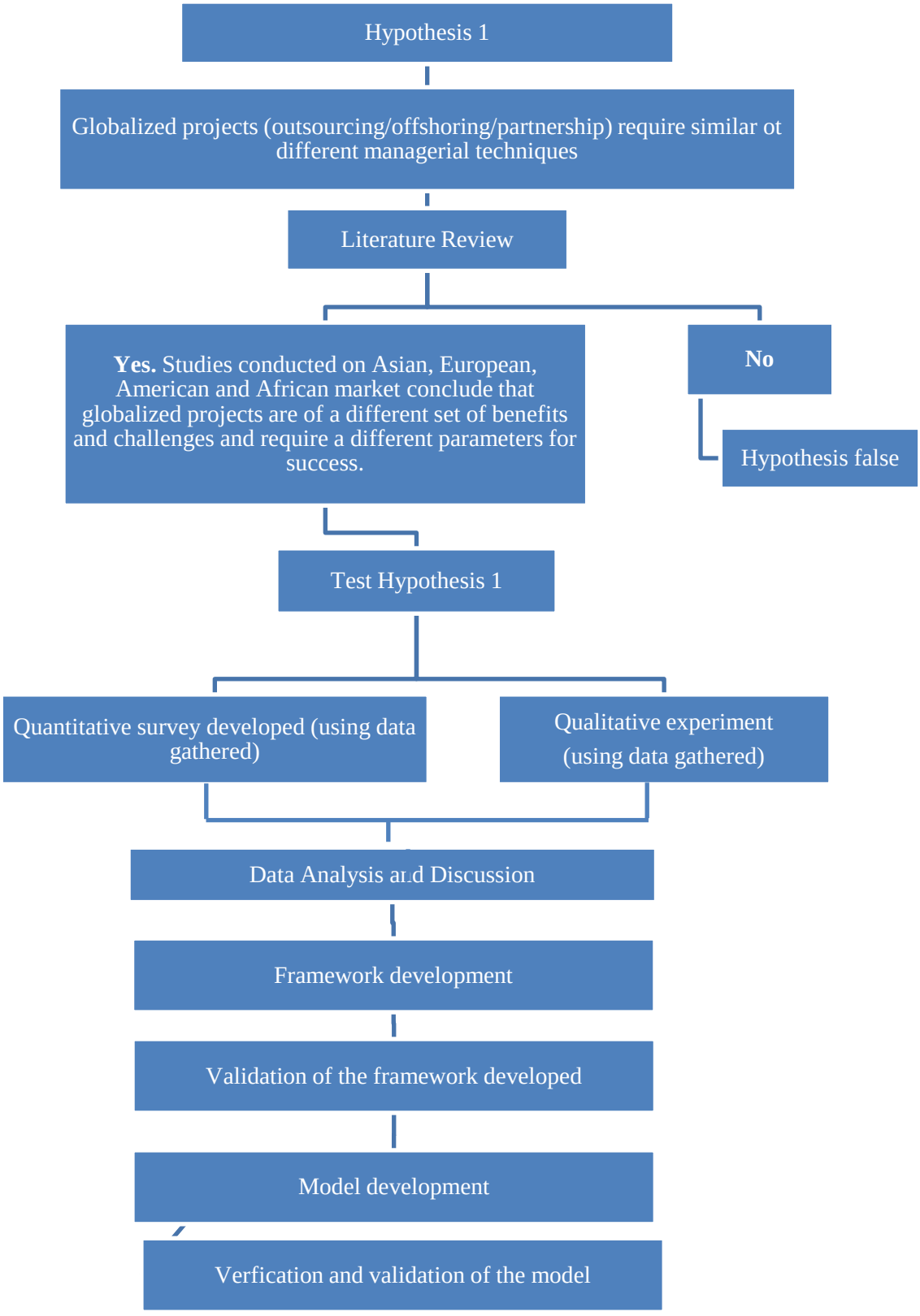

Figure 0-2: Flow chart of research methodology

I.7 THESIS ORGANIZATION

This research is organized into five chapters where each chapter builds on the previous one forming an integrated thesis as outlined below:

Chapter I -INTRODUCTION

This chapter introduces the topic of globalization by outlining a review of background information about globalization and its influences on the construction industry. It further states the problem statement, objectives and scope, research methodology and the thesis organization.

Chapter II -LITERATURE REVIEW

A literature review related to the meaning of globalization, the challenges, opportunities associated with it. A review of the models developed to assess the performances of the MCF was also presented.

Chapter III -RESEARCH METHDOLOGY

This section describes the research type and techniques, methods for collecting data, analyzing approach and their interpretation. It provides the process of developing the key success parameters and the sub-indicators that evolved from the literature review and the data gathered from the qualitative experiment and the semi-structured questionnaire conducted.

Chapter IV- FRAMEWORK DEVELOPMENT

This chapter is devoted for the development of the framework which includes the success parameters for the MCF operating in Egypt developed through the data analysis from the previous chapter.

Chapter V- MODEL DEVELOPMENT AND VERIFICATION

From the framework developed in the previous chapter, a model was developed to assist the MCF know their opportunities and obstacles faced while operating in Egypt. The verification of the model was made possible through the help acquired from the Egyptian and foreign leaders in the ECI.

Chapter VI- CONCLUSION, RECOMMENDATION AND FURTHER WORK

The final chapter of the thesis summarizes the research findings; present the challenge, limitations and offers recommendation for future research.

CHAPTER II. LITERATURE REVIEW

This chapter briefly defines the main aspects of globalization in the construction industry, discussing the entry route, benefits, initial steps required to operate oversea and challenges. The chapter also discusses the various models that are developed for managing the multi-cultural teams and elaborate on various globalized cases through a thorough study of several case studies from Asia and Europe. The various analysis approaches developed in the construction industry is also introduced in this chapter.

II.1 GLOBALIZATION

Throughout the decades, the engineering and the construction professional were able to achieve technological advancement, building codes etc. but Akriner (2009) argues that "achieving project objectives in a globalized environment requires more than merely technical expertise". According to various scholars (Chan, Tse, 2003; Yates, 2007) it is when the project is in its execution phase that the cultural, political, environmental, religious, legal, and language barrier arise. Over the past few decades, the volume of the global construction have increased drastically with not only the large companies involved but also the small and medium sized companies extending their business overseas (Hanlon,2009). Several reasons are behind globalization as explained by Bryant (2006), which are mainly cost reduction, access to better service, enhancing the quality at the overseas office, and shortened design life cycle. In this case, the companies find themselves challenged by unfamiliar environment like technical issues, shortage of qualified labor and management, multiethnic teams, language differences, economic, political, financial risk and shortage of accommodation (Moseley and Bubshait, 2005).

II.2 OFFFSHORING, OUTSOURCING AND PARTNERSHIP

Globalization can be performed through offshoring, outsourcing and partnership. The differences means of globalization are described below.

Offshoring: Offshoring can be defined as "the practice of basing some of a company's processes or services overseas, so as to take advantage of lower costs". Despite the fact that many companies find difficulties in operating outside the firm's domestic market, many firms are taking the initiative of expanding. A study conducted by the CII questioning the largest

companies in the Engineering, Procurement and Construction (EPC) industry of why offshoring is important revealed the following results:

Table II-1: Drivers for offshoring from EPC and owner perspective (CII, 2006)

Drivers of Offshoring	Average Score	Ranking
Reduce the engineering service costs	4.3	1
Competitors	3.2	2
Presences of global/ local customers	3.2	3
Provide service close to the project location	3.1	4
Reduce engineering schedule	2.9	5
Expand work for the same cost	2.8	6
Country, client, funding requirements	2.8	7

Outsourcing: The concept of outsourcing emerged in the late 1980's in simple activities and was introduced to the construction industry by the early 1990's. It is believed that financial benefits are the core competences for outsourcing construction activities. The outsourcing phenomena pushed many companies to introduce the virtual teams, which is an evolutionary form of a network organization. Number of researches were conducted on virtual teams found that virtual teams outperform their traditional counterparts through a more effective planning and information exchange.

Partnership: Partnership can be defined as a type of unincorporated business organization whereby various parties manage the business. Partnership can be in the forms of operation and maintenance or management form, or design-build form. The risky and competitive nature of the international construction projects encouraged many firms to work with one another forming a bond of collaboration like equity joint venture or project based joint venture. Other type of partnership like private-public partnership also exists. The benefit of this partnership is that both parties share the burden of risk exposure, allow better advanced technology access, and improve the competitive position of both firms. Additionally, it helps to understand the local and international market and thus contribute to globalizing the construction industry (Park et a, 2011). Because of the different views of each partner, there is a need to understand and identify the key factors that result in a project success (Park et a, 2011).

II.3 MOTIVES AND BENEFITS OF GLOBALIZATION

II.3.1 BENEFITS FOR THE CONSTRUCTION FIRM

A study conducted by Abdul-Aziz (1993) showed that long term profitability and a balanced growth for both the home and abroad offices/project's performance in term of technology, revenues and employee's skills are the primary reasons behind choosing oversea market. Other reasons included availability of better resources (human resource) and the increase in the turnover of the projects, near-term profitability and avoiding of saturation in the established market. The following represent the mostly identified motives behind why designers, contractors and consultant seek international market.

Geographical Spread: The ability to operate anywhere perceiving the global market as a single market pushed many contractors to think and approach globalization. Problems like scarcity of resource, shortage of opportunities, and constraint in technology can easily be solved by seeking international market. The Americans contractor for instance saw an opportunity in the Japanese market by 1980's; the Japanese saw the American presences as a greater value added to their local contractor. Some offices like the ones based in UK like Foster Wheeler depended on the mother office to enter the developing countries through historical, cultural or political connections.

Competitive Advantage for the Globally Oriented Firms

a. Internal Factors: Possessing a competitive edge encouraged many firms to operate oversea. Many firms like those of Japan for instance are expert in tunnel construction. Therefore, instead of limiting themselves to the local market, expanding overseas provided a larger market niche. (Halpin, 1991).
b. External Factors: The external factors like financial crisis during the 1980's, gave all the contractors with a financial package (liquidity of cash) the edge over others. Turkish contractors for instance benefited from tax intensive and government protocol (Oz,2009).

Strategic Alliances: According to Abdul-Aziz (1993), strategic alliance is one of the main-stay behind globalization. Most construction companies find it challenging to perform every task

individually and perfect it so partnering. Partnership helps the overseas company to reduce the cost required while researching the market, searching for employees, etc.

Human Resource: According to Hanna (2001), the construction labors are the most dynamic element, which representing half of the overall construction cost. According to Akiner (2009) the economics incentive like cheap labor and new market are among the motives of why MCF join the globalization market.

Technology Transfer: According to Abbott (1985), the lag of the technology in the developing countries makes the technology transfer a necessity and a potential viable for many MCF. This transfer is a win-win situation whereby the developing countries construction industry benefits from the MCF advancement in technology and the later get financial benefits along with geographical spread and strengthen the company's reputation. Transferring of technology can later help in creating opportunities worldwide like the Japanese construction industry. The Japanese today are considered the world leaders in construction industry technology and this is mainly because they invest 3% of the gross receipt of the industry on Research and Development (R&D).

Although the motives and benefits of globalization are plenty, different companies seek internationalization for various reasons. The prioritizations of motives differ based on the origin of the company, type, size and age. The following represent some of the motives for companies located in the Asian and American continent.

Table II-2: Motives for globalization as per the Malayasian contractors and consultants Courtesy of Abdul-Aziz (2003)

Variable	Significant (2 tailed)
Respond to competitor's move	0.893
Respond to governmental' encouragement	**0.869**
Increase profitability	0.791
Counter domestic business cycle	**0.754**
Sustaining firm's growth	0.749
Right opportunity arouse	**0.615**
Improve firm's image	0.609
Respond to client's demand	**0.602**
Exploit firm's resource	0.274

II.4 INITIATION PLAN FOR GLOBALIZATION

II.4.1 PREREQUISITE FOR FOREIGN COMPANIES

Like any business, the construction companies which aim to enter the race of globalization, need to possess certain competitive edge. The literature review suggests a number of features for the MCF, which are:

Study the Host Country: For a MCF to penetrate into a market and take a job, there need to be some sort of imperfection in the market in terms of goods, production, equipment, absences of technology etc. (Ofori, 2003). It is also essential to be able to access information like availability of labors, their associated skills and adoption possibility with technology, required capital investment and legal framework.

Firm-specific Advantages: The firm's success overseas relies partially on the firm's name, reputation, expertise, resume, experiences, size and the social culture of the firm (Ofori, 2003). The firm's resource and origin are important factors to be considered. Other factors includes firm's past work record, client relationship before and after delivering the project, and risk management approaches. Other opinion states that the prerequisite for MCF is about having a flatter organization, less bureaucratic procedures and respecting time schedules.

II.4.2 ENTRY MODES INTO THE GLOBALIZED MARKET

The construction firms started entering the international market through various notable routes. Ngowi et al (2005) discuss these routes and classify them into 4 main categories. The first and the most notable route was the economic boom in the MENA region where a substantial construction demand helped in bringing the international construction companies. The second route is the bilateral and multilateral agreement where a certain protocol enabled the companies to participate in other countries. The third route is the implementation of large sale projects like Panama Canal (1900-1914) and number of dams in China. The fourth and one of the most important categories is to carry out work for the Multinational Corporations (MNCs). This route was encouraged by the lowering of the trade barrier and by the movement of funds. Akiner (2009) also agrees with the above approaches, noting that cross border mergers and acquisitions was the main entering approach for MCF by the 1980's. These approaches smoothly helped the

companies to enter the globalized construction market. Sometimes, in order to fulfill the global market continuous demands, a company may be involved in a hybrid business arrangement.

In light of the increasing globalized projects and ventures between the contractors, designers and consultants, different factors assist the parties in securing work and success overseas. Clients for instance play an important role in globalization where they pick a consultant from a business director or word of mouth (Leonidou et al. 2007).Architecture firms can shelter their position through competitions, portfolio or draughting part of oversea job. Governmental trade delegation in host countries can also become a mean of geographically widespread. Alliances, affiliation with larger business group, collaboration with smaller companies are all means of joining the globalized market. In general, a solid reputation for a domestic or international firm is a competitive edge to enter the globalized market (Park et al, 2011).

Table II-3: Globalized entry route for the Malaysian contractors and consultants Courtesy of Abdul-Aziz, 2013

Variable	Significant (2-tailed)	Significant (2-tailed)
Invitation by client in home country provide service in host country	0.529	0.862
Invitation by client to provide serves in host country	**0.420**	**0.535**
Marketing Strategy	0.027	0.313
Responding to International tenders	**0.654**	**0.311**
Trade delegation	0.451	0.580

Many routes were discussed on how to entry the internationalized construction market. However, how to choose the strategic alliance, host country, and managerial approach requires a study of the market from a financial, political and social perspective and the culture diversity. As a result, a number of models were developed worldwide regarding how a company can start operating overseas. A recent model that was developed in 2012 by professors in Virgin Tech University is the Globalizing Self-Assessment Tool (G-SAT). G-SAT is a calculator to score the engineering firms according to their performances, determining the impact of the culture on the project. Another model was developed known as XLQ model in which 5 main attributes were taken into account, leadership dimension of trust, empathy, transformation, power and communication. This model was developed by Grishamin in University of South Florida in 2006. Alternative

model that was industrialized early on is that of Kogut and Singh (1998) in which the cultural distance index (CDI) is a measure to estimate the extent to which two cultures are different from each other. Unlike Grishamin model, Kogut and Singh (1998) model gained international acceptances and was used by many construction firms.

II.4.3 PESTLE ANALYSIS OF THE HOST COUNTRY

The home country plays a dual role since its advantages can provide leverage for the local firms to enter the foreign market and at the same time encourage the foreign investments. There are several problems and risks that the construction projects encounter. The following section discusses the host country trends and their influence on globalizing the construction industry:

(i) **Political Trends:** Political leaders can help firms internationally by giving trade assistance. Mutual agreement between countries can allow free movement of professionals, which contribute to technology transfer, one of the main benefits of the globalization. Examples of construction industries that benefited from this protocol are Japan, Turkey and UAE construction markets.

(ii) **Economic Trends:** The economic status of the host country is directly correlated to the presences of the foreign investments. This means that the image of the country's influence the foreign buyer's purchasing patterns (Abdul-Aziz, 2013). An example is the United Arab Emirates, the economic trend along with the legal advantages helped in turning the capital into a foreign investment capital.

(iii) **Social Trends:** The market size, growth rate are factors to be taken into consideration while studying the host country. The intensity of the local competitors and their development may cease any MCF from penetrating the local market. An example is the Japanese market, in which the advancement of the technology makes it difficult for any MCF to penetrate. The construction firms need to recognize that a change in the market consequently implement a change in the customer demands, a change in the market niche segment and a diversity in culture and language barriers (Dugdale, 2014). According to Dugdale, customs, behaviors, societal values, influences and traditions vary from one country to another and the construction industry need to study these constraints beforehand.

(iv) **Technologic Trends:** The advanced technology and the presences of intense competition between the local companies make the MCF less attractive to operate in the host country. The extreme absences of technology may also discourage the MCF from operating unless the host country economic / legal framework are very encouraging and superset this disadvantage.

(v) **Legal Trends:** According to Raftery et al., for globalization to occur smoothly, governments should take measures like (i) mandatory joint ventures, (ii) mandatory sub-contracting, (iii) specialized training to local employees and managers, (iv) imposition of floor limits on projects for foreign firms tendering, (v) different taxation system for MCF. Some or all of these steps were implemented by countries like Japan, Korea, China, United Arab Emirate (UAE) and Mexico (Ofori, 1996). According to Bradley (2002), the visa issue is essential because in many countries, the governmental procedure may restrict a qualified candidate from joining oversea project. It is important to recognize that the absences of regulation and laws will drive the MCF away. So, usually a balanced form of tolerances and barriers are expected to regulate a flexible industry like the construction industry (Bradley, 2002).

Thus not only the companies need to study the construction market but also an attentive study should be conducted regarding the host country's laws, rules and regulation, operating needs in order to ensure the success of the project.

II.5 PROJECT SUCCESS

II.5.1 GENERAL PROJECT SUCCESS ATTRIBUTES

Project's success is generally defined as the ability to meet the project goals and expectation as per the project stakeholders (Chan et al. 2002). Various identifiers were used by the construction industry literature like hard/soft measures, tangible/ intangible measure and objective/subjective measures to indicate the success of the project. It was during the 1990's that Atkinson proposed the three basic criteria to measure the project performances. The basic criteria also known as the iron triangle include cost, time and quality. However with the complexity of the globalized projects, the iron triangle proposal is not enough to ensure the success of the project and the satisfaction of the parties involved. A survey conducted by Doaumu and Onukwuba (2013)

examining the government, private clients, contractors and consultants in the globalized Nigerian construction industry concluded that "project success criteria go beyond meeting, cost, time, and quality targets. It includes user's satisfaction, professionals, fulfillment and achievement of organizational goals". Another study conducted by Hwang and Lim (2013) on the Singapore international construction projects found that "construction project success depend on a mix of human-related factors, project-related factors, project management-related factors and even factors related to the external environment". Hwang and Lim (2013) also concluded that the primary parties should agree on the project objectives, and certain key critical factors that directly assist in achieving the formal. In 2012, Kog and Loh (2012) studied the Hong Kong construction market and they settled 67 success indicators for the globalized projects in the Hong Kong.

The success of the globalized project can thus be guaranteed when the upstream (client/end user) and downstream (contractors, subcontractors, suppliers, architecture/engineering offices) gain a bilateral understanding of one another's interest which can't be achieved without studying the organizational culture and culture of these respectively nations (Moseley and Bubshait, 2005).

II.5.2 ATTRIBBUTES OF GLOBALIZED PROJECT SUCCESS

Defining the criteria for the success of a global project was the core of research conducted by various scholars like Jaafari (2000); Mahalingam and Levis (2007); Wong et al (2009) and Comu et al.(2012). The work of these scholars showed different success dimension depending on the country in which the research was conducted. The following table summarizes the variables and the factors as per the work of these scholars:

Table II-4: Environmental Variables that affect the Team management as per the research conducted by Jaafari (2000); Mahalingam and Levis (2007); Wong et al (2009) and Comu et al.(2012).

Variable	Factors
National Variables	Economic System, Legal System, Political System, Physical Situation, Technological, Know-how
Societal Variables	Religion, Education, Language
Cultural Variables	Values, Norms, Beliefs
Attitudes	Work, Time, Materialism, Individualism, Change
Individual and Group Employee Job Behavior	Motivation, Productivity, Commitment, Ethics

Some of the complexity related studies conducted by Thompson (1967); Meredith and Mantel (1995); Baccarini (1996) and Cleden (2009) de-categorized the challenges faced into two main classification: (a) the uncertainty and complexity in a non-specific terms and (b) individual organization experience within the context of the developed countries. Cleden (2009) explain uncertainty by classifying it into two sub categories, (i) variability uncertainty and (ii) indeterminate uncertainty. While the former are usually common in the construction industry, the latter arise from environmental issues, design aspects, financial aspects which are usually not expected by the MCF. This occurs especially when the MCF do not have an internal consultant or a business analyst for studying the market and the host country. Another indeterminate uncertainty identified by the scholars is that individual's actions are usually driven or dictated by hidden or indeed unconscious values like for instance attitude towards authority, approaches to carrying out a task, efficiency rate, patterns for communication and learning technique (Johnson et al, 2009). These uncertainties can be prevented only when the culture is studied; the various social values and working approaches are premeditated and taken into consideration while managing the site and office. Bartlett and Gosha (1989) later identified a number of challenges as the most common indeterminate uncertainty that managers deal with in the globalized multi-cultural team projects. The challenges are (1) direct vs. indirect communication (2) accents and fluency (3) attitudes regarding authority and hierarchy and finally (4) conflicting norms for decision making. These problems can be solved by various techniques which differ based on the culture and the project's nature. However, the basic strategy that was developed includes the followings steps:

1. **Adaptation:** Accepting issues that arise due to cultural gaps rather than facing or trying to change them. For example, while Far Asian employees prefer to work in a quiet environment and spend extra hours at work, Western employees prefer to work in a quiet environment yet work within the time slot because family values are valued in the western societies (Ochieng, 2008).
2. **Structural Intervention**: While composing the teams, every manager should pay attention to what kind of team are they looking for. Diversity can be healthy but it requires a managerial technique different than that of the homogenous teams.
3. **Managerial Intervention:** Setting the organizational norms and ground rules is essential and help overcome the cultural gaps unless they contract the cultural norms.

4. **Exit:** Sometimes the best scenario is to remove a manager or a team member. Qualification and performances are not the solely measure in the heterogonous teams.

II.5.2.1 SOCIAL FACTORS

Cultural Diversity is considered as one of the key dimension that can contribute to the project's success or failure. According to Barthorpe (1999), the ability to manage cultural issues in multi-cultural projects is a direct determinant of project and corporate success. According to Richard et al (2007), there is a curvilinear relationship between the cultural diversity and the individual's performances. Vecchio and Appelbaum (1995) defined the success dimensions for diversity as the ability to understand ethnicity, nationality, learning style, type of intelligence, age, gender, and physical ability of the employees. The same definition of diversity success dimensions were adapted by Francesco and Gold (2005). Egan (1998) and Strategic Forms of Construction (2002) confirm that the construction industry for decades was dominated by a poor relationship between client and project teams. This resulted in poor project performances, less long-term relationship between the parties and the teams. According to Egan (1998) these problems can be tackled back to cultural issues. Murray and Langford (2003) support the argument by adding that the complexity of the project's nature made it essential for the industry to address team's management to achieve a successful project. Dainty et al (2007) also confirm that addressing the poor management should be done focusing on the cultural issues.

Culture includes a variety of attributes with no one single universal definition (Hodge and Anthony, 1991). Culture is not biologically inherited value but is rather the focus on people and their way of life. The following are to be considered while studying culture (i) impact of the nation's culture on construction activity, (ii) Culture of the construction project and site, (iii) Culture of the construction firm. Entering the globalization market thereby requires the management to analysis the culture in order to determine (i) management approach (ii) leadership style, (iii) open or closed system. These attributes are referred to organizational culture, which is one of the main compounds of culture after national culture. Efforts should be exerted by the international company in order to reflect the employees' cultural attributes and values in the construction practice and procedures. Consequently, the work performances will be as expected, meeting the head office requirements and delivering the client's need (Ofori, 1998).

Organizational Culture: Organizational culture is defined as a set of values that track the employee's performances as per the company's regulation and policy (Robbins, 1996). It also contribute to understanding the environmental tone, selection criteria, work organization, management style, decision making processes, sharing of information, communication patterns, approaches of handling the discrepancies, bonding employee together and facilitating their work behaviors (Hassan, 2007). These values becomes important to in-cooperate when working within a multi-cultural project whereby there are more than one party and within the party, there are different teams. Organizational culture is globally recognized as an important element of the construction project management (Kandola and Fullerton, 1998; Meek, 1998; Barthorpe et al., 2000). For example when a project includes contractors from various organizations backgrounds, each is usually associated with a cultural history and recognized by a set of values for operating and hindering the project. In this case, it becomes essential to firstly institute an organizational culture for all the participating contractors to standardize the work methodology. Organizational culture should be developed before the teams (intra-organizational and inter-organizational) which are often established concurrently when the execution of the project begins. However forming these governing surface cultural elements requires a deep understanding of the national culture which is the mother of the organizational culture (Brenton and Driskill, 2011).

National Culture: The national culture can be identified by various dimensions and various theories were developed to explain the cultural dimensions.

Table II-5: The five main theories developed regarding national culture as per the work of Hofstede (1961), Trompenarrs (1963) and Kluckhohn and Strodbeck (1979).

Hofstede	Trompenarrs and Hampden Tuner	Kluckhohn and Strodbeck
Power distance	Inner direction vs. outer direction	Subjugated to the environment vs.in harmony with it vs. dominating it
Uncertainty avoidance	Sequential time vs. synchronic time	Past vs. present vs. future
	Neutrality vs. affectivity	Being vs. doing
	Specific vs. diffuse	Private space vs. public space
Individualism vs. collectivism	Individualism vs. communitarianism	Individualism vs. collaterally w linearity
Masculinity vs. femininity	Achieved status vs. ascribed status	Inherently good vs. evil vs. mix of both

Organizational and National Culture: The question is does the individual's culture affect that of the company or does a strong established corporate influences a person's cultural values.

Scholars argued on this but some like Hofsrede (1997), Sermon and Lane (2004) found that local culture effect managers' attitude and values. Adler and Gunderson (2008) disagree explaining that many experts are able to enforce the organization's culture on the employee, overwhelming the effect of their local culture values. Laurent (1983) explained that understanding the cultural diversity help in predicting the appropriate management strategy to be used. For example, the Italian managers consider the hierarchical line a very serious issue unlike their Swedish managers who express little reluctance in bypassing the hierarchical system. Pant et al (1996) explained that the matrix organizational structure does not work with Nepal employees because of the great bureaucratic orientation of Nepal's culture. Similarly, Easterby-Smith et al (1995) studied the relationship between the Chinese and American employees on a construction project and concluded that the Chinese employees were concern for , group harmony and couldn't coup up with the established aspect of the human resource management by the American management. A survey conducted by Neelankavil et al. (2000) showed that the construction projects that included Chinese employees with American managers are successful because the differences in culture contribute to better leadership when both cultures are involved in the organizational culture. Regardless of its output, scholars tend to agree that cultural diversity is a culture norm, values, beliefs that affect the individual's lifestyle and performance on construction site.

II.5.2.2 INTERNAL FACTORS

Multicultural Teams vs. Mono-cultural Teams: Diversity is seen by many researchers as a double edged sword, where it can be perceived as an opportunity to enhance the level of creativity but at the same time increase the likelihood of dissatisfaction (Milliken and Martin, 1996). Globalized project can also have a positive return in terms of cost, schedule, and quality especially when multicultural teams participate on the project. These teams usually enhance the problem solving techniques with more comprehensive and creative approaches (Comu and Taylor, 2011). Other industries like that of the IT industry recognized early on the potential of multi-cultural teams and companies like Microsoft, Google and IBM started relaying heavily on multi-cultural team. These companies adopted organizational cultures that enhance multi-cultural team presences (Ely and Thomas, 2001). Dulaimi(2008) also encourage the idea of multicultural team since it directly allow for more out of the box solutions. While multiple skills are required

for a job, the multi-cultural teams outperform their mono-cultural in areas like problem identification and resolution and sheer strength of its diversity (Earley and Mosakowsko, 2000).

A potential downside with multicultural projects is that the team cannot refer to a pre-existing identity (Early and Mosakowski, 2000). So the management should be strongly emerged into the culture, share the team's constraints and create a strong organizational culture that enhances the communication between the team members There is no straight forward methodology to be followed, but the management team needs to be strongly indulged with the team, careful hiring procedures to be adopted, in order to create a harmonious multi-cultural teams (Pearson and Nelson, 2003). The coherent team according to Elron (1997) would response faster to the ambiguous issues and work effectively to resolve them.

Productivity of the multi-cultural teams: Various studies conducted worldwide indicated that the multi-cultural teams ha a significant impact on productivity, like the work by Ng and Tung (1998), Townsend et al. (1998), Jackson et al. (1992). Other researchers like Watson et al. (1993) recommend a multicultural team since their performances can be 15% higher than their homogenous team but this is only if the formal is well-led.

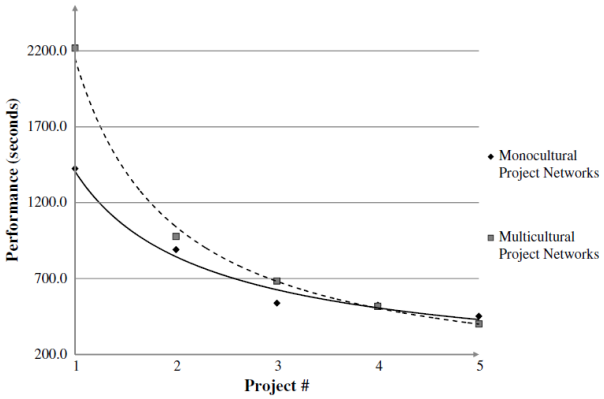

Figure II-1 : Average initial and adaptation performance of multicultural and monocultural network as per the work of Comu and Taylor, 2012

The above graph represents a study conducted by Comu and Taylor on mono-cultural and multi-cultural construction students (undergraduate and graduate) at Columbia University. The study showed that although the mono-cultural team performed better in the first project, the multi-

cultural teams were eventually able to perform better because of the diversity in the approach for solving the project (Comu, Taylor, 2012).

Management of the multi-cultural teams: Theoretically, different techniques have been developed in order to address the multi-cultural teams. Bartlett and Goshal (1989) work indicated that building multinational flexibility and a global learning capability through collaborating every member in the construction industry is a methodology that if implemented can overcome the cultural diversity. It is essential to see the cultural diversity as a potential for development rather a barrier. This is because the diversity can contribute to enhancing the team's performances, cohesiveness, knowledge and thus project success. According to Dainty et al (2007), team management is a core competence for the success of the company within the global market. Team management requires the manager to take five dimensions into consideration, which are: (i) handling geographic distances and dispersion of teams, (ii) managing cultural diversity, (iii) understanding the differences and conflicts, (iv) developing team cohesiveness, (v) maintaining communication richness, and dealing with coordination and control issues. Another way of managing the multi-cultural groups is to benefit from the diversity through allocating every individual in the right position utilizing their skills like problem solving, decision making, marketing expertise etc. (Cox, 1991). Rethinking Construction, a report that addresses the relationship between the construction firms in the UK with their subcontractors (mainly in Kenya) indicates that notions like integrating teams into the supply chain, enhancing the organization's commitment to the employees will indirectly help to incorporate the cultural complexity and uncertainty in the project teams (Egan, 1998). The strategy of engaging the team's diversity contribute to depressing the cultural differences and psychological create a sense of belonging. This provides the team members with comfort which is directly translated into effective and efficient outcome (Schein, 1985).

Difficulties associated with multi-cultural teams: Factors to be taken into consideration in the case of multi-cultural teams are the team member's demographical backgrounds, cultural characteristics, values and discernment (Ansari and Jackson, 1996). Although there are many studies and opinions regarding the demerits of the homogenous verse the heterogeneity team, unless the company understand and customize the management based on the team, multi-cultural teams can led to the project's failure (McCuiston, 2004).

II.5.3 PROJECT LEADERSHIP

The studies regarding leadership styles in construction industry is very uncommon. In 1950, a study was conducted by Ohio State and Michigan University identifying the Path-Goal theory. According to this theory, the leaders adjust their style of behavior to the subordinate's characteristics and the task oriented to them. The four path-goal types of leader's behaviors are:

1. Directive (Instrumental): This type is used when the level of uncertainty is higher in terms of how the task to be performed, what are the expected result etc.
2. Supportive: When the task oriented is challenging and require a lot of physical, mental or psychological efforts, then this type is suitable. Here, the leader shows support, creating a pleasant environment to work in.
3. Participative: When the subordinate are highly involved in work and their level of dedication is high, and then the leader may seek participative leadership type. Here, the leader doesn't take decisions solely but rather consult the team members through small meetings or brainstorming sessions etc.
4. Achievement: This approach is highly used in engineering firms and with entrepreneurs. Here the leader challenges the subordinates by setting challenging goals, expecting the team members to perform the tasks with a high level of professionalism. (House, Mitchell, 1974).

In multi-cultural team, leadership is a critical element for success but is complicated (Ochieng, 2009). The type of leadership to be chosen is based on a lot of factors mainly, the relationship between project teams, type of the project tasks, duration of the project, how well the manager is informative about the tasks required and the training level of the project team members. One important factor that also influences the choice of the leadership styles is the culture.

The Path-Goal theory was later developed by Hersey and Blanchard (1969) to be commonly known as Situational Leadership Model. The Hersey and Blanchard's Situational Leadership Model was used to study the construction managers' leadership style in different parts of the world like in Indonesia (Andi et al., 2004) and in South Florida (Panthi et al., 2009). The main leadership style in Indonesia was selling especially applied by managers who were +10 years experiences. Those in the South Florida construction industry on the other hand had a participating leadership style. There are a number of other leadership styles like charismatic

leadership style, Laissez-Faire leadership style, paternalistic leadership style, and autocratic leadership style. The bureaucratic leadership is when the manager follows a formal approach with clear distinction between them and their subordinates. Employees are required to abide by the rules; creativity is usually not encouraged since everyone is expected to perform the same output in the same manner. On the other side, Charismatic leaders is where leader inspires others through taking risks, showing sensitivity to subordinates and demonstrating novel behaviors. A study conducted in the UAE showed that majority of the construction managers implement the participating leadership style followed by bureaucratic and charismatic leadership style (Alshamsi et al., 2015).

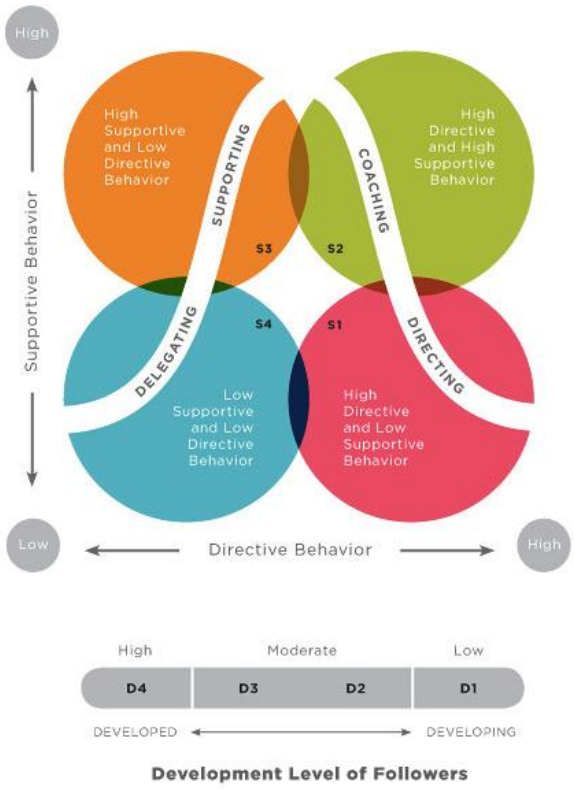

Figure II-2: The Situational Leadership Style. (beresolute.org, 2015)

II.6 ASSESSMENT OF THE CONSTRUCTION FIRM IN GLOBALIZED MARKET

Numerous studies were carried on to develop a model that defines the success of the multicultural virtual teams. However, none of these models received a worldwide recognition like that of the iron triangle parameters. It is notable that not all models were designed for construction firms, many were originally designed for management and later modified to suit the Information and Technology sector (IT) and Construction engineering. The following paragraphs will describe a number of models that were either developed for construction industry or modified to suit the industry needs. The application of the models along with their benefits and critics will be discussed.

II.6.1 PORTER'S MODEL – THE DIAMOND MODEL

This model was developed by Michael Porter in 1991, which is known as "The Diamond Model". Porter includes four determinate attributes of the domestic market that shapes the entrances of the MCF and sustains their presences. There are other two exterior factors, the government and the chance, that influence the function of the four major attributes. The benefit of this model is that it takes factors like organizational structure, external competition and strategic decisions into consideration and integrates them together. Scholars like Oz (2001), Korkmaz & Messner (2008), Zhou & Shi (2010), Zhao et al (2012) used this model to analysis and determine the competitiveness edge of the construction industry in Turkey, US, Korea and China respectively.

Table II-6: Porter Model that was developed in 1991, including four main factors

Conditions	Content
Factor conditions	Production factors, including (i) human resource (ii) capital resource, (iii) research and development
Demand conditions	Analysis of the construction market and its development that assist companies in understanding and developing their own competitiveness edge
Related & support industry	Measuring the ability to financial support and accessibility to capital
Firm strategy structure and rivalry	Understanding the (i) local context (ii) rules (iii)incentive system (iv) open and vigorous competitions
Government and Chance	The role played by the government in the host country along with factors outside the control of the firm

Zhao et al (2012) used the Diamond Model to study the foreign architecture and engineering design firms that penetrated the Chinese market. According to the survey conducted by the CEDA in 2009, the foreign architecture and engineering design firms have a 10-15% market share reaching an investment of 5.9 billion US dollar in China. The diamond model was used to (i) analysis the foreign firms competitive components, (ii) the strategies adopted by these firms, (iii) the critical factors that contribute towards the success and failure and (iv) to highlight the suitable strategies to be adopted while entering the Chinese market. The Diamond model was adjusted to suit the Chinese market as explained below:

i) Government: Since the Chinese government is critical, the government is considered as a major factor rather than an accessorial factor.
ii) Chance: Chance is merged into the demand factors since it is also an uncontrolled event within the firm as well as the construction market.

The modified diamond model help the foreign firms understand the challenges ahead of them while operating in the Chinese market like the design changes, organizational structure and emerging markets. The study also shows that the diamond model is a technique to be used frequently to evaluate the position of these firms and their ability to sustain in the market (Zhao et al, 2012).

Oz (2001) also used the Porter's model to analysis the international construction market of the Turkish contractors. The Turkish contractors were able to merge into the international market of the Middle East and the Soviet states by constructing housing projects, bridges and tunnels. The revenues generated are estimated to be 42 billion US dollar as per the ENR 1994 survey. The entry mode that was adopted by the Turkish contractors was the first approach mentioned by the study conducted by Ngowi et al, (2005), the construction boom in the Middle East and Africa. While the challenges faced by domestic market due to the 1974 economic restriction and escalating of oil prices, the overseas market constructed the golden opportunity. There were a number of government-to-government protocols especially with Libya in 1975 and Russia in 1984. Oz (2001) and scholars like Strassman and Wells (1988) noticed the cultural similarities (especially religious) with the Middle East is one of the reasons why the Turkish contractors gained geographically spread. Nevertheless, Oz (2001) concluded that the cultural proximity is not an enough attribute, for it is the "self-reinforcing systemic advantage the Turkish contractor

created and sustained over the years" that made the success oversea possible. The following figure illustrates the five factors of Porter's model and Oz analysis of the Turkish contractors.

Table II-7: Oz (2001) analysis for the Turkish contractors using Porter's model

Framework	Strength	Weakness
Factor Conditions	-Low wages of Turkish labor -High education level and skills	-Bureaucratic problems (moving of Turkish employees abroad) -Lack of training and Financial problems
Demand Conditions	-Good record in housing, hotels and infrastructure -Higher standard is required overseas	-Idle domestic market (then in the 1980's)
Related and supporting industries	-Strong supplementary industries to construction firms.	-Weak design consultants firm
Context for firm strategy and rivalry	-Competitive edge -Sustaining the development and self-growth -High managerial and technical skills -Diversification among construction firms -Good past records regarding the performances, output and client's relationships	-Absences of formal organization system (most firms are family business)
Chance events	-Construction boom in Middle East and Africa -Government-to-government protocol	-Iran-Iraq war -Gulf war in 1991 -Financial problems in Libya after US restrictions -Idle state of the Russian Federation
Role of governments	--Governmental support like tax incentives -Trade agreement with few countries	-Bureaucratic procedures -Non availability of export credit, an increase in interest rate No coherent construction policy -No standardization of building regulation

The advantage of Porter's model is its simplicity in application and understanding as notified by Grant in 1991 (qtd in Ofori, 2003). Another advantage is its usage for determining the success factors for transnational firms as per Dunning studies in 1992 (qtd in Ofori, 2003). Porter's model was also adopted by the governments in countries like Malaysia, Singapore and New Zealand to develop strategies and framework for improving the national competiveness level (Ofori, 2003).

However, the critic that faces Porter's model is that culture should have been incorporated into the study as suggested by various researchers like Stopford and Strange, 1991; van den Bosch

and van Prooijen, 1992; (qtd in Ofori, 2003). According to research by Dunning (qtd in Ofori, 2003), the multinational factor which contribute to 35-40% of the success of the global project was overlooked by Porter in his model. The foreign direct investment into and out of the country should also have been considered as per Rugman (qtd in Ofori, 2003). Various authors proposed the creation of a "Double-Diamond Model" which is essential in countries like New Zealand, U.A.E and Malayasia. This model will help those countries that does not have a strong host culture and relay totally on the diversity of the cultures present in the society. For these countries, the MCF should include not only the local culture but the cultural diversity existing (Cartweight, 1993; Hodgetts, 1993;Rugman, 1992; Moon et al. 1998; qtd in Ofori, 2003).

II.6.2 ABDUL-AZIZ MODEL

Another approach was taken by Abdul-Aziz in 1994 while studying nine large scale firms in the US and Japan where the two main prime concerns were the long term profitability and the sustainable growth (Ngowi et al, 2005). According to this model, the factors to be taken into consideration while entering the domestic market are technology advantages, financial capabilities and management system.

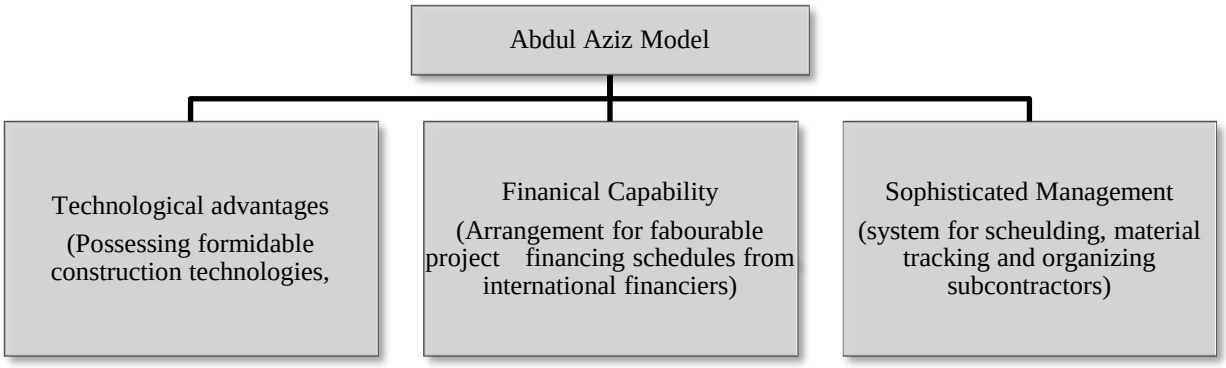

Figure II-3: Abdul-Aziz model developed on 1994 after studying the Japanese and American construction firms operating in the Asian Market (Abdul-Aziz, 2003).

The model is not sustainable and difficult to copy thus it can only be used by the firm to have a head start in the international market (Ngowi et al, 2005). However, this model was used by Raftery in 1998 who focused on the implication of globalization in the Asian construction sector.

II.6.3 BLISMAS ET AL (2009) MODEL

Blismas et al (2009) define ten project parameters which are grouped under four main titles: (i) Environmental influence, (ii) Client's influence, (iii) Third-party influence and (iv) Planning influence. These parameters are then categorized as following:

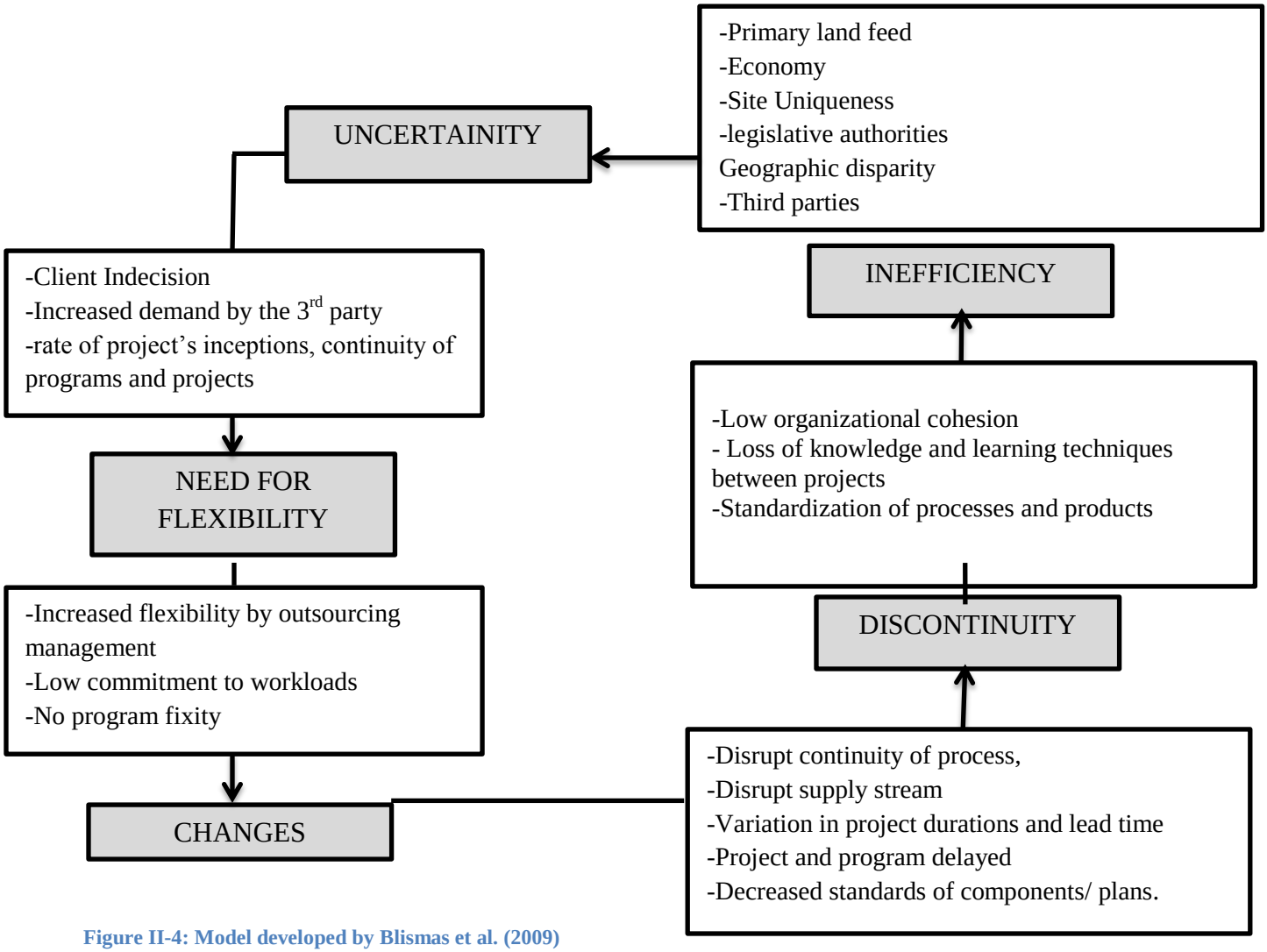

Figure II-4: Model developed by Blismas et al. (2009)

II.6.4 OCHIENG AND PRICE MODEL, 2009

Numerous studies were conducted by Ochieng and Price regarding the framework required for managing the multi-cultural projects between UK and Kenya. Although Ochieng and Price (2009) agreed that there are a lot of difficulties associated with the globalized projects, it is still worth working internationally because the efficiency is relatively higher. However, the project leaders need to address the cultural issues as a secret to the success of these projects. The

following is the conclusion drawn after studying eight organizations from the heavy construction industry. The core objective of this research was to develop a framework that helps the companies in the UK and Kenya to understand the challenges and benefits associated with globalized projects. The seven criteria compounds as shown in figure 15 are briefly explained below:

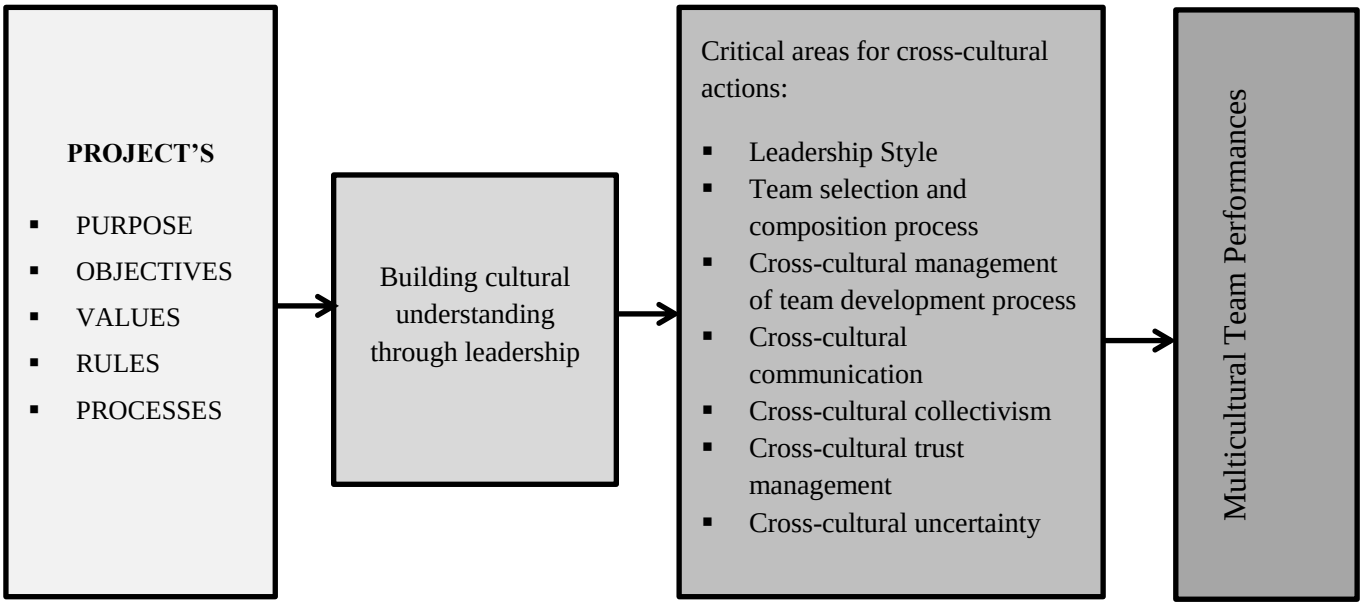

Figure II-5: Framework components as developed by Ochieng and Price, 2009

: while the Kenyan construction industry preferred the participative leadership style, their counterpart in the UK preferred the achievement leadership. The former sought leaders to motivate them, enhance their skills while the latter hunted for a leader that had confident in their abilities to perform the task regardless of the risk and challenge associated with it.

2. **Team Selection and Composition:** Team composition is the first and the most important stage in determining the success of the multi-cultural project/company. Here Ochieng and Price (2009) identify some criteria to be taken into account while selecting the team members. These criteria are: ability to fit in the team, respect between team members, measure individual's beliefs and technical ability.
3. **Cross-Cultural Management:** Various initiatives should be taken into account like team building workshops, knowing the employee's drivers, putting a clear reward system.
4. **Cross-Cultural Communication:** While the Kenyan managers and employees were more conforming while discussing their personal issues, their counterpart from UK felt the leaders

should be particularistic while dealing with personal issues. Value management technique is also another subjective approach, which depends on the culture. Since most of the projects in Kenya are funded by the government and international aid agents, value management technique is essential. This is because of the differences in the expatriate's social value, decision-making, and communication process. Language is of a huge constraint so the managers should be able to clearly communicate the project's goal, roles and norms taking the differences in the accent and the fluency into consideration.

5. **Cross-Cultural Collectivism:** Organized teams, open decision making session, commitment to the project are important elements for the unity of the project team. This enhance the employee's belonging to the project even if it is located overseas, because their work is continuously appreciated and their input is encouraged and valued.
6. **Cross-Cultural Trust:** Team building activities is a must for an effective integrated project. Good interpersonal skills and mutual respect between the managers and the team members directly affect the productivity and the performances of the team.
7. **Cross-Cultural Uncertainty**: The participants from the UK construction industry agreed that the project leader need to understand the team's need, desire and should be able to explain the team members drivers (whether externally or internally). Thus the project's goals, roles and procedures are to be articulated by the project manager so that they are understandable by the team members.

The above framework may not transfer the multi-cultural teams into a highly performed team instantly but will eventually result in a more effective team. These seven key cross-cultural dimensions clearly reflect that the success of a multi-cultural team requires an environment which acknowledge and value the cultural complexity (Ochieng and Price, 2009).

II.7 GLOBALIZATION CASE STUDIES

In 1991, with the rise of the globalization phenomena in the construction industry, various benefits and demerits were associated and recognized from the market perspective. The following section explains how various globalized markets emerged, the factors of success, achievement and the constraints associated with it.

II.7.1 CASE STUDY (1): EFFECT OF THE US COMPANIES ON THE ASIAN MARKET

The engineering and construction industry in developing countries for instance took the opportunity of infrastructure growth in order to enhance their own market. The sophisticated managerial systems, technology advancement, knowledge acquired through working on complex projects gave a competitive edge to some of the companies like the US companies over their worldwide counterparts (Ngowi et al, 2005). Other construction companies in the Asian Market benefited from the globalization project through the transfer of technology, enhancing the employee's skills, rising the quality assurance of the project and gaining the ability and confidence to compete on an international level. One of the detailed researches is that conducted by Halpin (1991) who studied the implementation of globalization on the US companies while operating in the Asian market.

a) Entry to Asian Market: The US companies chose alliances and joint venture as a route to enter the Asian market and hence the positive attributes associated with it were plenty. According to Halpin (1991), in a globalized market, the designers, contractors, consultant need to choose the right and most appropriate route to join a foreign market in order to ensure success and profits on all aspects. Companies like those of the USA were interested in the multi trillion dollar Japanese domestic markets but with the laws and regulation, it was impossible. US firms surmount this obstacle by entering into alliances with the domestic companies.

b) Advanced Technology: Globalization according to Halpin(1991) also implied the search and the execution of the use of the best technology available. The US companies were able to provide the Asian with the highly advanced equipment and working methodology on site. This equipment was used efficiency because of the précised accurate working attitude of the Asian labors. According to Halpin (1991), if these equipment were used with labors from countries like Mexica, Czech Republic, there is a possibility the equipment would have been left over, because the labor from these nations prefer to work with familiar equipment. It is essential to understand the market and the labor to know where to invest.

c) Building Codes: The barrier in this case of alliance is the lack of consistency in building codes between the companies and the restrictive labor agreement. The building codes are mainly designed to keep most of the work on the job site and defeat the concept of off-site modularization. The European countries unlike their USA counterpart recognized the importance of standardization and each country adapted countrywide codes that encourage the modularization and off site fabrication. This help in improving the time interval of the project.

d) Labor: Japanese labors focus on learning new technological technique, enhancing their skills rather than dedicating time on experimenting a way for standardization or communication. The labor in many cases may not be familiar with the new technology or material which is acceptable, because they can be trained, however the issue is when the labor are used to doing a single activity and can't operate on anything else. In Germany, for instance the labors are trained to work on various activities and they are usually aware of various techniques unlike other labors in the USA who prefers to do specialized tasks on site (Halpin, 1991).

e) Rules and Regulations: The adoption of international standards together with standardizing the units used will help to achieve a common ground for all players to work on. In 1990, the European countries started developing an internal European market which significantly contributed in improving the standards, testing, certification, accreditation and quality assessment of the firms. Halpin (1991) however speaks about the challenges associated with globalization which are the need for more integration, cooperation and coordination.

Globalization is like a catalyst that will enhance the construction industry's performances transforming it into a cost reduction industry with improved quality and better utilization of technology only when the challenges are addressed. However, although the study provided above shows the advantage of globalization on both the foreign (US) companies and the local (Asian) labor and market. Other studies revealed the negative side of globalization, which had an inverse impact on both the local (Asian) companies and community as a whole. A study conducted on the Asian market, mainly India, Indonesia, Japan, Korea, Malaysia, Philippines, and Sri Lanka by Raftery et al. (1998) concluded the following positive and negative attributes of the globalized market:

a) Entry: The presences of the MCF hurt the competitiveness of the domestic construction industry. For example, in 2005, Sri Lanka relied on the imported material by 60% as compare to 30% in 1960. This implies that most of the local market is importing material rather than using local products. Consequently, there is a major economic impact on the industry and the country as a whole. The internationalization of the construction industry also carries a demerit in that it opens a window of opportunities for the advanced companies from developed countries. Quality assurances became major criteria on construction site, and the reputation of the international companies reduced the opportunity of a local company to even compete or join the race as a fair competitor.

b) Advanced Technology: Another problem associated with the globalized construction industry is that its mainly concern with the mega scale projects, so only the large technologically qualified contractors are allowed to enter overseas or at least the ones that can financially support importing the technology. The local companies are not able to buy the expensive technology and if they do, they may be forced to hire an expert in order to handle the equipment. The transfer of knowledge and experiences in this case cannot be guaranteed.

c) Labor: The construction firms from the developing countries only contribute in the area of labor deployment, which is becoming their area of competitive advantage. This doesn't allow the local companies to enhance their skills because not always are they given the opportunity. A study conducted by Lin and Wong (2014), suggest that subtle and pervasive forms of discrimination do occur in globalization projects and have an inverse influences on the workers. Mainly unfair treatment was reported on the construction sites and inequality between minority ethnics and local workers in regard to salaries, benefits and working condition was recorded. Language constitute a major issue mainly on site because the safety boards, the instruction etc. were all provided in the host country's language and the migrant labors faced difficulty understanding and communicating (Lin and Wong, 2014).

It is essential to recognize that both parties, US companies and the Asian market, benefited from this experience. The US companies gained financial revenues, concrete reputation; expansion across the global and new set of opportunities unlocked everywhere. The Asian market benefited from the technology transfer, infrastructure constructed in highest standard which consequently

marked the Asian market as a platform for investment in the future. The employees and the labors from both parties were exposed to a new range of opportunities and experiences which improved one's social and economic status. Raftery et al. (1998) studies showed that the rate and the quality of the projects executed by the same US companies improved by time and he linked it to the fact that the US managers and employees were later aware of the Asian working attitude, managerial approaches, methodology on site and culture diversity.

II.7.2 CASE STUDY (4): EFFECT OF THE MULTI-CULTURAL TEAMS ON THE UNITED ARAB EMIRATES

According to the Global Construction Perspectives and Oxford Economics, the amount of data available regarding the globalized projects in the MENA region is minimal. The Global Construction Perspective although indicated a real growth and opportunities in the Far Asian market, especially China, India and Indonesia, displayed their concern regarding the lack of data in the MENA region.

A recent study was conducted regarding the Multi-culturalism projects in the United Arab Emirate, which covered a large portion of the projects covered in Dubai. The United Arab Emirate is one of the countries that showed a high level of cultural diversity, encouraging foreign investors especially in the construction industry. Although the construction industry expands in the seven emirates of the UAE, Dubai is the dominant city with vast construction projects. The Dubai Chamber of Commerce and Industry (DCCI) statistics revealed that the construction industry of the UAE contributed to GDP growth from 34,980 million AED in 2005 to 45,124 million AED in 2006. Although the UAE are currently aiming to increase the number of local citizens working in the private construction sector, a recent study by the DCCI showed that 90% of those working in the private construction sectors are expatriates making the host culture (Emirate's culture) a minority in the working environment. The recruiting of staff from across the world made the multi-cultural team management a priority for most of the companies (Hariz, Dulaimi, 2011). The key success dimensions that the researchers relayed on were a combination of those in the far Asian countries since the majority of the labors (85% as per the Dubai Chamber of Commerce and Industry) currently comes from the Asian countries. The research presented by Hariz and Dulaimi (2011) was based on a single company that operates in UAE specializing in globalized projects. At the best of the author's knowledge, the research conducted

by Hariz and Dulaimi is the sole research regarding Globalized projects in MENA region. Hence, the case study will be considered as a reliable source for the development of this thesis' survey. The following include some of the analysis presented by Hariz and Dulaimi (2011):

a) Entry: Before the financial crisis of 2008, the expansion of the construction industry required the UAE government to attract international contractors and experts to fill the vacancy. Accordingly various laws and regulations were declared and the government was involved in numerous strategic alliances and protocols for exchange that initiated the primary steps for globalization of the construction industry. The absences of the host culture in the construction industry motivated other national to impose their own culture and push to dominant it in the working environment (Hariz and Dulaimi, 2011).

b) Multi-cultural teams: With the increase in the diversity index, the performances of the team were relatively lower as compare to their homogenous teams. Nevertheless, the multi-cultural teams who spend longer time working together (a period of at least 1 year) had a higher performances rate. Richard et al. (2007) explained in his study that a long term diverse team performs better than the short term diverse teams.

II.8 GLOBALIZATION CHALLENGES:

Researchers were not able to conclude a final list of difficulties or challenges that are faced by the MCF. Researchers have shown that approximately 40% of global projects result in poor performances (Comu and Taylor, 2011). The following is a list of challenges that most scholars and studied conducted regarding globalized project agreed on:

Cultural Differences: Many scholars studied the poor performances of the multi-cultural teams and the reasons revolved around poor management including unclear team roles and goals (Ochieng, 2008). Ignoring criteria like implementing different management approach/technique, team roles and job description can also let to the failure of the globalized project. Cultural differences and the cross-cultural conflict are considered by many scholars as the main challenges faced by a global project. Miscommunication, inefficient performances, ineffective team development, absences of transparency and management failure to understand the cultural differences and lead the people are the consequence of the cultural differences as agreed by Adler (1991), Shenkar and Zeira (1992). This arises because researches showed that individuals tend to rally around their own nationality and consequently the multi-cultural groups tend to form small groups within the group based on nationality. Unless there is a proper management that understand the cultural diversity and engage the culture, the cultural diversity can cause mistrust and miscommunication which are considered the main challenges in globalized projects.

Wrong strategies: Cockburn (1970) argued that the main difficulty includes the tendency of foreign contractors to be guided by short term profits and to adopt strategies which do not support the host countries. According to Roozbeh and Lucas (2001), the main difficulties lay in understanding the client requirements, and meeting their expectations, understanding the market, and the legal framework as well as dealing with the local construction parties. Client's requirement understanding is directly proportional to the success or the failure of the international business (Ling and Cuervo, 2005). The unfamiliar environment, different regulations, norms, cognitive culture beliefs of diverse participants are the main risks associated with the overseas construction projects (Hans and Diekmann, 2001).

Project complexity: According to Cleland and Bidanda (2009), project complexity has amplified drastically since the late 1980's and the results for this complexity is (i) designers are

approaching the limit of the construction material and equipment, (ii) requirement to construct in remote sites (iii) integration of data knowledge among the participants (iv) contracting strategies adopted and delivery system (v) the partnership and complexity associated with the duties and decision making. To determine the complexity of the project, the following dimensions are to be identified first: number of stakeholders, units, resource, and parties involved in the project and project duration.

Communication: Emmitt and Gorse (2007) argued that the development of the global emerging market increases the rate of the communication problems and in many cases these ambiguous remains unresolved. According to Weatherly (2006), one of the main challenges that internationalization of construction market suffers from is the loss of the face-to-face communication, which consequently affects the body language and eye contact, leading to difficulties in achieving mutual trust and confidences within the multicultural project team. This is especially the case with outsourcing. The communication problem is amplified when there is a difference in the time zone. In case of huge gaps in the time zone, employees may find themselves forced to come early or stay extra hours, which subsequently higher the turnover rate and reduce the productivity and loyalty towards the company (Emmitt and Gorse, 2007).

Technology transfer: Strassman and Wells (1988) noted that both the Japanese and the South Korean contractors benefited from the technology transfer from the US contractors. Abbott (1985) also argued that there is a potential in the technology transfer from the foreign contractors to those in the developing country. Ofori (1996) argued that the objective of the foreign firms and their governments differ and they will not be willing to allow the smooth transfer of technology. Authors like Cockburn (1970), Carrillo (1994) also showed that the foreign contractors are not interested to allow for the technology transfer, because this will affect their presences in the domestic market. It is only when the MCF are interested to transfer the technology to the local companies, that this becomes possible. A study by Ofori and Chan (2000) showed that the contractors in Singapore benefited from each other experiences. While the MCF passed their experts, the local companies assisted them in understanding the local culture and gave them the upper hand in management.

II.9 ANALYSIS MODELS IN CONSTRUCTION MANAGEMENT

Various complex models have been developed to assess uncertainty associated with construction industry. Traditional model includes probability and classical set theory. However probability theory cannot evaluate the project uncertainty and with the uniqueness of the project, the statistic generated from probability analysis are less reliable and relevant (Rezakhani, 2011). Since core competence of the globalization movement is the uniqueness of the project, using probability model analysis will not be suitable due to its limitation. Project parameters are shades of grey which does not follow a certain pattern, like for instance "If the design changes are dominant but the schedule is flexible then the impact on the cost is insignificant". This statement shows the imprecision of the construction project, process and outputs. Thus due to its assumption of crisp inputs and outputs, probability theory cannot be used. However, fuzzy logic, developed in 1965 by L.A.Zadeh can be defined by "its ability to provide a natural way of dealing with problems in which the source of imprecision is the absences of sharply defined criteria" (Rezakhani, 2011). Apart from the fuzzy logic, other model systems are also present and reliable for construction industry like Bayesian network, decision tree model and the hidden Markov model.

II.9.1 FUZZY LOGIC

Fuzzy logic was developed to solve ill-defined and complicated problems due to their incompleteness, vagueness and imprecise information. It is mainly used for uncertain reasoning that involves human intuitive thinking (Chan et al, 2009). Two fundamental theories are related to fuzzy, (i) fuzzy set and the other (ii) fuzzy logic. The fuzzy set uses the linguistic variables to model uncertainty in natural language. The fuzzy logic on the other hand is the continuation of the fuzzy set which handles the concept of partial true and partial false. To design a fuzzy model, the following steps are to be considered:

(i) Defining the linguistic variable (input and output)
(ii) Defining the set and the membership function for each of these linguistic variable
(iii) The relationship between these variables is to be determined using a logical inferences (a fuzzy rule)
(iv) Defining a fuzzy logic for each if-else function.

Fuzzy logic was used in the construction industry mainly for decision making, performances, evaluation/assessment and modeling (Chan et al, 2009). The following table represents some of the researches that were conducted using fuzzy logic that is related to topics similar to globalization and selection of market and contractor in general.

Table II-8: The application of Fuzzy logic in the construction management research.

Authors/Researchers	Application	Classification
Singh, D., and Tiong, R.L.K. (2005)	Contractor selection	Decision making; performance evaluation
Wang, R.C., and Liang, T.F. (2004)	Project management Decisions	Decision making
Zheng, D.X.M., and Ng, S.T. (2005)	Project management; risk management; productivity	Time and cost performance
Okoroh, M.I., and Torrance, V.B. (1999)	Subcontractor selection	Modeling
Tseng, T.L., Huang, C.C., Chu, H.W., and Gung, R.R. (2004)	Multi-functional project team formation	Modeling
Holt, G.D. (1998)	Contractor selection	Evaluation , Quantitative assessment (performances)

II.9.2 BAYESIAN NETWORK

This model is a graphical model where a set of random variables and their conditional dependencies are presented via a directed acyclic graph. This model is useful because it present the relationship of variables in an easy way and estimate the conditional probability and distribution. It is highly recommended for decision making for non-complex issues.

II.9.3 ARTIFICIAL NEURAL NETWORKS

This model is mainly used to know the relationship between the different variables in a way analogous to that of the biological neural network. The figure below explains the artificial neural network where many neurons exist in the network, connected in certain manner. Between the output and the input, there are multiple hidden layers. This method is mainly used on complex systems with enough observation made but connected through vague or unknown relationships. The different between this model and fuzzy model is that fuzzy system although relays on imprecise data, these data are connected through some known relationships (Rezakhani, 2011).

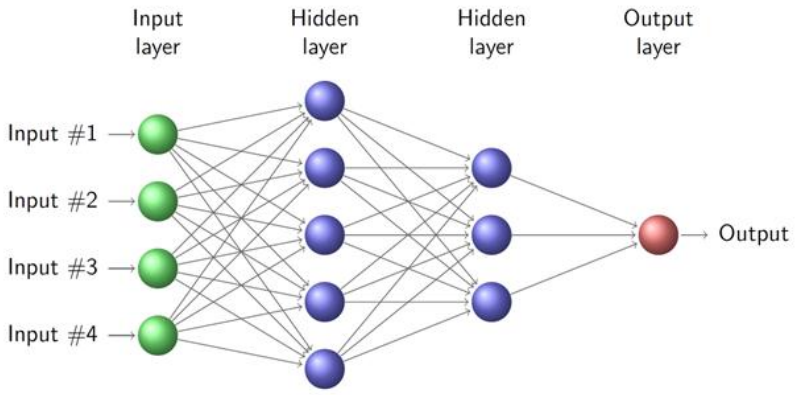

Figure II-6: The artificial neural network example (BW Mining, 2014)

II.9.4 HIDDEN MARKOV MODELS

The hidden Markov model (HMM) is a system whereby the observation is assumed to be in hidden states and the next hidden state relay on the current hidden state rather than the history of the hidden state. This model shares some similarities with the Bayesian network in that both models need training data to set the right transition probability. The randomness of the transition from one state to another is essential for both these models as well. Contracting the fuzzy logic, the HMM requires a clear definition of the relationship between the observations and the hidden state. This is obtained usually through conditional probability. The HMM can be best used when the knowledge of the current situation is enough (Rezakhani, 2011). The following figure illustrate the HMM briefly:

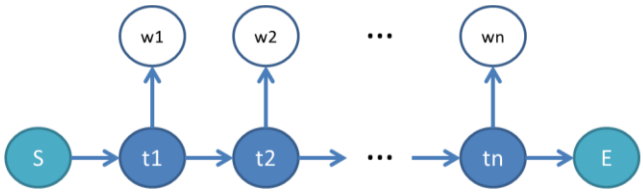

Figure II-7: The above diagram illustrate the first order HMM chain where by w1 and w2 are the visible state and t1, t2 are the hidden state. The hidden state t1 and t2 follows the first order Markov chain while the visible state w1 and w2 only depend on the hidden state t1 and t2 (BW Mining, 2014)

II.10 CONSTRUCTION INDUSTRY IN EGYPT

The construction industry is one of the dynamic economic sector in the country and has been growing rapidly since the 1980's.The construction industry in Egypt constitutes an important portion of the GDP (Gross Domestic Product), ranging about 7.3 billion US dollars by 2015 and it is considered as one of the main industries that provides employment opportunities. Due to the government limited investment in the infrastructure sector, there was a decline in the construction sector by the early 1990's. By 1996, there was another boom in the construction sector from the hotel capabilities in the Red Sea and South Sinai. Various other factors also contributed to the development and the growth of the construction industry like the nationalization in 1960, mortgage law by 2001 which encouraged the presences of MCF. The following table represents the summary of the construction industry work throughout the last decade.

Table II-9: The table shows the performances of the construction industry in Egypt during the last decade (Global Insight, 2015).

Construction Outlook Summary									
	2005	2006	2007	2008	2009	2010	2015	2005-10	2010-15
Total construction (Billions of US$)	**3.9**	**4.3**	**4.5**	**4.7**	**4.9**	**5.2**	**6.4**	**5.8**	4.2
Residential	0.3	0.4	0.4	0.4	0.4	0.4	0.5	5.1	3.3
Nonresidential	**3.6**	**3.9**	**4.1**	**4.3**	**4.5**	**4.8**	**5.9**	**5.8**	4.3
Infrastructure	1.7	1.9	2.0	2.1	2.2	2.3	2.8	6.0	4.5
Structures	**1.9**	**2.0**	**2.1**	**2.3**	**2.4**	**2.4**	**3.0**	**5.7**	4.0
Total construction (Billions 2000 US$)	**5.0**	**5.2**	**5.5**	**5.7**	**5.9**	**6.2**	**7.3**	**4.4**	3.5
Residential	0.4	0.5	0.5	0.5	0.5	0.5	0.6	3.7	2.6
Nonresidential	**4.6**	**4.8**	**5.0**	**5.0**	**5.4**	**5.6**	**6.7**	**4.4**	3.6
Infrastructure	2.2	2.3	2.4	2.4	2.6	2.7	3.3	4.6	3.8
Structures	**2.4**	**2.5**	**2.6**	**2.6**	**2.8**	**2.9**	**3.5**	**4.3**	3.4

II.10.1 MARKET STRUCTURE

The market is controlled by several shareholders and while the local firms constitute 70% of the construction work, the international firm represents the other 30%. The history of the MCF started early by the 20th century, through companies like Rolan, the Belgian companies. Later, international companies entered the Egyptian market through foreign capital investment. Despite

the recent development and flourishing of various projects through the government like Suez Canal, New Capital, still other issues affect the foreign investment. The political instability, the poor infrastructure, low productivity, scarcity of the skilled labor, growing unemployment and other factors are adversely affecting the economic activity and ceasing international companies from operating within Egypt (Global Insight, Inc. 2015).

II.10.2 DRAWBACK OF THE EGYPTIAN CONSTRUCTION INDUSTRY

A study was conducted to reflect on the delay in the ECI (from the employer and contractor point of view) ranking the cases as highly, medium and low importance causes (Ezeldin and Abdel Ghany, 2011). Some of the highest ranked causes were: Lack of coordination between contractor and design team and the low speed of decision making. Some of the medium ranked causes were the joint venture coordination problems, delay in giving approvals and change in construction technique to new one, and change in law. According to the IHS Construction Outlook report, Egypt is a highly risked country for investment due to the bureaucracy rate and corruption level, low income, security threats and rising unemployment.

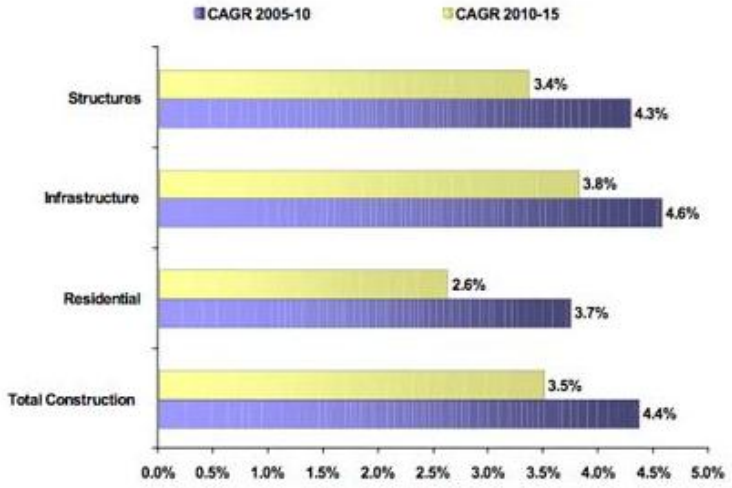

Figure II-8: Construction Growth in Egypt during the last decade shows a drop in the last 5 years in all 3 sectors (IHS Construction Outlook, 2015).

There was a major drop in the construction activities by 2010-15 as compare to the previous 5 years and the main reasons is the political turmoil. The improvement of the construction industry requires advancements of the labor skills, technology, procurement management and contractor's

selection criteria. Despite the efforts exerted by the government to encourage the exporting of the construction services, the amount remained limited. By 2000, the amount of exports was assumed to be $400 million unlike a country like Turkey where construction exports reached $25.4 billion dollars.

Although globalization may not be present at a high rate as compare to many Asian and African countries, the Egyptian construction market remains a potential in the future (Global Construction Perspective and Oxford Economic, 2007 and IHS Construction Report, 2015). The past decades witnessed the presences of MCF who launched their operation offices in Egypt either through outsourcing and/or offshoring. These MCF had and continue to have an influence on the cultural forces, which consequently carries a significant impact on the performances and success of the projects (Sashkin and Kiser, 1991, Kotter and Heskett, 1992, Rashid et al, 2003). In the case of offshoring, the MCF started in-cooperating their culture into the society. Concurrently, the Egyptian culture was also affecting the companies, outlining the managerial technique adopted by these companies.

Although the local firms were given the chance to upgrade their managerial and technical skills, still very few local companies were able to emerge into the market unlike their foreign counterparts who seems bigger, most prominent and active participant in the Egyptian Construction sector. According to Kotter and Heskett (1992) the superior performances of the MCF can be explained in the context of the organizational culture which directly impact the organizational performances and also the organizational success (Rashid et al, 2003). The importance of the organizational culture and its impact on the performances and success of the project, made studying the culture and globalization factor a must for the success of any project in the construction industry.

CHAPTER III. RESEARCH METHDOLOGY

This chapter discusses the adopted research methodology and the analysis of the data gathered. The main technique for data gathering is through the usage of surveys and a qualitative experiment. The survey, composed of a series of questions, is intended to understand the impact and consequences of globalization on the Egyptian construction practice. This data were also used to develop a model that contributes to determining the success parameters for the international firms while operating in the Egyptian construction market. The following section provides details on the research methods.

III.1 RESEARCH

The objectives of the research have been established in chapter I and the method adopted to achieve this objective is illustrated in figure III.1

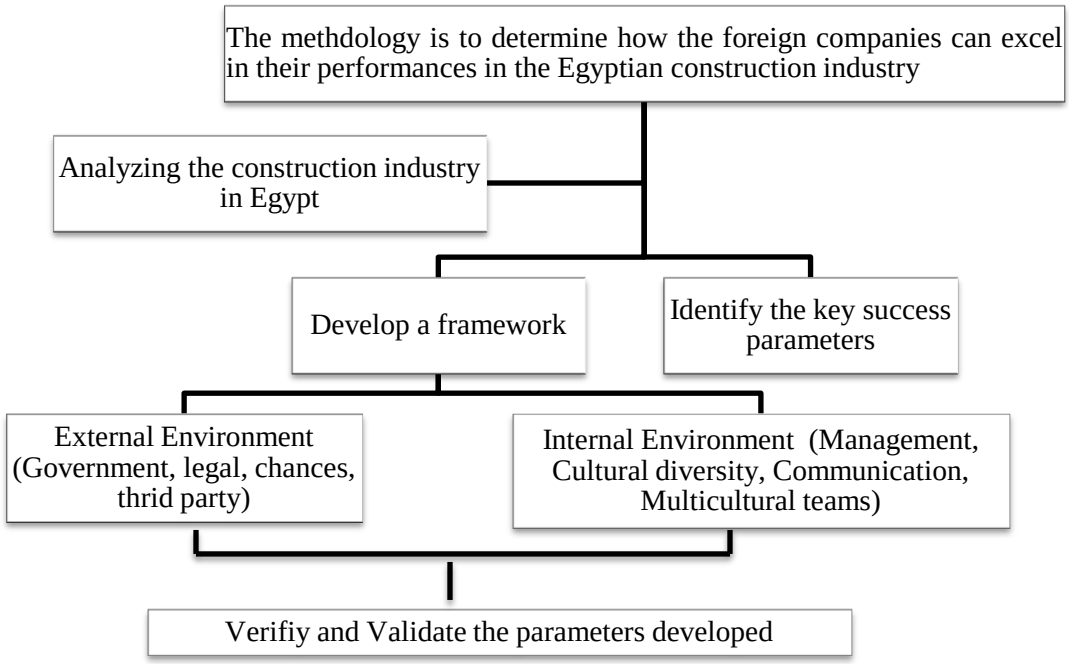

Figure III-1: Research methodology of the thesis

A detailed literature review was performed in order to understand the impact of globalization and to specify the main challenges associated it. The collected review included sources like journals papers, official statistics and policy documents. The literature review covered a wide spectrum of markets with special focus on the Asian and African market. The topics covered included a

variety of aspects such as team management, leadership, organizational culture, project financing etc. As highlighted by May (2002), the literature review should guide the actual research and thus, the procedures followed in this research is in line with the review conducted. The direction of the fieldwork was determined by firstly recognizing the main aspects of globalization, namely, motives, entry routes, benefits and challenges. Secondly, these challenges were categorized into several key parameters and sub parameters. Later, these parameters were tested in the Egyptian market through mixed method approach and at the end of the process; the major challenges found in the Egyptian market were compared to the original literature review for analysis and conclusion.

III.1.1 RESEARCH METHODS

There are a number of research approaches known and according to Yin (1994) the selection of the most appropriate method is to be governed by the research operation and focus (what, where and how, etc.). Since the core research focus is to determine the challenges encountered by the MCF while operating as a globalized player in Egypt, the questionnaire survey will be used as the main tool of research in this thesis. In order to overcome the limitation of survey, this research utilizes a combination of qualitative and quantitative techniques.

The first part of the research is a qualitative experiment conducted on an existing company Firm A. Firm A, is a Saudi based consultant that outsources all of its GCC work to its Egyptian branch. The second part of the research includes a structured questionnaire designed to acquire data and knowledge about the ECI and the globalized market in the country. The data gathered from the qualitative and quantitative experiments are firstly analyzed separately, ranked and then examined together using the Analytical Hierarchy Process (AHP). The results from the AHP determined the main key parameters and sub-key parameters for the success of the globalized project. These parameters are compared with the literature review and findings are drawn. Based on the findings, a framework for the success parameters is developed, verified and validated. The framework is evolved into a model which uses the fuzzy logic for the data analysis. The fuzzy logic will be used because it understand the linguistic terms and help to simplify the decision-making. The relative importance variable is calculated for the main parameters and the sub-indicators in order to ensure that the variable's for the model is of high important. The model thus developed was later validated through the leaders in the construction industry.

III.1.2 QUANTITATIVE TECHNIQUE

Various scholars see the design of quantitative research as a logical approach to determine the research problem and study the casual relation between variables. This kind of research is encouraged when the data is structured, concise and is quantitative in nature. To improve its reliability and validity, Bryman (2004) argue that the research should be supported by statistical analysis techniques (qtd. in Ochieng, 2008). The quantitative research is based on the positivist approach and its ability to search for casual relationship between variables transformed it into one of the traditional approaches of research according to Gill and Johnson (1997) and Walker (1985) (qtd. in Ochieng, 2008).

III.1.3 QUALIITATIVE TECHNIQUE

This approach is used when the process and meaning are not measurable and mainly used to generate new theories. This research approach is defined as a multi-method in focus which involves various phases like interpretive and creative analysis. Here, the data are unstructured and the focus is to determine whether the variables exist or not, rather than knowing and understanding their relationship. However, unlike the quantitative research, the qualitative research helps to gather a large amount of data within a short time interval and from limited number of individuals. This is mainly because this approach helps to evaluate the issues deeply and in details as the data is not constrained by predetermined categories (qtd. in Ochieng, 2008).

III.1.4 QUANTITATIVE- QUALIITATIVE TECHNIQUE

To compensate for the limitation of each research type, a mixed method approach is adopted in this research. According to Walker (1985) having a mixed approach assist in having a research that is both exploratory and explanatory (qtd in Ochieng, 2008). Denzin and Lincoln (1998) also support the combination of both methods justifying it by been a strategy that adds rigor and depth to the investigation. Bryman (1988) stated that the advantage of implementing mixed-method is that it allows for mutual validity if the conclusions drawn are similar. Scholars like Creswell (1998) specific the need of mixed method approach when the research topic require to be explored and if the researcher aim to study the individuals in their natural settings. Considering the main goal and objective of this research and with the limited empirical information about the MCF' performances in Egypt, both the quantitative and qualitative

approaches are required. This mixed method approach aids in refining the validity of the research by investigating the same phenomena using different techniques. This is known as Triangulation. Triangulation is "a validation procedure where researchers search for convergence among multiple and different source of information to form theme or categories in a study" (Lin and Wong, 2014). A second merit of adopting the mixed method approach is to minimize the weakness inherent in a single approach.

III.2 QUALITATIVE EXPERIMENTAL DESIGN AND METHDOLOGY

The data is collected from one of the firms (Firm A) that is based in Saudi Arabia and is outsourcing all of the company's projects to its branch located in Egypt. Firm A is 9 years old Engineering designs firm, that is considered the first in terms of interior design and architecture design in the Kingdom. Firm A is a sister affiliated company for an International contractor that is well known for executing complex projects in the Kingdom, Kuwait and United Arab Emirates. Since 2012, the company decided to establish a branch in Egypt in order to outsource all the projects, leaving only the sales team in the Kingdom along with a 5-7 engineers for last minute work/review. The team in Egypt is responsible to deliver tender documents, contracts, schedules, designs, coordinating between the disciplines and provide a preliminary bill of quantity including pricing the items. After receiving valuable information from the management team of the company, Egypt's branch manager agreed with the researcher of this thesis to perform an experiment among the team members of the company. This quantitative experiment aims to tackle the management of multi-cultural teams and how working overseas can ease or complicate the project procedures.

To conduct the qualitative experiment, a total of six groups were formed, two based in Egypt, two in Saudi Arabia and two virtual groups who worked online. Each group was composed of three engineers, one architect, one technical engineer (either structure or MEP) and one coordinator. The detailed information of the six groups is included in Table III.1

While conducting the experiment, several parameters were taken into account some of which were originally developed by Tuckman (1965) and later adapted by Comu and Taylor (2011) in an experiment to study culture's impact on the construction project in the US market. The guideline to the completion of this experiment is explained to the teams in these main steps.

Table III-1: Data of the groups participating in the quantitative experiment

Group	Nationality	Overall Experiences (yrs.)	Experience in Firm A (yrs.)	Position at Firm A	Group's Location	Group 's Type		Communication Mean
A	Egyptian Egyptian Egyptian	2 4 2.5	2 2 1	Design Team Leader Structure Engineer Coordinator	Egypt	Mono-cultural Team	Traditional Team	Face-to-Face
B	Egyptian Egyptian Lebanese	4 5 2	2 2 2	Design Architect Senior Structure BIM Coordinator	Egypt	Multi-cultural Team	Traditional Team	Face-to-Face
C	Egyptian Lebanese Syrian	4 2 3	2 2 1	Design Architect BIM Coordinator MEP Engineer	Egypt – KSA	Multi-cultural Team	Virtual Team	Online
D	Philippines Philippines Philippines	6 4 3	5 4 2	Design Architect Structure Engineer Technical Coordinator	KSA	Mono-cultural Team	Traditional Team	Face-to-Face
E	Egyptian Lebanese Philippines	2 4 2	2 4 2	Architect Engineer Structure Engineer Coordinator	KSA – Egypt	Multi-cultural Team	Virtual Team	Online
F	Jordanian Lebanese Philippines	2 4 3	2 4 2	Coordinator Structure Engineer Design Architect	KSA	Multi-cultural Team	Traditional Team	Face-to-Face

(i) The brief is first handled to the architect by providing him/her with a site layout and a design requirement sheet. It included the client's requirement, the project objective, the specs required at this stage and information about the BUA and Foot print area. The architect is required to draw a concept (s) and a ground floor plan along with a site layout and later explain the general concept(s) to the other two team members. The teams are not advised on how to manage the discussion between them. While the architect works on finalizing the plan(s) and elevation(s), the engineer is given a set of codes and technical specs to follow like the material to be used, the dimensions required etc. Concurrently, the coordinator is in charge to compile the work together and verify the output in order to ensure its accordance with the building codes and the brief.

(ii) The time required completing the task, per Firm's A manager is five hours in order to finalize a decent conceptual approach. However according to Tuckman (1965) insufficient time should be allocated while testing a hypothesis in order to know the prioritization of the group and to analysis their team work spirit. Therefore a total of four hours is allocated for the completion of the project.

(iii) All three team members were asked to work on the final presentation, this according to Tuckman (1965) encourage cohesive output and promote decision making and clarify the leadership style among the team members.

(iv) According to Tuckman (1965) teams working together should be aware of the company's organizational culture. Consequently, the teams are asked to deliver their work in the same format as that delivered by the company. If not, this reflects the poorness of the company's organizational culture and that each individual is working based on the personal cultural parameters and or previous managerial culture.

The outcome of the teams was evaluated by the firm's branch manager who will be assessed based on the following: Organizational Culture, Communication, Decision-Making and Leadership Style.

III.2.1 ANALYSIS OF THE GROUPS

Group A, a mono-cultural located in Egypt was able to deliver the project with all components designed and coordinated. While presenting the project, it was proved cohesive and well structured; however, it didn't fulfill the client's requirement (as per the brief given). The performances of Group A can be explained through the following parameters:

(i) Organizational Culture: They did not abide by the organizational culture, which encourages individual work over collectivism. However the team member worked together achieving a well-designed output.

(ii) Communication: This team communicated at every criteria stage of the project. The architect was able to lead the communication. They froze at the concept phase discussed several technical issues, agreed on what is yet to be accomplished and every member

moved to their tasks. Later, they had a long meeting (10-15 minutes) discussing their output and how to organize the final presentation.

(iii) Decision-Making: The decisions taken were consents by all three team members.

(iv) Leadership style: Participative approach

(v) Complexity: The language used in the brief was American English but the engineers misunderstand major components of the project like the usage of the mezzanine floor as a mechanical floor instead of it been a typical floor and using the site contour instead of flattening the group floor.

(vi) Performances and Output: Other misunderstanding was the shape of the building and its exterior appearances. Although it was specified that the building should follow a rectilinear form, the engineers designed it to be wavy and dynamic, thus not cost effectiveness as specified in the brief. The technical specs were fulfilling the conceptually needs of the brief.

Group B, a multi-cultural group located in Egypt suffered from time storage due to the fact that quarter the time was spend on allocating tasks and discussing what is to be done. The following summarizing their performances in terms of the research parameters:

(i) Organizational Culture: The priority given to the submission was consistent with that of the company's organizational culture (mean-oriented).

(ii) Communication: The team was not listening to each other's idea. It was clear that the team members underestimated the work done by their colleagues in the team.

(iii) Decision-Making: A chaotic decision approach was followed whereby the structure engineer made most the decisions showing the strongest personality. Unlike the other two members, this member fought his ideas out loud and consequently, the project reflected his ideas.

(iv) Leadership style: Lack of leadership styles by the team members.

(v) Complexity: Task allocation and imposing of personal option rather than discussing.

(vi) Performances and Output: Although they were unable to delivery all the requirements on time, they were successful able to fulfill the design brief regarding design, function, aesthetic, cost aspects. The output was a replicate of the company's previous project. No risk was taken by the group members in terms of idea generation.

Group C, a multi-cultural virtual team, the final outcome was unorganized; questions were answered differently by different team members, and tension was noticed among the group during the online discussion, which was conducted after the four hours duration experiment.

(i) Organizational culture: They abided by the company's culture in terms of working individually, sharing only minimal information with each other. However, the group's performance cannot be defined either as mean-oriented or goal-oriented.

(ii) Communication: Although the group discussed all the project component at the beginning and tasks were allocated to every individual, the team members located in Egypt shifted from the original vision, consequently the work was lesser cohesive with each other and an unclear statement was made about the project.

(iii) Decision-Making: The decisions were mainly taken by the team members located in Egypt. The decision approach followed was the constitutional.

(iv) Leadership style: The MEP engineer showed a charismatic leadership approach unlike the other two members.

(v) Complexity: Technically, team members expressed their disappointment regarding the attitude given by the third member located oversea concerning his inability to understand what was explained numerous by them. On the other side, the oversea member felt his work was not appreciated and overcome, ignoring his experiences and work.

(vi) Performances and Output: The team members actually performed well, working hard but the final presentation didn't do them justice. Unfortunately, every individual worked treating it as a single project rather than a group project.

Group D, a mono-cultural team located in the Kingdom of Saudi Arabia provided the best outcome of all six groups in terms of design aspects, structure concept, time schedule, constraints and various possibilities. Their managerial approach and work flow is as following:

(i) Organizational Culture: Abided by the company's policy regarding been mean oriented, individualism, and the final output was consistent with the company's general output.

(ii) Communication: The team communication was minimal throughout the procedure. Major communication took place when a team member would raise a concern. Other than that, the team discussed all the project's elements during the first 20 minutes and started working immediately on the project. No tension was noticed during their performances.

(iii) Decision-Making: Individualism was the technique followed in the decisions making. Every engineer took decisions based on their field of experts.

(iv) Leadership style: Participant leadership style.

(v) Complexity: Nothing major was reported.

(vi) Performances and Output: This team's final presentation was liable to the company's presentation standard. The engineers showed a high level of coordination and an ability to convince the audience that the final output product was a produce of days of study and analysis.

Group E, the second virtual multi-cultural team did not provide any outcome expect few sketches, random individual ideas. Their managerial approach is explained through the following parameters:

(i) Organizational Culture: No approach was followed while working or implementing the work.

(ii) Communication: The team suffered from various drops due to internet connection, misunderstanding of various ideas, inability to find a common ground to work on. Linguistic barrier were also encountered.

(iii) Decision-Making: Most of the decisions were taken by the architect while the other two members who didn't bring any ideas to the table. They did not seem innovative or interested to add ideas to the project.

(iv) Leadership style: None

(v) Complexity: Internet connection problems and a low of the team working spirit.

(vi) Performances and Output: Visually, the output was not consistent with each other, was clearly complied through different means and by different persons. Moreover, the outcome did not belong to the company's standard or presentation style.

Group F, which is the second traditional multicultural team located in Saudi Arabia did a fair job. Their assessment is described through the following parameters:

(i) Organizational Culture: This group prioritizes their presentation by showing studies and analysis regarding the cost effectiveness, sustainability of the buildings etc., which abided

by the company's presentation format. In terms of the company's been mean-oriented and employee oriented, the team performed accordingly.

(ii) Communication: Communication was notable at the beginning and after the completion of the work performed. They were communicating for the presentation, working together loudly to make sure their work was consistent with each other.

(iii) Decision-Making: The decisions were taken by all group members equally.

(iv) Leadership style: Participant leadership approach.

(v) Complexity: None.

(vi) Performances and Output: Although there was no concrete idea or concept behind the design, their ability to communicate well and initial ideas during the presentation made the final outcome looks professional.

The following table provides a comparison between the six groups with the company in terms of their organizational culture compounds as explained by Hofstede (1961). Two compounds, the internally vs. externally drivers, and the local vs. professional culture were not included in this study. This is mainly because of the short time duration of the experiment.

Table III-2: Comparsion between the six groups based on their performances in the experiment

Teams	Organizational Culture					
	Open vs. Closed System	Employee vs. work oriented	Acceptances of Organizational culture	Easygoing vs. strict work discipline	Acceptance of Leadership style	Means vs. goal oriented
Company's system	Open system	Employee oriented	☑	Easygoing work discipline	☑	Mean oriented
Group A (Mono)	Open system	Work oriented	☑	Strict	☑	Mean
Group B (Multi)	Closed system	Employee oriented	×	Easygoing	×	-
Group C (Multi)	Open system	Employee oriented	☑	Easygoing	☑	Goal
Group D (Mono)	Open system	Work oriented	×	Strict	☑	Mean
Group E (Multi)	Open system	Employee oriented	×	Easygoing	×	-
Group F (Multi)	Open system	Work oriented	☑	Strict	☑	Mean

III.2.2 EXPERIMENT BASIC ASSUMPTION

The experiment conducted assume that certain parameters does not have any or negligible influence on the performances of the team members in the multi-cultural multi-located teams. These parameters are age, gender and the employee's years of experience. So, these parameters will not be considered in the following analysis section.

III.2.3 EXPERIMENT DISCUSSION AND ANALYSIS

The data gathered from this experiment was analyzed using the Porter's diamond model. Nevertheless, only the Firm's Strategy condition from the diamond model will be analyzed for the experiment and this is because the other parameters (factor, demand and related industry) require that this experiment be conducted between teams from different companies and time factor to be involved. Additionally to the Firm's strategy of Porter's model, the data gathered will be discussed using the success parameters as identified by various scholars in the literature review (Hill, 2007; Egan, 1998; Ofori, 1998; Partington and Qiang, 2008; Earley and Mosakowsko, 2000; Ochieng, 2008). Regarding the cultural parameters, the teams were evaluated based on the model developed by Hofstede (1968) and Tuchman (1965).

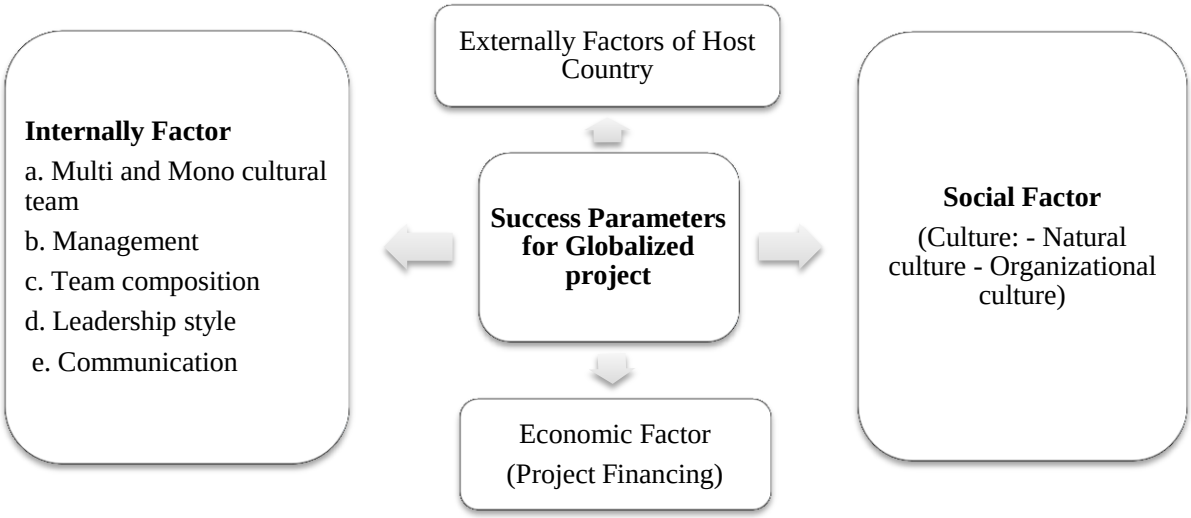

Figure III-2: The internally factor and social factor developed by (Hill, 2007; Egan, 1998; Ofori, 1998; Partington and Qiang, 2008; Earley and Mosakowsko, 2000; Ochieng, 2008) that are to be used for analysis of the teams from Firm A.

The groups (D and F) located at the firm's headquarter showed a clear understanding of the company's organizational culture, communication and work methodology. However, the teams located in Egypt did not have the same knowledge which could be because they were not trained on the company's system and no templates or KCI forms were passed on to these teams (Richard et.al, 2007). While group D leader was the architect, that of group F was the structure engineer. Group D chose the most experienced person and the one who knew the system quiet well. This was justified by one of the team members who said that out of respect, the most experienced engineer should lead the job. According to the Philippine culture, age is an important human parameter that is directly linked to respect. The Filipino are very systemic in their work methodology and are highly persistent individuals while resolving discrepancies (Hofstede, 1963). Group F which was a mix of cultures relied on doing everything together, working in cohesion, following the company's approach in providing the client with what is needed (respecting the brief) regardless of their personal engineering opinions. They also showed awareness about the company's organizational culture (presentation style, the content, infusing on the conceptual cost analysis and material). The team members in Riyadh benefit from meeting clients and hence knowing their demands, the regularity of modification required and the appropriate communication technical to be adopted. This direct communication with client easier the ability of the employees to abide by the company's organizational culture, especially that Firm A is driven by externally forces (Ofori, 2009).

The output of the teams located in Egypt showed that the company's organizational culture is not well defined and the team members are working with previous managerial approach or influenced by their cultural diversity. The virtual teams, located between KSA and Egypt showed different responses. Group C had difficulties in allocating tasks, time management, discussing project's elements because of the dominant character of the team members. The team members in group E did not show an interest in leading the team or taking any extra responsibilities other than the technical aspects. The multi-cultural teams' performance was the least impressive among the six groups. This agrees with the literature review where poor management was noticed to inverse affect the performance of the multi-cultural teams.

A meeting was conducted with every group and they were asked of the problems they encountered during the experiment. During the discussion, some team members went as far as

explaining some of the problems that bump out during work. Groups C and F preferred to have an individual discussion where the team members expressed their inability to deal with each other due to various reasons. The most common reasons presented by these members can be categorized into communication misunderstanding, cross cultural diversity, and linguistic barriers. The team members seem to think that the multicultural groups are disadvantaged and they believe the performances of the monoculture terms are better because they can understand each other due to social and cultural proximity.

ORGANIZATIONAL CULTURE

Various scholars argued that managing the multi-cultural teams is one of the main challenges of the globalized industry and the poor performances remain an aspiration within the construction industry (qtd. in Ochieng and Price, 2009). In order to know whether the team members agree with this statement, the team member and the heads were asked to rank the main challenges faced in Firm A. The following graph shows a comparison between the team members' options and the heads' options.

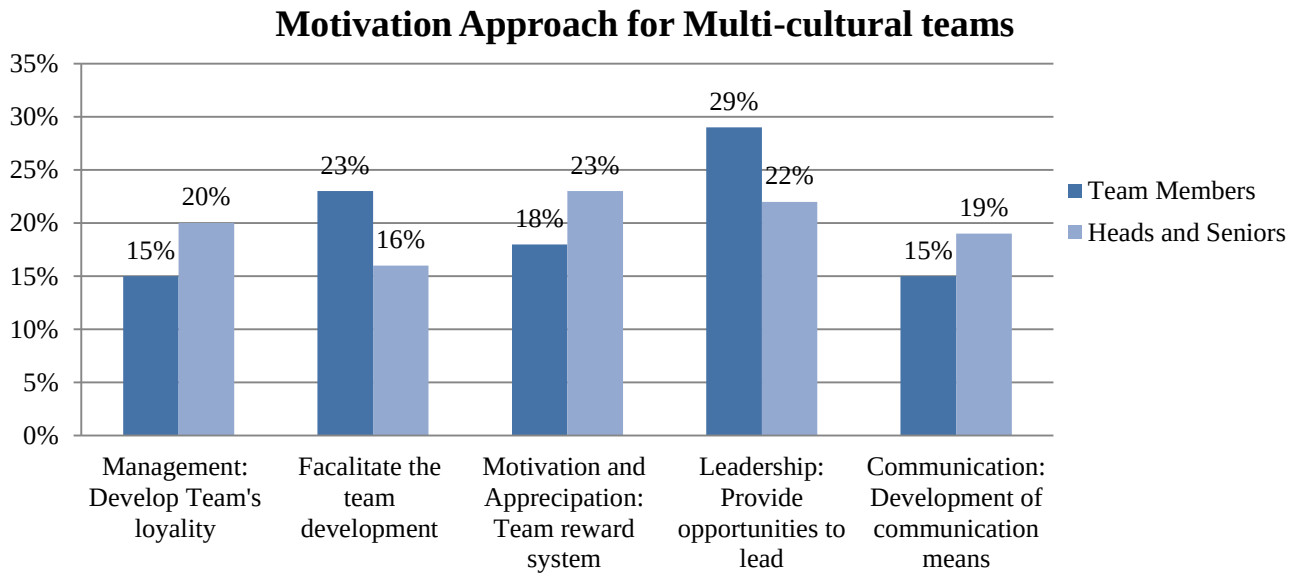

Figure III-3: The managerial approach implemented for multi-cultural teams.

69% of the team members responded that the management of the multi-cultural groups should be different than the regular tradition groups as compare to 56% of the heads and seniors. It is remarkable that the needs and the priority of the team members are different than that of the

heads and the seniors 29% of the employee believes that the most effective way of managing multi-cultural teams is to provide them with various leadership opportunities. Group A team leader confirmed that experiencing leadership is different than the original assumption he had regarding leadership. This opportunity of leading the team assists the team members to understand managerial skills, cultural barriers and also enhance the team's spirit. By experiencing the difficulty of leading multi-cultural teams, the team member will understand the challenges faced by the other leaders. Subsequently this boosts the level of responsibilities and dedication of the team members towards each other.

The second highly scored variable is the development of the multi-cultural team through workshops and activities. Due to the managerial and cultural differences among the team members, various workshops should be conducted to facilitate the development of cohesive team. These workshops should also facilitate the organizational culture of the company. Conducting activities and workshops ease the barriers among the members and enhance communication among them. Motivating and appreciating the team's performances was scored as the third important variable to be considered for the multi-cultural teams. Motivation directly affects the performances level of the team and their level of commitment to the job and the company. Conversely, to the literature review, the team members scored communication as the fourth variable for multi-cultural teams. The branch manager agrees with the team members' ranking for communication, justifying it by the situation of Firm A, where a lot of communication means were developed but still the productivity of the teams remains unsatisfactory.

The heads and seniors ranked the variables differently but scored them all relatively close to one another. Nevertheless, the most significant parameter according to them is the motivation and the leadership opportunities provided. The head of the MEP department believes that the public recognition is one of the motivation factors that enhance the individual's managerial skills and performances. Additional to the financial reward, actions like employee of the month, achievement award and awarding of academic courses all motivate the employees to work more. However, the criteria for awarding the appreciation awards should be made clear because any fault in selecting the candidate, will demotivate the rest of the team and inversely affect the team performances. Several companies don't specific the leaders of the team, but the team leaders are

assisted per project. This system according to the structure senior enhances the individual's self-confidences, managerial skills and technical knowledge. The limited availability of this system among the Egyptian local companies, encourage the individual to join MCF to test leadership and the level of dedication and responsibility required for such position.

According to 82% of the heads and the seniors, developing team's loyalty and communication means are only essential after a team that is developed. Team's loyalty is an outcome of the managerial system followed, and the communication means are also a supplementary compound as highlighted by the Head of the Architecture department at firm A. The head of the architecture department thinks that communication means are essential for multi-cultural team. This agrees with the literature review that proves that for the multi-cultural teams to be more effective there need to be clear communication procedures (Ochieng and Price, 2008).

COMMUNICATION

Group B who are located in Egypt thinks that the main challenge ahead of the multi-cultural team is the ability to find a platform for exchanging and documenting information. Most of the errors occur during the early stage of design, where usually the teams in headquarter were expecting something different than what was eventually received. Group E participants explains that the brief coming from headquarter does not come at ones but valuable pieces of information can be told 2-3 days later after the team in Egypt already stated working on the project. In this experiment, although the brief was a written one, participants from group A,B and E stated that verbal communication is still important especially when someone is expecting something specific. Communication, proved to be an important element that need not be ignored but rather emphasized on by the management to ensure the efficiency of the multi-cultural teams.

MULTI-CULTURAL TEAMS

Another obstacle facing the multi-cultural teams is their inability to deal with each other and distribute the tasks. Group C Egyptian participants mentioned that since the office in Egypt is an outsourcing branch, the final decision is usually taken by the team located in headquarter. This is usually reasoned by the fact that the teams located in headquarter deals directly with clients and knows the requirements thus got the upper hand in decision making. Consequently this discourages the managerial skill and decision making of the engineers in the Egypt branch.

Additionally, this created a continuous tension between the teams located in headquarter and Egypt. Working in a multi-cultural team became more hectic than the mono-culture teams because of the raise of the cultural difficulties along with the regular technical discrepancies. The technical coordinator justify the poor performances of group C by stating that it was the already-existing tension between the team members that resulted in the chaotic output. Another problem that the teams encounter while working is the blaming issue. While the team in Riyadh sends the brief, they have a certain expectation of the output which they promised to the client earlier. However, when the team in Egypt work on the project, the output is usually different, which in some cases resulted in the company losing the client.

The performances of the team reflect the problems that are encountered on a daily basis due to the inability of the top management to handle the multi-cultural teams and the poor job description of the engineers. By giving the upper hand of decision making to the engineers located in headquarter, and with continuous errors regarding the brief that reach the team in Egypt, there was a continuous tension between the two teams and demotivation of the team located in Egypt. This reflects the poorness of the company's organizational culture, not only in terms of management system but also the absences of cohesive output by the teams.

III.2.4 EXPERIMENT CONCLUSION

The performance of the multi-cultural and virtual teams in ECI is compatible with some of the parameters developed by the literature review and concurrently introduces new parameters. The following table summarizes the comparison between the studies presented in the literature review to those conducted in this research.

Table III-3: Comparison between the literature review and the multi-cultural teams operating in ECI.

ASSOCIATED FACTORS	LITERATURE REVIEW	MCF in ECI
Entry to Globalization	Abdul-Aziz Model (2003) study on the Malaysian market and the American market (Abdul Aziz, 1994). Table II.2 and Table II.3	The motivation preference of the MCF operating in Egypt was different than the ones mentioned earlier by the literature review.
Organizational Culture	Organizational culture is mainly influenced by the national culture (culture index) and the social parameters. It needs to be well-	The absences of a clear organizational culture directly affected the performances of the teams. The teams located in the firm's

	defined to ensure the efficiency of the team's performances (Laurent, 1983).	headquarter were noticed to perform better in term of respecting the organizational culture of the company in terms of abiding by presentation style and the company's design aspects.
Communication	Ochieng and Price (2008) and Blismas et al (2009) established communication as essential parameter for the success of the MCF. Direct verbal communication was recommended.	Communication is the outcome of a developed multi-cultural team, who is directed by a strongly established organizational culture. Figure IV-3 Virtual Teams require a more direct standardized form system for better communication.
Multi-Cultural Teams	The multi-cultural team's performances is initial low however with the time factor becomes is more effective than the mono-cultural team's performances if well managed (Comu and Taylor, 2011 and Richard, 2007). The major problem encountering the multi-cultural teams is the social and culture diversity.	Multi-cultural teams performances in this first experiment proved to be of lessen efficiency than the mono-cultural team. Major problem encountered was absences of clear working methodology (organizational culture), no understanding of clear job responsibilities, cultural diversity, linguistic diversity and no technique followed for decision making and leading the teams.
Leadership Style	While UK and Kenya construction society prefers the achievement and participative leadership approach respectively (Ochieng and Price, 2008). A study on the UAE construction industry shows the influence of bureaucratic leadership style and participative style (Alshamsi, 2015)	The multi-cultural teams especially the ones located in Egypt showed preference to the participative leadership style. The bureaucratic style was concluded to be essential mainly among the virtual teams.

III.3 QUANTITATIVE EXPERIMENTAL DESIGN AND METHDOLOGY

A structured questionnaire with an invitation letter was administered to the leaders in design, contracting and consultant firms. The interviewees were first approached through an invitation, which is send through email and a request for appointment is settled. All the respondents were requested to rate the questions based on a five point Likert scale ranging from (1=outstanding, 2=above average, 3=average, 4=below average,5=unsatisfactory). This system was used in order to quantify the responses and generate a statistical analysis of the observation.

III.3.1 VALIDITY OF THE QUESTIONNAIRE

The reliability and the validity of the data collected depend partially on the pilot test of the questionnaire (Ochineg, 2008). If the participant feels that completing the questionnaire is unreasonable use of valuable time, the completeness and accuracy of the data may be low. In order to avoid this problem, the phraseology of the questionnaire was simplified and this was achieved after a thorough review with this thesis supervisor. To consider the validity of the questionnaire, the following measures were considered which were introduced by Oppenheim (qtd in Ofori, 2009).

(i) Clarity of instruction
(ii) Questionnaire length
(iii) Simple phraseology usage
(iv) Consistent of the questionnaire hierarchy

Before using the questionnaire, it was also checked with two main construction leaders in the contractor and consultant industries as a pre-test to the final version. The purpose of this pilot survey is that it is a way of checking the suitability, the comprehensibility of the questions and the categorization of the survey before sending it out.

III.3.2 SAMPLING TECHNIQUE

The objective of selecting a sampling technique is to determine a practical method of gathering data while ensuring that it will provide a good representation of the population. Since this research tackle those companies that work on globalized projects (outsourcing, offshoring or partnership), a purposive sample was adopted. This method was implemented since it is not possible to specify the population that worked on such projects, they are either not known or the access to this population is difficult. Thus a snowball sampling was embraced in this research in order to identify the right candidate for this research. The different interviews were transcribed for data analysis, which were used to identify the influences affecting the Egyptian globalized construction market. Since most of the globalized construction projects are located in Cairo, all the interviewers took place in Cairo. This was supported by the interviewees opinion suggesting that majority of the globalized companies are located and operating from Cairo.

III.3.3 SAMPLE SIZE

Various factors are to be reflected on the sample size chosen, which are, (i) sampling error, (ii) variation in answers (iii) population size and (iv) confidence level. The formula to determine the sample sizing is (Ochieng, 2008):

$$Ns = \frac{(Np)(p)(1-p)}{(Np-1)\left(\frac{B}{C}\right)^2+(p)(1-p)}$$ Equation III-1

Where Ns = sample size for the desired level of precision, Np = population size, p is proportion of the population that is expected to choose one the response categories, B is acceptable sampling error and C is Z statistic associated with the confidence level, 1.96 corresponds to 95% level.

In the construction industry, the response rate of around 30% is considered satisfactory (Black et al, 2000) and a return of 20% of the questionnaire is considered acceptable (Owen and Jones, 1994). For this research, a confidence interval of 10% and the confidence level of 87% will be used. Since the population size is not known, it was assumed to be 20,000, this is mainly because the sample size does not change much for population larger than 20,000 (Black et al, 2000). Based on this, the recommended sample size is 58 persons.

III.3.4 SAMPLE SELECTION

The main objective of this survey is to collect consistent information regarding the practice of the MCF in Egypt. In order to ensure the reliability of the information, the sample selected need to provide a good representation of the population. To receive variety of opinions and experiences, candidates were chosen from three sectors, design, contractors and consultants. Leaders and seniors from various companies were targeted but the priority was for those who worked on international projects. The surveyors were chosen for the following reasons:

(i) They work in companies that perform the major civil engineering work in the country including commercial mixed use buildings, military projects, infrastructure and super structure buildings.

(ii) Dealt with multi-cultural teams inside and/or abroad of Egypt

(iii) Been in the industry for +15 years, promoting excellences in the construction industry and contributes to facilitating the development of the industry.

(iv) Representing different companies. This contributes to the strength of the analysis since various external and internal variables were exposed during the analysis phase.

A total of 92 potential interviewees were targeted and 56 responded back, out of which 24 were face-to-face interview and the rest were conducted through phone calls and emails. The 56 interviewees encompassed 22 working for local contractors, 12 working for international contractors, 5 designers working for international firms, 5 designers working in local firms, and 12 clients' representatives. 62% of the interviewees had +15 years' experience and 38% of them had +10 years' experience in their respective fields and possessed compressive knowledge on the practice of construction in the domestic Egyptian market. The following table shows the breakdown structure of the interviewees and the discipline they come from.

Table III-4: Number of participating in the quantitative survey

Firms	Number of individuals targeted	Individuals that returned the questionnaire	Response Rate %
Architecture	22	10	45.4 %
Con tractor	50	34	68%
Consultant	20	12	60%
Total	92	56	57.8%

III.3.5 QUESTIONNAIRE HIERARCHY

The research conducted on globalization of the construction industry did not settle on a globally accepted success parameters. Now since none of the studies conducted were related to the Egyptian market, the initial step was to identify the key success indicators for the ECI. The initial indicators used in the survey relayed on the studies conducted by Ochieng (2008) on the UK and Kenya construction industry, Dulaimi and Halzi (2011) study on United Arab Emirate and the research conducted by Abdul-Aziz (2008) on the Asian market. A study of the cultural diversity was also considered and involved in this research by using the model developed by Hofstede (1980). This model was used by industries like the IT industry (mainly IBM, Microsoft, and Google) and electrical industry (Silicon Village) to develop globalization index for the

respectively industries. The basic of these models was used to develop the key performances indictor's questions. The key success indicators and their sub category indicators are:

(i) Motives for globalization in Egypt (externally and internally drivers for shifting to globalization)

(ii) Entry modes/means (Host country selection, Market analysis, Industry analysis, and the benefits expected to be generated from such movement)

(iii) Management Techniques required (including natural culture, organizational culture, team composition, leadership styles, cross cultural communication, cross-cultural management, learning technique)

(iv) Effect of globalization on the company (including the:

a. financing revenue percentage – Multi-national company,

b. the geographically present of the company – Global company,

c. the ratio of the employee vs. the domestic employees- Multi-national, global and international company

(v) Managerial challenges associated with globalization (including uncertainty and complexity).

After developing the survey based on the above indicators, the interviews were conducted and the data collected was analyzed and evaluated based on the relative weighing of each key indicator where the Analytic Hierarchy Process (AHP) approach was used. The data analyzed and the conclusions drawn are discussed in the research data analysis section.

III.3.6 THE STRUCTURE OF THE SURVEY

The survey consisted of two main parts (A copy of the questionnaire is attached in Appendix 1.). Part 1 of the questionnaire required project managers to evaluate their project team performance on a number of criteria. Part 2 of the questionnaire measures the management style of project managers to evaluate the task oriented or relationship oriented in their management of their respective team (Robbins, 2005). This part will contribute to understand why a certain country is chosen for globalization. It will help in prioritizing the Political Economical Social Technological Legal Environmental (PESTLE) trends. Theoretically, the problem faced by a globalization company is different than the regular problems encountered but sometimes they are

misinterpreted or are ignored. This section target data regarding the organizational culture, the communication approaches, the decision making technique followed and whether there are clear regulation that are implemented and strictly followed by the managers or not. Often the criteria for engineers' recruitment in Egypt may not always follow a clear pattern or criteria. According to Ochieng (2008), there are cases where the employees are hired based on their "low salary expectation" overcoming parameters like experience, language and culture. Therefore, the survey included two questions, one regarding the recruitment criteria for the junior and mid-career individuals and the second question included recruitment procedure for seniors or head positions. The five opinions provided per question were the common ones found in the research conducted by John Taylor (2010), Pier Edward (2008) and Abdullah Rizk (2008) for US, Kenya and UK, and Middle East respectively. The interviewees were also asked if the selection criteria for the multi-cultural team differed than that of the mono-cultural teams.

Part 3 of the survey discuss the benefits of globalization in ECI. Countries like Sir Lanka, Dubai benefited from the presences of international design, contractor and consultant companies. This allowed for the economic growth and social improvement in the country. The process of this question is to understand the real impact the outsourcing and or offshoring companies had on Egypt. It was essential to document the positive as well as the negative impact of the foreign experts and companies on the ECI and the country as a whole.

Another issue that was taken into consideration was the effect of MCF on the Egyptian engineers and labors. This section is intended to understand the impact of globalization on the employee's qualification, explore to international standards, salary scheme, strategic and managerial thinking, etc. Three main questions constituted this section, where the effect of globalization on the country, employee and the local competitors.

Part 4 discuss the effect of globalization on the design phases, the conceptual, schematic and the design development. The researchers did not agree on to how the globalization effects every phase. Some agree that the major problems occur during the conceptual phase, while others agreed that it was mainly during the schematic design phase. Cultural diversity and language barriers are two of the main constraints, but it is important to understand which phase negatively contributes to the delay in the work performed.

The final section of the questionnaire is about the globalization effect on the construction phases, mainly the executing phase. The project life cycle is constituted of Initiating, Planning, Executing, Controlling, and Closing phase. The difficulties faced during project's life cycle differ from one country to another and this section exposes the difficulties in Egypt from the foreign experts 'and Egyptians perspective.

III.3.7 LIMITATION IN THE SURVEY

The survey suffered from two main limitations, the surveyed population and a certain methodological limitations. First of all, the sample of managers and engineers in the ECI may not be representative of the entire industry. Secondly, the literature review focused more on Asian, American as well as the European countries while those focusing on the MENA region are not only limited but also dominated by quantitative approaches based on questionnaire surveys. One possible explanation why the researches are dominated by survey approaches would be time constraint or language barrier in accessing adequate individual's face to face (Partington and Qiang, 2008). However, these effects of these limitations were relatively overcome using snowballing sampling, the Analytic Hierarchy Process (AHP) and experimental qualitative approach.

III.4 RESEARCH FINDING

III.4.1 SECTION 1: GENERAL INFORMATION ABOUT THE COMPANY

The participants of this survey developed their opinion based on the experience they encountered through working in their respectively companies. The following table provides a summary of the companies the participants in this survey work in. For the confidentiality of the firms,will be represented using alphabetical order. The participants from their respectively companies will be represented using the initiative alphabet of the company followed by a number. For instant, interviewee CA1, means that the interview is from the contractor field (C), the company's representative alphabet is (A) and the number is used when there are more than one employee interviewed from the same firm. To distinguish between the contractor and the consultant firms, (C) will be used to represent contractor while (CF) is used to refer to the consultant firms.

Table III-5: Profile of the design specialized firms in the study

Firms	Description	Experience	Origin Country	Globalization form	Participants
DA	Operate mainly in Egypt for commercial projects, residual and recently school development. The company has been involved in the development of a number of restaurants in the Gulf and couple of house design in Europe	2010-Present	Egypt	International Company	1
DB	One of the most successful architecture offices in Cairo. This firm was involved in a numerous amount of projects located in Egypt and the gulf countries. Award winning design firm.	2005-Present	Egypt	Global Company	3
DC	Architecture and planning firm, worked in Gulf and Egypt, designed some of the mega scale commercial work in Egypt.	1980-Present	Egypt	Global Company	4
DD	An architecture firm that is interested in spreading awareness about the environmental optimization.	2009-Present	Egypt	Local Company	2

Table III-6: Profile of the contractor organizations

Firms	Description	Experience	Origin Country	Globalization form	Participants
CA	A leading global engineering and construction contractor. Operate infrastructure, industrial and commercial projects in the MENA region, North Africa, US and Pacific Rim.	1950-Present	Egypt	Global Company	8
CB	A global contractor that covers all area of construction like infrastructure, environment and roads. Operate in Europe, North and Central Africa, MENA region and Central Asia.	1909-Present	Belgium	Global Company	6
CC	A local contractor that operate in Egypt and MENA region. Architecture, Civil and structure, Landscape, electro-mechanical, environmental.	1969-Present	Egypt	Global Company	4
CD	Leading construction companies in Arab region and Africa. Provide sewage projects, wastewater treatment plants, power stations, hospital, commercial and residential.	1950-Present	Egypt	Global Company	4
CE	A local contractor with the idea of integrating the business concept on site. Work mainly on residential projects and commercial projects. Operate in Gulf countries and recently started operating in Egypt and Lebanon.	1999-Present	Saudi-Arabia	Global and Outsourcing	3
CF	Operate in MENA, African, Europe and Russia. Total revenues of 5 billion US dollars. They cover fields like heavy civil construction, building and civil work, mechanical and marine work along with pipelines, gas and water.	1952-Present	Egypt	Offshoring and Global	5

Table III-7: Profile of the consultant firms

Firms	Description	Experience	Origin Country	Globalization form	Participants
CFA	With a total investment of 290 billion US dollar, it is one of the world leading design and management firm with + 950 clients.	1956-Present	Lebanon	Outsourcing + Global +Int'l	6
CFB	An international leader in providing construction and project management. Handled numerous mega scale projects globally.	1972-Present	UAE and Egypt	Global Company	4
CFC	A leading real estate development company with a total investment of 15 billion. Provide architecture, engineering and management services.	1995-Present	Egypt	Local Company	5
CFD	Specialist in providing construction services as well as interior designs for offices, hospitals, retail and education sectors with an investment of 125 billion US dollars.	1950-Present	Egypt	International + Outsourcing	5
COE	A full service engineering consultancy firm that provide specialists like urban, planning, architecture, interior and structure engineering.	1990-Present	Germany	International company	2

III.4.2 SECTION 2: INITIAL STEPS FOR GLOBALIZATION

(i) Motives For Globalization

Regarding the motives for joining globalization, the participants working as contractors regarded geographical spread as the most important reason for globalization unlike those working for consultants firms who considered competitive edge as the main motive behind seeking globalization. The contractors interviewed noted that moving worldwide helps in improving the firm's reputation, which consequently open up wider market choices. The ranking of reasons by the Egyptian and the foreign experts working in Egypt is different than those discussed by Abdul-Aziz (2013) for the Malaysian contractors where sustaining business was the core reason behind globalization. Additionally, the ranking seems to be also different from Bryant (2006) study on the European and USA construction industry who concluded that cost reduction is the first reason behind globalization. This can be explained because the direct and indirect cost is considered cheap in Egypt as compared to many other countries. So while the MCF seeks the ECI for cost reduction, the Egyptian construction firms seek globalization for geographical spread and competitive edge. The recent political vulnerable situation also added to the

collapsing of various supporting industries, which encouraged both local large and small scale firms to seek overseas opportunities.

Table III-8: The motives behind globalization for Egyptian construction industry

Variable	STD	P value	Mean	95% confidence interval		t value
Geographical spread - Company's Image	1.55713	0.14264	3.436	3.020921	3.85180	16.583
Competitive edge- Exploit company's resource	1.46993	0.46355	3.19642	2.80277	3.59008	16.273
Profitability – Investment	0.89151	0.79023	2.92857	2.689821	3.16732	24.582
Strategic alliances - Response to clients or government	1.56586	0.59403	2.85714	2.4378	3.27648	13.654
Cost Reduction - Human resource	1.40857	0.16181	2.625	2.24778	3.00222	13.946

(ii) Selection of a Host Country

The selection of the host country is a crucial stage for globalization as elaborated by Oz(2001), Porter (1998) and Ofori (2009). Using Porter's diamond model or Ochieng and Price (2009) models shows that the external factors and the internal factors of the industry are equally important for globalization.

According to the responses received, the legal framework is the most important factor with a mean of 3.214 directly followed by the advancement level of technology in the host country. According to CA1, CD3, CF2, CF5, the Egyptian firms usually seek globalization by entering the market in the developing nations and or GCC region. In most cases the Egyptian firms are not qualified to join an international tender in Europe and USA or it is too expensive to execute a project oversea. The Egyptian contractors may seek countries with low local advancement in technology but the availability of the labor is a major factor to be considered concurrently. Although the economical revenues came third with a mean of 3.05, this can possibly be because as mentioned earlier by Interviewee CB1, that the local companies are currently seeking a way to sustain their business. So regardless of the revenues generated, the companies are seeking opportunities overseas. This is a short term objective, which should not be the only driver for the companies in order to avoid the risk of failure in the future (Ofori, 2009).

Table III-9: Host country selection significant from the Egyptian contractors and consultants perspectives

Variable	STD	Mean	95% confidence interval		t value
Political Stability	1.45305	2.875	2.48587	3.26413	14.806
Economic Revenues and wide opportunities	1.30533	3.05142	2.72185	3.42099	17.608
Social - Availability of resource	1.07389	2.78571	2.49812	3.07330	19.412
Advancement or lack of technology	1.63395	3.75357	2.61599	3.49114	13.985
Easy ongoing legal framework	1.55755	3.21428	2.7971	3.63140	15.443

The MCF currently operating in Egypt answered the question differently specifying why Egypt is chosen as the host country. The most significant reason is cost reduction with a mean rank of 3.83. This agrees with Bryant (2006) and the Global Construction Outlook (2013) that shows that cost reduction is one of the reasons why globalization spread worldwide. The availability of the cheap labors and engineers in Egypt encouraged two types of globalization, outsourcing and offshoring. According to the interviews conducted, 86% of the foreign engineers agree that the ECI was and continuous to home a lot of outsourcing operation especially for the European and the Gulf market. Figure III-4 is the SWOT analysis of the ECI from the data gathered during the open ended interactive question.

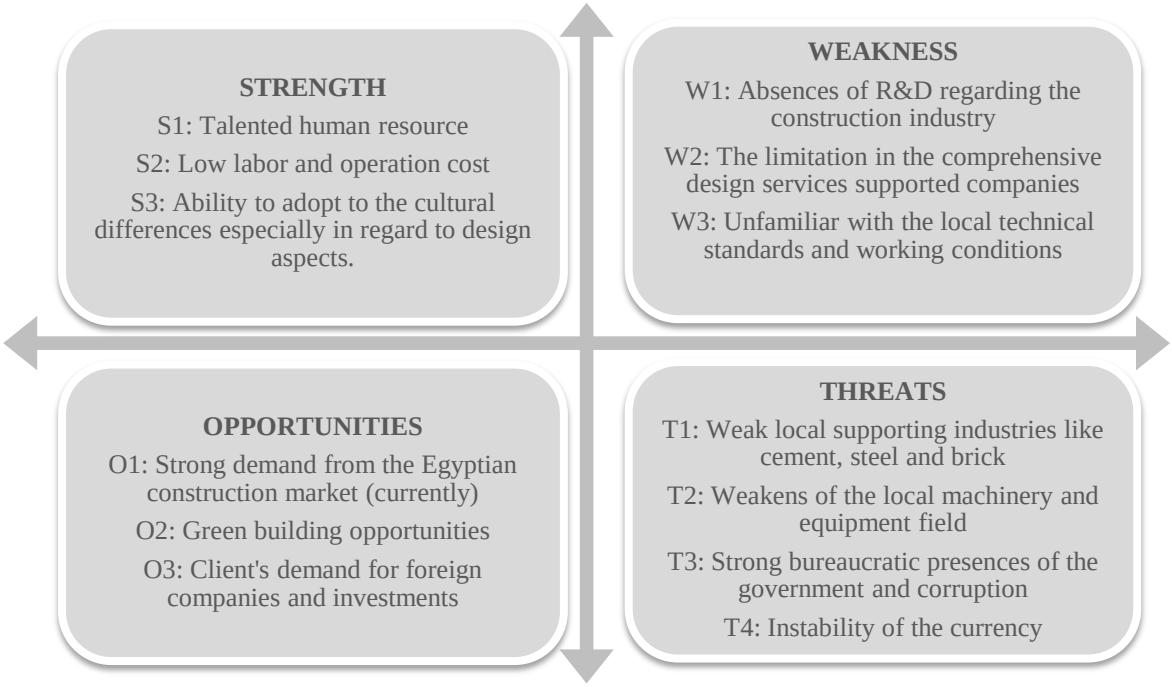

Figure III-4: SWOT analysis of the Egyptian construction industry

50% of the foreign interviewees think that the absences of strong competitiveness among the local companies encourage a lot of MCF to start operating inside Egypt. Although the absence of advanced technology on site is a demerit for the local industry, it's an advantage for the small international companies to enter into the ECI.

(iii) Entry Mode into the Egyptian Market

The MCF enters the crawling globalization market in Egypt through various entry routes. Ngowi et al (2005) discuss four entry modes and most foreign experts surveyed in this research chose the third route, which is the implementation of large scale project. The infrastructure projects are considered as one of the main entry mode for the MCF in Egypt. 84% of the interviewers noticed that the implementation of mega scale projects like line three of the Metro subway, Grand Egyptian Museum, New Capital encourage globalization, which directly impact the foreign investment in the country. Nevertheless, a reason scoring a same mean of 3.142 is the strategic alliances. Many companies operate in Egypt due to strategic alliances with the local firms/shareholders or receiving support from government or political leader through governmental protocol.

Table III-10: Entry mode as per the consultant and the contractor's perspective

Variable	STD	Mean	95% confidence interval		t value
Window of Opportunities - Easy legal framework	1.577438	2.857	2.434	3.2795	13.554
Strategic alliances - Invitation by client or government	1.299350	3.142	2.7948	3.4908	18.101
Recommendation by affiliated company	1.052979	2.982	2.7001	3.264	21.193
Outsourcing	1.673223	2.767	2.319	3.215	12.379
International Tender	1.391532	3.25	2.8773	3.6226	17/478

III.4.3 SECTION 3: MANAGEMENT OF GLOBALIZATION

(i) Team Composition

The management of the multi-cultural teams is one of the main success parameters for the globalized projects (Ofori, 2009; Ochieng and Price, 2008; Comu et al, 2011, Oz, 2001).

Table III-11: Team selection criteria for the junior or mid-career individuals

Variable	STD	Mean	95% confidence interval		t value
Individual Profiling (Education)	1.6080	3.3214	2.8907	3.752	15.457
Involvement in a Multi-cultural team	1.4356	2.892	2.50839	3.277322	15.079
Financial requirements	1.0102	2.857	2.6044	3.1455	21.298
Technical experience	1.5541	3.053	2.6373	3.469	14.703
Managerial skills	1.3939	2.857	2.4838	3.23	15.339

The formation of an integrated team requires the project leader to generate a common platform for the members to compensate for the lack of cultural compatibility (Thomas and Thomas, 2005). 64% of the participants, Egyptians and foreigners, agreed that for the multicultural teams to be effective, a composition of the team is essential and need to be measured. The Egyptian managers scored the individual profiling (Mean of 3.32 and standard deviation of 1.608) as the first main criteria followed by previous technical experiences with a mean of 2.637. The foreign managers on the other hand ranked the individual's involvement with previous multicultural teams as the first criteria for selection with a mean of 3.508 and standard deviation of 1.4356. This was followed by the individual's profiling with a mean of 2.89 and standard deviation of 1.608. Although 64% of the surveyors believe that the structural selection is imperative, many interviewers explained that the nature of the construction industry does not consent for a proper recruiting time. 39% of the interviewers stated that the leaders are usually more interested in the technical experience of the individual, and leave the rest of the profiling, multicultural experiences to the Human Resource team for evaluation and assessment.

Table III-12: Team selection criteria for the junior or mid-career individuals

Variable	STD	Mean	95% confidence interval		t value
Individual Profiling (Education)	1.3226	2.678	2.324	3.032	15.155
Involvement in a Multi-cultural team	1.286	2.732	2.387	3.076	15.89
Financial requirements	1.426	3.464	3.0822	3.8463	18.173
Technical experience	1.617	3.23	2.798	3.665	14.94

Managerial Skills	1.304	2.83	2.490	3.188	16.291

The selection criteria for those in the mid-career differ from those recruited as seniors or heads of departments. As per the interviewees, mid-career employees are usually recruited based on economic needs followed by their technical qualification. This is explained because at the mid-career, many calibers can have the same technical qualification, so the financial requirement is the benchmark for the recruitment. This differs with the study conducted on the UK and Kenya construction industry which concluded that the main factor considered while recruiting any member (whether mid-career and senior) is firstly the compatibility of the candidate with the team's culture and second the candidate's compatibility with the tasks. The leaders in the UAE industry on the other hand think that the individual profiling is the core competence behind team selection followed by the cultural experience of the individual (Hariz and Dulaimi, 2011).

(ii) Managerial Approach

The financial status is a main motivator and catalyst for the employee's performances. According to interviewee DA1, CFC2 and CC4, most employee seek globalized project for the financial benefit so subsequently financial reward and bonus should be the main drivers while managing multi-cultural teams. Other factors that could be considered are the appreciation reward system like employee of month which also needs to be associated with a financial income.

Table III-13: Management criteria for the multicultural teams

Variable	STD	Mean	95% confidence interval		t value
Management: Develop team's loyalty	1.195	1.910	1.5906	2.230	11.964
Know individual's drivers	1.143	2.535	2.229	2.84	16.593
Motivation and Appreciation: Team reward system	1.066	3.910	3.625	4.196	27.441
Facilitating team development	1.376	3.32	2.952	3.690	18.057
Strong organizational Culture	1.404	3.25	2.873	3.626	17.216

On the contract, 69% of the foreign interviewee approves that knowing the engineers' drivers is the main compound that aid in enhancing the team member's performances. According to

Interviewee CFD1, not all engineers are driven by financial reward; some seek experience because of a long term plan of starting a personal business or travelling abroad. For such engineers, cultural experience and managerial skills may be the driven for motivation.

Organizational culture directly elevates the performances of the multi-culture team and enhances the coordination among the team hence defining the success of the projects (Knights and Willmott, 1999; Sashkin and Kiser, 1991; Furnham and Gunter, 1993; Rashid et al, 2003). The Egyptian interviewees (52%) said that most engineers are usually not aware or interested in knowing the organizational culture of their respectively companies. This can be because the organizational culture is not strictly applied by the management of the ECI. The foreign managers on the other side specify the importance of organizational culture. According to Interviewee CB1, CB3, CFA3 and CFC4, a clear organizational culture determines the management of the teams and encourages the best calibers to be interested in joining the firm. This agrees with the research conducted by Mallak and Kurstedt (1996), who describes organizational culture as specific set of values that determine the position of the company in the market and determine the level of engineers interested in the company. The organizational culture of a company determines the qualification level of its engineers, the level of competition among the team members and also advances the benchmark of the project's output and the calibers' performances. This affect the recruiting pipeline of the company, because the company will have a large pool of candidates to choose from, rather than been left with small number of candidates (sometimes with low or medium level qualification) to recruit from (Interviewee CA4, CC3, CF4, DA5, 2015).

To understand the organizational culture, four main variables were determined, the leadership, management of the employees, strategic emphases and the dominant characteristics. Each of these variables is controlled by one or more factors, the people, the authority, the task or the role of the individual. The surveyors were asked to rank the variables and determine the factors that affect the variables.

The Egyptian and the foreign interviewees showed similar and differences in their understanding and prioritization of the organizational culture compounds. In case of leadership, 46% of the Egyptian managers think that leadership style is directly linked to the task allocation methodology in the project. 56% of their foreign counterpart believes that leadership is mainly

about the role required to be played. However, both the Egyptian and the foreign managers believe that the people culture predominant the management approaches. In regard to the strategic implementation, 30% of the Egyptians and 37% of the foreign think the strategic emphases is based on the people's culture. The factor that influences the dominant characteristics in the project is the task allocation as agreed by 48% Egyptian and 35% foreigners. Therefore, the Egyptian and the foreign managers shared the same organizational culture in terms of employees' management, strategic emphases and the dominant characteristics.

Table III-14: The determinate of the various variable of the organizational dimension

Organizational Dimension	Egyptian Construction Managers				Foreign Construction Managers			
	People culture	Power culture	Task Culture	Role Culture	People Culture	Power Culture	Task Culture	Role Culture
Leadership	0	12%	46%	32%	4%	20%	30%	56%
Management of Employees	58%	5%	20%	17%	67%	8%	22%	3%
Strategic Emphases	30%	23%	22%	25%	37%	21%	18%	24%
Dominant Characteristics	5%	17%	48%	29%	20%	15%	35%	30%

The fourth reason, scoring a mean of 1.90 and standard deviation of 1.195 was developing teams' loyalty which was possible through the reward system and bonus system. However, almost 60% of the interviewee mentioned that individual's drivers and team's loyalty occur only if the company has a clear organizational culture. This agrees with the outcome of the qualitative experiment, where it was agreed by the participants that loyalty to the company is the outcome of a strong team that is sub-sequential based on the organizational culture of the company.

III.4.4 SECTION 4: BENEFITS FOR GLOBALIZATION

(i) Impact Of Globalization on the Local Construction Companies

Concerning the impact of globalization on ECI, there was a consensus among the Egyptian interviewees that the presences of the foreign contractors and consultants contributed to the growth of the local contractors.

The first ranked benefit with a mean of 3.66 is the internationalization of the projects' standards. The contractors benefit from the MCF's experience on site in terms of technology, material

usages, managing the labor and means for storage and waste reduction. Most managers think that waste reduction is one of the main problems of the ECI and the foreign experts were able to educate the site engineers on the proper usage of material and ways for waste reduction. At the technical offices, the foreign experts brought about approaches for management, ways for resolving discrepancies and design ambiguous. Meeting international standard also includes contract development, tendering techniques and ways to develop and sustain a relationship with a client and the consultant. Documentation and lessons learning is recently adopted by various managers in the ECI as pointed out by various interviewee. This agrees with the study conducted on the Singapore, Kenyan and the Nigerian construction industry which shows the positive contribution of the MCF on the local firms in terms of technology on site and standardization of the quality (Ofori, 2002; Chan, 2002; Ochieng and Price, 2008).

Table III-15: The effect of globalization on the local contractors and consultants

Variable	STD	Mean	95% confidence interval		t value
Contributed to technology transfer (know-how of techniques, managerial issues, etc.)	1.521	2.392	1.985	2.8993	11.767
Motivated the local companies to meet International Standard and be aware of it.	1.049	3.6607	3.379	3.941	26.108
Opened a gate of opportunities for local companies in different countries	1.386	2.928	2.557	3.299	15.808
Developing and awareness about the organizational culture	1.316	2.607	2.254	2.959	14.817
Development of project management techniques	1.360	3.44	3.082	3.810	18.953

Other benefits noticed by the Egyptian managers are the technology transfer and organizational culture. Although 52% of the interviewees highlighted the limitation in the technology transfer, the other 48% believes that the MCF are not obligated to transfer the technology but that it's the responsible of the local contractor to gain from the presences of the MCF. Developing a culture for a company is common among the non-engineering firms, which aims at having a clear brand and organizational culture. However, as discussed earlier by Semon and Lane (2004); Adler and Gunderson (2008); Pant et al (1996) and Easterby-Smith et al (1995), development of a clear strong dominant organizational culture cease the chance of managerial misunderstanding. Yet, it was ranked low by the Egyptian managers with a mean of 2.607 and standard deviation of 1.316.

On the contrary, the foreign experts think that organizational culture is one of the main benefits of globalization on the local firms. Equally important is the management development ranked second with a mean of 3.44 and standard deviation of 1.360.

This difference in the significant of globalization on the local firms as viewed by the Egyptian and foreign managers reveals the cultural diversity. While the foreign engineers thought that they are adding managerial skills and organizational culture to the firms, the Egyptians were more concern with the technical development of the industry. Dealing with multicultural teams is beyond rules, regulation and procedures. A proper understanding of the cultures and project's objectives need to be done by all parties early on while seeking position in the globalized market. Ignoring the managerial approach and focusing solely on developing a strong technical team will not allow for success in the emerging globalized market (Alkandari, 2012; Akriner, 2009).

(ii) Effect of Globalization on the Employees and Labors

Since the employees and labors are the core competences of the construction industry, the globalization impact on the human resource should be studied thoroughly (Hanna, 2001). According to the Egyptian and the foreign interviewees, the globalization market brought about major raise in the salary scheme of the employees, scoring a mean of 3.89. This includes not only the salary but also the remuneration compensation and benefit package. The wages of engineers in Egypt is considered to be low but with the presences of the outsourcing and offshoring MCF, the wages amplified. This enhanced the social status of the engineers in the country as pointed out by the foreign as well as the Egyptian managers.

Table III-16: The merits of globalization on the local employees and labors

Variable	STD	Mean	95% confidence interval		t value
The salary scheme contribute to employee satisfaction	1.231	3.89	3.563	4.222	23.663
Enhanced the employee's managerial skills (Decision-Making, Leading a team, etc.)	1.327	2.732	2.376	3.087	15.397
Improved the employee's skills	1.082	3.75	3.459	4.040	25.914
Infusing on the cultural diversity of the industry	1.038	2.107	1.828	2.385	15.179
Communication approaches	1.451	2.553	2.164	2.942	13.167

The second positive impact of globalization on the local employees and labors is providing them with international experience, which helps the employees to subsequently widen their opportunities of working overseas. According to Interviewee CD1 and CFC2, having experience in multi-cultural project helps a candidate to find a suitable job overseas. Interviewee CB1, a foreign manager in Egypt for the past 5 years noticed the tendency of the Egyptian to work abroad especially with the current political and economic vulnerable. She mentioned that the engineers who worked in multicultural projects had a stronger profile as compare to their counterparts working among mono-cultural projects. According to her ,for cultural and religion proximity, sometimes the GCC countries seek Arab experts and in that case a candidate who worked on the mega scale multi-cultural project(s) will be definitely preferred because this candidate will be suitable among the diverse nature of the construction industry in the GCC.

III.4.5 SECTION 5: CHALLENGES OF THE GLOBALIZATION MOVEMENT

(i) Challenges Encountered during Design Conceptual Phase

During the conceptual phase of design, the Egyptian designers noticed a lot of challenges while working with MCF. The difference in the building code is ranked first with a mean of 3.982 and a standard deviation of 0.82.

Table III-17: Challenges faced by the contractors while involved in a globalized project

Variable	STD	Mean	95% confidence interval		t value
Recognizing Client's requirements	1.212	3.857	3.532	4.1818	23.806
Abiding by Building Codes	0.820	3.982	3.762	4.207	36.341
Errors due to lack of site and environmental knowledge	1.394	2.732	2.358	3.105	14.66
Misunderstanding due to linguistic differences	0.971	2.035	1.775	2.295	15.67
Differences in time zone	1.424	2.410	2.029	2.792	12.667

According to Interviewee DA1 and DC2, the differences in the building codes, like the Egyptian code, the IBC, the AIA causes a lot of confusion and inconsistent in the project's output. While the engineers working in Egypt mainly work with the Egyptian code, those working for the gulf MCF use the AIA code, unlike those operating from Europe who practices the IBC guidelines.

For instance, Egyptian code states that the maximum egress distance is 51 m, while the IBC followed by some contractors in Egypt establish the egress distance as 90 m. These variations in the standardized codes along with the cultural acceptances of certain design elements make working for MCF a challenge for many architects. Misunderstanding the client's requirement is a problem encountered with a mean of 3.85. This agrees with the research conducted by Zhen et al (2012), Oz (2001) and Abdul-Aziz (1993) who recognized the importance of the third party. The model developed by Blismas (2009) also categorizes the client's requirement into complexity and uncertainty parameter. According to DA1, dealing with Egyptian clients and fulfilling their requirements is one of the main obstacles facing many architects. Although this is a global challenge for the architecture firms, the clients in Egypt are very demanding and in most cases do not respect the engineer's decisions. As per DA1, this is mainly because majority of the Egyptian clients assume that they are as knowledgeable as the architects when it comes to design. On the other hand, the foreign architects are not use to client's interfering especially when it comes to engineering elements (Interviewee, CFC2, 2015). Hiring a local expert/architect for client meeting is highly recommended for any MCF to regulate the client's requirements and demands (Interviewee DC2, 2015).

(ii) Challenges/Constraints during Project's Initiating Phase

Table III-18: Challenges faced by the contractors while involved in a globalized project

Variable	STD	Mean	95% confidence interval		t value
Different management techniques	1.212	3.857	3.532	4.1818	23.806
Decision-making approaches	0.820	3.982	3.762	4.207	36.341
Leadership style not effective	1.394	2.732	2.358	3.105	14.66
Meeting Frequency and Language barrier	0.971	2.035	1.775	2.295	15.67
Currency Exchange rate & liquidity of cash	1.424	2.410	2.029	2.792	12.667

The foreign contractors operating in Egypt thinks that the major challenge faced while operating among the Egyptian local contractors is the decision making approach. While initiating the project, various decisions are to be taken regarding how the project will be done, the criteria for team selection, the launching approach of the project, the sub-contractor selection if any etc.

While the Egyptian leaders usually don't take responsibilities for a huge decision unless referring back to their respective heads, the foreign experts are more aware of their managerial role and act accordingly. The Egyptian managers on the other side classified leadership problems following by different technical methodology as the main challenges faced during the initiating phase of any project.

(iii) Challenges/Constraints on Construction Site

85% of the interviewees agreed that the major problems of globalization are encountered during the execution of the project on site. Table III-19 shows the scores for the main challenges faced by globalized companies while executing the project in Egypt. It is remarkable that both the Egyptian and the foreign interviewees agreed that the first and second challenges on site are unavailability of skilled labor in Egypt followed by the safety instruction and linguistic diversity.

Table III-19: Challenges on site due to globalized project

Variable	STD	Mean	95% confidence interval		t value
Error due to building codes and regulation	1.306	2.446	2.096	2.796	14.016
Unavailability of skilled labor and staff	0.896	4.178	3.938	4.418	34.876
Safety instruction and linguistic diversity	0.820	4.017	3.798	4.2374	36.667
Communication between multicultural teams	0.971	2.035	1.775	2.295	15.678
Currency Exchange rate and liquidity of cash	1.365	2.339	1.973	2.704	12.82

Unavailability of skilled labors is a major obstacle faced by the ECI as highlighted by the American Chamber study conducted in 2003. The study described the labors as abundant in number characterized by been hard workers, however reliable non-technical labor. So not only do the MCF carry the burden of training the labors the basic of the safety precaution on site, but a technical education is also demanded. CC2 explains that the Egyptian labors are curious to learn new skills but spend a lot of ideal time on site. According to CB2, site in Egypt is challenging as compare to project execution in the Gulf countries. This is mainly because the Asian labor in the GCC abides by the regulation and does not take risks while on site or dealing with equipment, unlike their Egyptian counterpart.

Safety procedures abided by the MCF are usually very strict and the labor's culture in Egypt does not value the safety precautions (Interviewee CB1, CA2, 2015). Safety is not merely about the dress code, helmet, safety shoe etc. it is also about the way of handling the site, equipment and maneuvering within the site. Educating the labor requires a lot of efforts by the site supervisors and instructing them is also very costly and time consuming. This is mainly because most of the labors in Egypt are hired on a daily basis, that is, there are no contracts, social insurances etc. (Interviewee CA1, 2015). With the low day basic wages of the labors, many would escape for another opportunity outside the construction industry. Unless there is a proper definition of the labor on the construction site, the safety precaution will remain to be an issue, because neither do the labor culture support safety nor the local Egyptian companies (Interviewee CB2, CC2, 2015).

III.4.6 SURVEY CONCLUSION

The survey conducted shows that the parameters to be considered by the MCF while operating in the ECI are not typical to any market studied during the literature review. The following table presents a brief conclusion of the findings above.

Table III-20: Comparison for the different sections between the literature review and the findings concluded from the survey conducted.

Questionnaire's section	Literature review	Quantitative survey
Motives for entering Globalization	Different than the motive developed for the Malaysian, American and Japanese contractors. Table II.2 and II.3	Geographically spread and developing a competitive edge.
Egypt as a host country	Global Construction Outlook and Bryant (2006) examined that many countries are selected because of cost reduction.	Cost reduction and absences of strong competitive local market, which encourage a lot of MCF to launch their business in the ECI.
Entry route	Four routes were discussed by Ngowi et al (2005) which were used differently by the Japanese, Chinese and Turkish market.	Similar to the entry route of the Turkish contractors oversea, the ECI was accessible to the MCF through the infrastructure and mega scale projects.
Team Composition	Ochieng and Price (2008), Ofori (2009) and Oz (2001) discuss various team composition criteria mainly focusing on the compatibility of the candidate within the culture (UK and Kenya), and individual profiling (UAE).	The ECI leaders agree that individual profiling is the main criteria for selecting the senior level individual unlike the mid-career calibers who are chosen on financial basics. The foreign experts select candidate based on their previous multi-cultural experience.

Managerial Approach	The definition of the organizational culture directly affect the performances of the multi-cultural teams	The financial appreciation system is the main drivers that influence the performances of the multi-cultural teams. Organizational culture is not strongly implemented by many firms inside the ECI.
Benefits of Globalization	Technological transfer and revenues generated (Oz, 2001; Abdul-Aziz, 2003 study on Turkish and Asian market). Development of team (Ochieng and Price, 2008 study on UK and Kenyan market)	Globally, boosted the ECI to meet the international standard on site and technical office. The development of project management techniques as well is another benefit. Regarding the employees, MCF enhanced their salary scheme and also contributed to improving employee's technical knowledge, giving them an edge over their competitive in the market.
Challenges while designing the project	Cultural diversity affects the conceptual design phase as per the study conducted by Zhan et al (2012) on Chinese industry. Blismas et al (2009) introduce a third party who challenges the growth of the MCF, mainly represented in the government and clients.	Client's requirement and building code are the main reasons that affect the conceptual design phase. These parameters are to be considered closely by the MCF.
Challenges while initiating the project	-	Decision making approach and the unbalance/unawareness of the technical and managerial duties of the seniors is one of the main obstacles for the MCF. The absences of a clear leadership style also cause a lot of chaotic
Challenges while executing the project	A study by the American Chamber on the ECI shows the unavailability of skilled labor as a constraint for the development of the ECI.	The survey confirms that the lack of skilled labors and the ease in following the site safety procedures along with linguistic diversity are the main challenges faced by the MCF while operating in the ECI.

III.5 RESEARCH DISCUSSION AND ANALYSIS

The model developed by Michael Porter (The diamond model) is one of the techniques used to identify the factors that the company should take into consideration while operating. The model reflects on the importance of the external competition and strategic decision making. The porter's diamond model was used by Bakan and Dogan (2012), Oz (2001), Zhen et al (2012), for the study of the construction industry in Kahramanmaraş, Turkey and China respectively. Ofori (2009) also used the diamond framework on the Singapore industry and found that it is suitable for the strategic planning for the globalization construction industry.

III.5.1 INTERNAL CONSISTENCY TEST

In order to ensure the consistency of the data collected from the quantitative survey, an internal consistency test was performed. The importance of the internal validity lays in understanding the instrument agreement of the questions with one another. An indicator with low internal consistency was deleted, since its significant is low. One of the means to calculate the internal consistency of the data is the usage of the Cronbach's alpha coefficient. The Cronbach's alpha value range between 0 and 1 where 0 is the lowest value reflecting thus low internal consistency. In order to determine where the indicator is significant, the alpha's value should be at least 0.70 or higher while others argue that 0.80 is the cut off range for the variable. Cronbach's alpha can be calculated through the following formula (Yang et al, 2008):

$$\alpha = \frac{k}{k-1}\left(1 - \frac{s_1^2}{s_T^2}\right) \qquad \text{Equation III-2}$$

where k: number of items, s_1^2: Variances of the i item, s_1^2 is the variance of the total score formed by summing all the items

In this research, the Cronbach's alpha coefficient will be calculated for every sections of the survey using the SPSS. The mean, standard deviation and the Cronbach's alpha coefficient is calculated and the results are shown below.

Table III-21: The analysis of the survey using mean, standard deviation and Cronbach's alpha coefficients

Survey Section	Mean	Std. Deviation	Cronbach's alpha coefficient
Motives for globalization	3.2741	0.7665	0.81
Entry Mode/Routes	2.989	0.8265	0.8572
Management techniques required	3.597	0.8654	0.9334
Globalization Challenges	3.313	0.78	0.8868

According to the above, the most valuable parameter to be considered while operating in Egypt is the **Management techniques** followed by the MCF while handling the multi-cultural teams. This implies that the construction culture of the host country should be studied and compared to the MCF's approach in order to test their degree of compatibility. After implementing a similar managerial approach, the second key parameter, **Globalization Challenges** should be studied.

This includes benefits on the employees, company's revenues, reputation, geographical spread etc. This is followed by knowing the initiating step or the entry route to be implemented. Although the motives received a low Cronbach's alpha score of 0.81, it still remain one of the main reasons behind seeking globalization. It is the motive that directs a company to a certain host country or company. However, based on the statistical analysis, the main parameter, that determines the success or the failure of the foreign n firm/project while operating in Egypt, is the management techniques adopted by the firm with a Cronbach's score of 0.9334 and a mean of 3.597.

III.5.2 DEVELOPMENT OF PARAMETERS

The four main parameters, namely the motives for globalization, entry routes, management techniques, and challenges include various items as identified in the literature review and questioned through the survey. For instance, the challenges associated with globalization can be related to site, which can further be sub-divided into communication issues, safety precautions etc. Similar while noticing the high Cronbach's alpha coefficient of the management technique, this indicates that the variables of this parameter should be studied thoroughly in order to nail the management technique abroad.

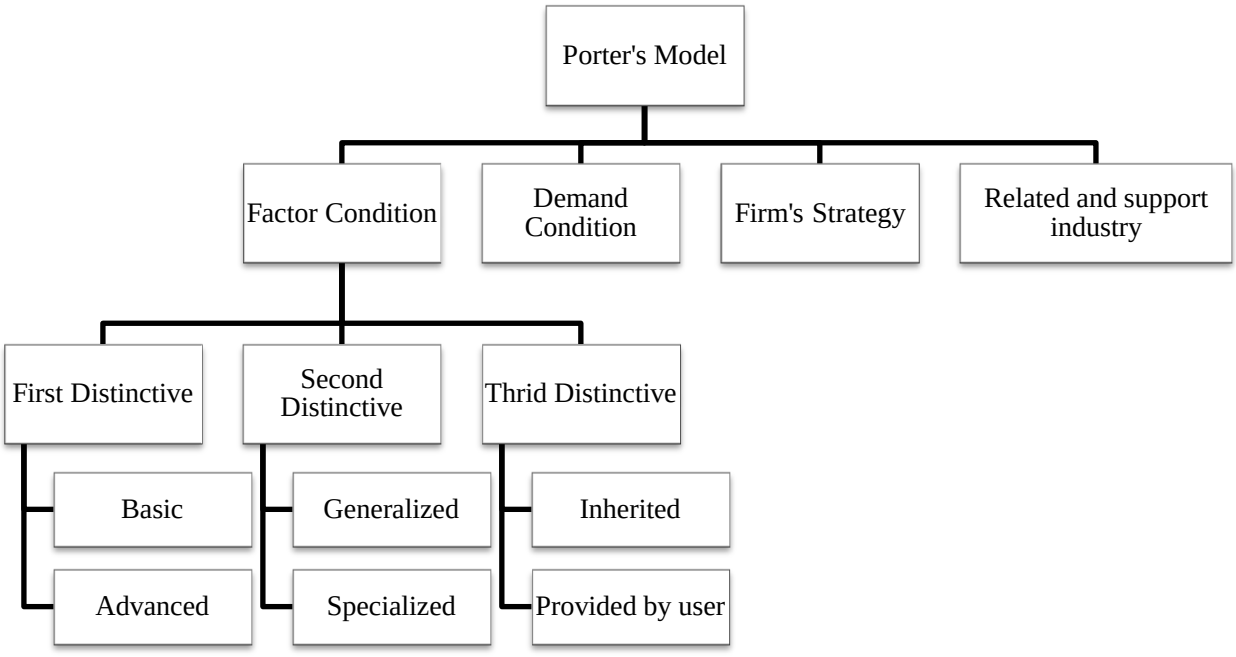

Figure III-5: The diamond model as defined by Porter (1991)

Although Porter's model was utilized by various scholars in the construction industry, it still is criticized for not dealing with multi-national activities properly (Ericsson et al, 2009). Thereby several modifications were implemented on the model to ensure its compatibility with the Egyptian market. The major changes implemented are:

(i) The factor conditions in the construction industry are specific to various elements namely human resource (engineers and labors); material and technology. This is essential true for the ECI because with the outdating technology on site and plant makes the industry relay on the cost labor and the availability of the engineers. Material constitutes the second important criteria for the construction industry especially with the privatization of the supporting industries like steel and cement (AmCham, 2003).

(ii) External and internal categorize for the firm's strategy will be included. Internal parameters deal with the firm's management approaches while the external parameters are those parameters enforced on the company, thus representing global context. A similar approach was adopted by Rugman and D'Cruz for construction firms in Canada, Mexico and New Zealand (Ericsson et al, 2009).

(iii) The demand condition will also be future categorized into demand factors within the industry and environmental demands. This was adopted by Zhen et al (2012) while studying the presences of the foreign firms in China. This modification was also supported by researchers like Dikmen et al (2010) who explained demand conditions as specific and general attributes within the industry (like client's requirements) and uncontrollable events forced by a third party like government or chances.

This research use the modified Porter's Diamond model in order to study the key success parameters required by the MCF to succeed in the local Egyptian construction market. The modified Porter's diamond model is illustrated in the figure below.

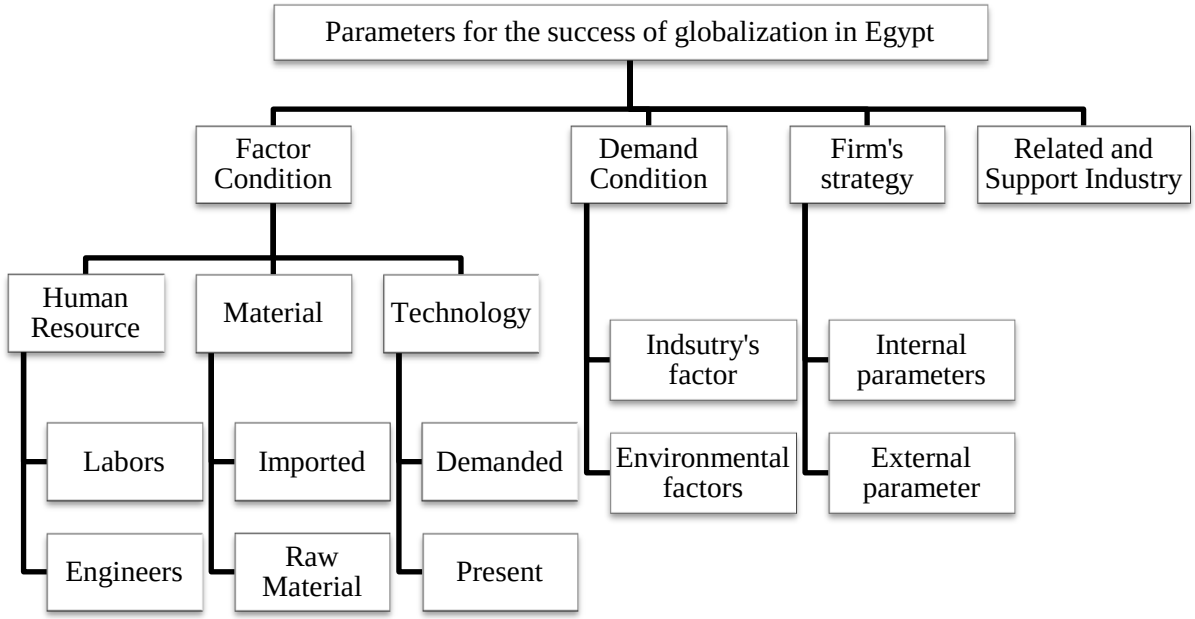

Figure III-6: Porter's model after modification to suit this research

The input of the model are classified into the key parameters (motives, entry mode, managerial technique, challenges associated with globalization) and are sub categorized into sub-indicators as shown in figure III-7. Each sub-indicator will be classified future into more detailed variables as elaborated in table III-22 – III-27. These detailed variables will be subcategorized into the PESTLE trends, in order to understand the influences of each trend.

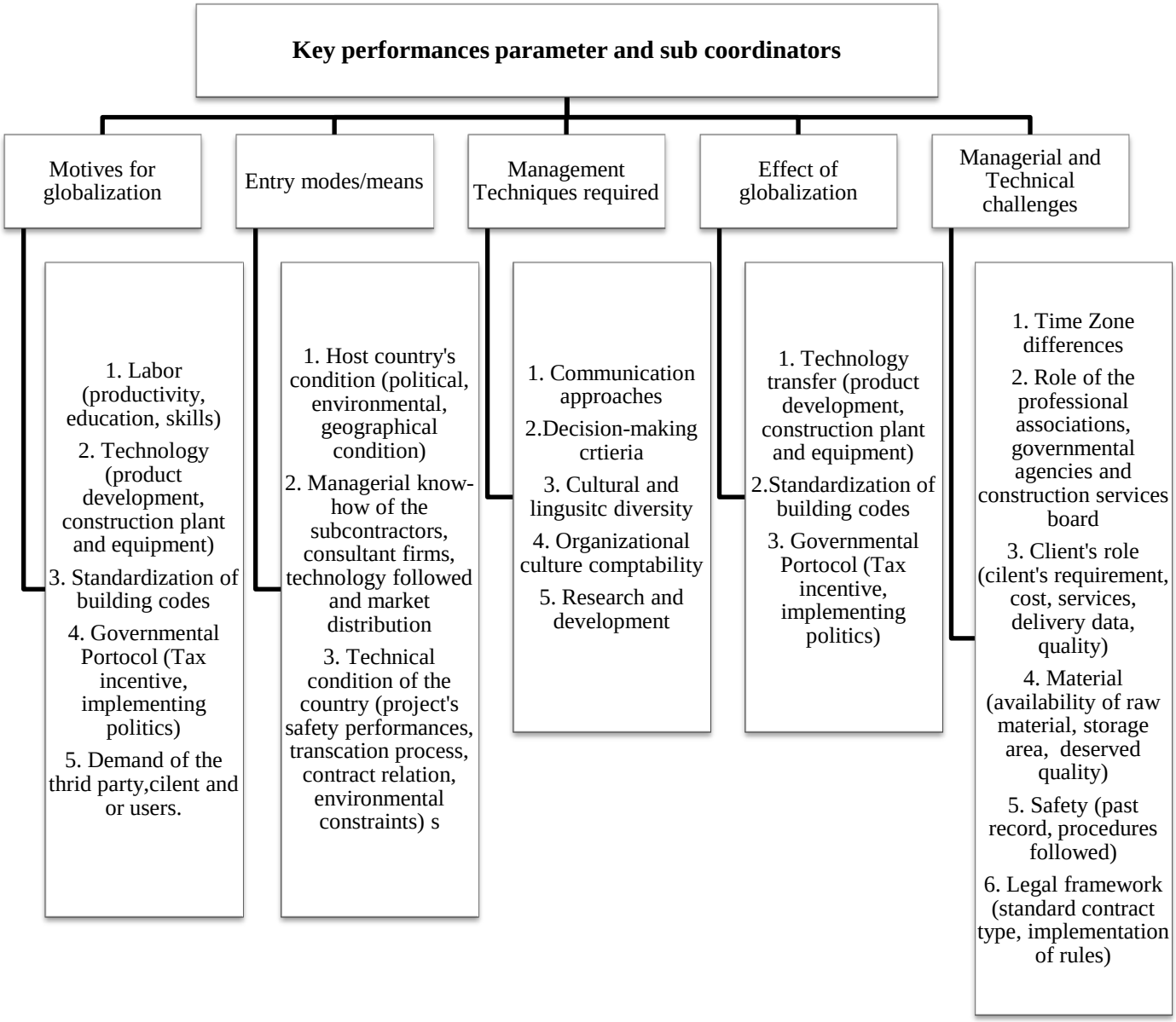

Figure III-7: The key performances indicator and the sub-indicator for the success of the foreign companies in the globalized Egyptian construction industry

III.5.3 RELATIVE IMPORTANCE VARIABLE

Before analyzing the parameters, another factor like the internal consistency that is to be considered for the sub-indicators is the Relative Importance Variable. The relative importance value (RIV) is used to determine the level of importance among the competitiveness. Olomolaiye et al (1987) used the RIV for investigating the productivity of joiners, steel—fixers and bricklayers. The same approach was also used by Bubshait and Al-Musaid (1992) who determined the relationship between the construction clients and the various construction procedures. Other scholars like Komete et al. (1994) and Shash (1993) also used the RIV for examining the client's related attributes affecting the construction consultant's performances, and the factors that influence the tendering decision. The higher value of the RIV indicates that the attribute have a high effect on the globalization movement. The RIV can be calculated using the following formula:

$$\mathbf{RIV} = \mathbf{100} * \frac{\sum \mathbf{aX}}{\mathbf{5N}} \qquad \text{Equation III-3}$$

Where $\mathcal{N}$ is the total number of responses, $\mathcal{X}$ is the frequency of the responses for a specific grade, and a is the weighting value (ranging from 1 to 5, where 1 is negligible and 5 is extremely important) corresponding to a specific grade. The RIV and the mean will be calculated using the SPSS for all the sub-indicators to know the importance of these sub-indicators in the model.

III.5.4 MODIFIED PORTER'S DIAMOND MODEL

III.5.4.1 FACTOR CONDITION

Factor conditions are those conditions that are specific for the industry. They include the information about the resource, capital, infrastructure, etc. During the execution phase, a huge percentage of the project's initial cost depends on the labor's costs. Hence while highlighting the importance of the construction competitiveness, the human resource, technological resource, and infrastructure are used as the main compounds for factor condition (Ofori, 2009). The mean, standard deviation and the RIV is calculated based on the data gathered during the survey in order to know the prioritization of the variable. The highly scored sub-indicator from every trend will be discussed in details and the other sub-indicators from the same trend will be linked together to provide an inclusive portrait of the trend.

Table III-22: Factor conditions as defined by Porter's model

Trend	Variable	Mean	RIV
Social	Labor productivity	3.56	77.05
	Labor education	3.31	71.64
	Linguistic diversity	2.21	47.83
	Communication approaches	3.07	66.44
	Time Zone differences	2.74	59.30
	Cultural diversity	3.86	83.54
	Minutes of meeting	2.01	43.50
	Decision making criteria	3.03	65.58
Technology	Technology of product development	3.71	80.30
	Technology for construction plants and equipment	3.34	72.29
	Institute promoting transfer of technology	3.02	65.36
	Standardization of building codes	3.53	76.40
Legal	Implementing politics	3.21	69.47
	Tax incentive	3.98	86.14
	Roles of professional associations	2.31	50.00
	Role of government and their agencies	2.42	52.38
	Role of construction services board	2.56	55.41
Environment	Geographical condition	2.93	63.41
	Availability of raw material	3.01	65.15

Social trend - Human Resource: According to CFC3 and CFD4, the performances of the Egyptian engineer graduates are lower than their Asian counterparts, as a result of which their demand in the Gulf countries decreased over the years. This is supported by the analysis conducted by the American Chamber in 2003, showing that many Egyptian engineers are forced to serve the domestic market because of the decrease in their demand in the Gulf countries. The major weakness encountered by the Egyptian engineers as agreed by 78% of the foreign interviewees is the absences of managerial skills and knowledge about the market. Another problem encountered is that their understanding of management is very systemic and not updated; this hinders them from participating or researching new innovative management techniques. Although this be considered an advantage for the foreign candidates because they can dominant the local market. The legal constraints on the foreign candidates, force the local companies to relay on the local graduates. The economic and political turmoil of the country also

increased the cost of the foreign experts. According to CA2, this is not a problem, because the levels of experts who come to Egypt are not usually the best in their own countries. CFC3 on the other hand thinks that the absences of foreign experts from Egypt will deteriorate the managerial skills of the companies even more. CA2 thinks that the major problem is in the educational system that encourages the technical knowledge and ignores the importance of management. It is because of this, that most of the companies in Egypt fail to understand the importance of organizational culture, because there is no proper knowledge about leadership or making decisions. CC2 thinks that many Egyptian Engineers are currently seeking certification like PMP and PRMG, which help them know about the important of management and organizational culture. This consequently will contribute to the development of the local firms. 58% of the foreign interviewee thinks that the performances of the Egyptian Engineer is relatively low due to their multi-functional on non-work related activities like eating, socializing etc. CC3 explains that although his respective company supports an open-system policy where engineers are encouraged to socialize, the Egyptian engineers could waste half the day debating religious and political updates. CC4 express her dissatisfaction from the Egyptian engineers' responsibilities, noting that only handful of them shows a level of responsibility and dedication. CFC1 also thinks that the Egyptian engineers are hard workers, but the absences of a clear career development and the low wages of the engineers pushed many to shift career.

Social trend - Cultural diversity

DESIGN: Among the social trends, the highly ranked variable was the cultural diversity. The cultural diversity is a set of values that influences the employees' behaviors, attitude and performances. Culture diversity starts affecting the design process early on. According to the architects surveyed, the culture influences the designers while developing the concept and the schematic designs. This agrees with Zhen et al (2012) whose findings reflected that one of the problems encountered by the foreign architects in China is the tendency of the Chinese architects to use certain design compound and styles while designing, which are inspired from the culture. The main advantage of this design tendency is that the foreign designers may be able to understand some of the cultural compounds of the society through these designs. However, this will reduce the opportunity of innovative designs. This pushed many clients to seek innovative design from overseas companies, reducing the entrances opportunities for the local designers.

Culture diversity variables can either be advantageous or disadvantages for the MCF present in Egypt. Although the cultural influence on the design approach may encourage the client to seek MCF for new innovative designs, sometimes it conversely encourages the recruiting of local firms. This is mainly because the local designers are able to understand the client's demand and know how to communicate with them as per 23% of the interviewee. The designs in Egypt are also associated with the social class of the district and the residents. Unless the MCF study the architecture style, they may not be able to succeed (Interviewee DA2, 2015). Most of the Egyptian clients and shareholders prefers the new interpretation of the classic architecture (like the ones developed in the 5th Avenue), which would not be designed by MCF (Interviewee DA1, DB2 and DC2, 2015). Although some of the design elements may not be suitable for the aesthetic or functional reasons, these elements are still demanded by the client. This demand arises from the cultural accepting of elements like balconies, the arrangement of rooms, the distribution of spaces, the usage of external columns and entablature, arcades, vaults etc. Due to these cultural influences, the foreign designers may be required to hire local consultants or a local designer for assisting and understanding the client's demand. According to DA2 and DC3, the regularity of changes required by the Egyptian clients is higher than the expected rate known elsewhere. Partnership with a local design firm assists the MCF in avoiding the client's interactions and requests. Linguistic barrier also forced many MCF for partnership especially if there is site work required. Another design aspect that barrier the entry of the MCF into the Egyptian local market is that the design performed by the MCF may be challenging the industry's machinery and equipment sectors. The usage of wavy sharp edged design language for instance requires a high level of operational cost, maintenance. Additionally, many shareholders and owner reform from doing the regular maintenance and operation and with the dusty environment of Cairo, most of the glass façade building or the while painted elevations becomes murky within short time interval. These environmental and cultural elements are not always considered by the foreign designers.

PLANNING PHASE: Culture also influences managerial issues like decision-making, communication methodology, leadership etc. This can be clearly concluded from the qualitative experiment conducted, where various cultures preferred different means influenced by their culture. This also agrees with the study performed by various scholars showing the leadership style in UAE (Alshami et al, 2015), leadership in Kenya and UK (Ochieng and Price, 2008);

leadership in Singapore (Ofori, 2009). Although all of these studies were conducted on the same topic "leadership" for one industry "construction", there were still differences encountered. Comparing the results of these researches with the culture index developed by Hofstede (1994) for every country, it will become clear why certain societies prefer one leadership style over the other. Most of the participants in the survey explained that the participative leadership style is highly demanded by the Egyptian engineers in the construction industry.

EXECUTION PHASE: The cultural diversity also affects the labor productivity and the labor education. The labor productivity and the education depend on the host country's culture. While the European culture encouraged the education of the labors and development of specialized labors like painters, foreman, etc., the same is not applicable to Egypt. Although the labors in Egypt are cheap and found numerously, the foreign interviewees think that their performances level is low. According to CB3 and CFC2, the labors in Egypt are used to multi-tasking rather than been specialized at one field like painting, pouring of concrete, using of equipment etc. However, this could be because the wages of the labors in Egypt is low, discouraging many to seek a single specialties. Also, the local contractors prefer to hire a labor who is skillful about various tasks rather than been specialized (CD1,CF2, 2015). CB3 also adds that the management of the Egyptian labor on site is one of the main problems encountered by the MCF. He agrees that most MCF relay on the Egyptian engineers to supervisor the work on site because their foreign counterparts fail to deal with the labor not only for linguistic barriers but for managerial barriers as well. According to CB3, the site in Egypt are unsafe, with unorganized labors maneuvering within the site and no strict management system is adopted unlike the sites in foreign countries or those in Gulf countries like UAE. A study on the labor should be conducted while operating in any country, and for that, a glimpse on the host country's culture should be performed.

Technology trend - Technology of product development: The second trend that helps understanding the factor conditions of the globalized Egyptian market is the technology. The highest rank variable is the technology of product development. The ability of the MCF to handle complex projects can be explained by their ability to provide a highly developed products and services (Interviewee CA2, CC3 and CFC3, 2015). Utilization of new technology and new material is one of the benefits of MCF as noticed by 83% of the Egyptian interviewees. As

mentioned earlier, most foreign firms enter the Egyptian market through the infrastructure projects. Nevertheless, the absences of clear documentation of the country's infrastructure encourage many MCF to form strategic alliances with a local firm. This in fact could be a win-win situation because it is through these strategic alliances that the local companies get the chance to learn and enhance their performances through been aware of the standard qualifications (Interviewee CA2).

Environmental trend - Availability of raw material: One of the main entry barriers of the local companies (supporting industries) is that the building materials available in Egypt are not compatible with the new innovative materials used abroad (Interviewee CFC2, 2015). The low compatible material encourages the exporting of raw material from other countries which consequently block the way in front of the local supporting industry to join mega scale project in the country.

III.5.4.2 DEMAND CONDITION

The demand conditions are unchangeable but are significant for the entry of the multi-cultural firm into the ECI. The demand condition is categorized into internal factors and external factors.

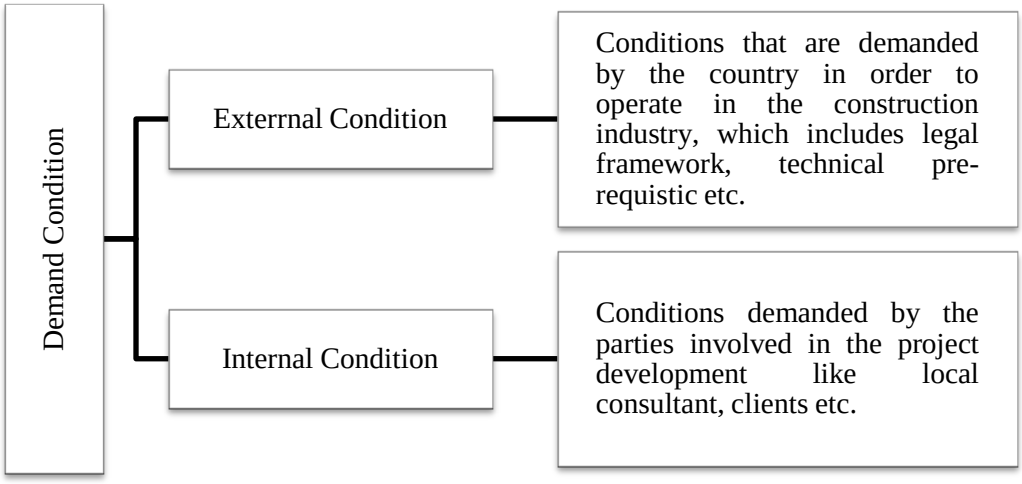

Figure III-8: Explanation of the demand internal and external conditions

EXTERNAL FACTOR

The external demand conditions are those factors that arise because of the country's current situation. These factors are unchangeable at a superior time interval as compare to the internal

factors. The various external demand conditions and their significant are shown in the table below:

Table III-23: Demand conditions of the variables (External factors)

Trend	Variable	Mean	RIV
Economic	Liquidity of cash flow	2.19	47.40
Social	Preferences of the foreign experts and firms	3.64	78.78
	Foreign direct investment present	3.9	84.41
Technology	Exposure to technology	3.48	75.32
	Construction market and its growth prospects	3.92	84.84
Legal	Bureaucracy and control	2.84	61.47

Economic trend: Liquidity of cash flow: For many local firms, the liquidity of cash is a problem that ceases them from tendering an offer for long-complicated construction projects. The MCF can footstep into the ECI with their economic advantage. According to CFC2, many MCF concerned about the unremitting depreciation of the Egyptian pound to the US dollar, lost interest in the Egyptian market and started focusing more on the GCC region.

Social trend: Preference of the foreign expert: According to 62% of the engineers interviewed, the political and economic disadvantage obstacle the presences of MCF in Egypt, however the social trend encourage their presences. These MCFs aware of their strength and social presences over the Egyptian companies step into the ECI calmly through taking a minor/trivial job even at a reduced expense or a loss for strategic reasons. Many of these MCFs can be involved in outsourcing partial percentage of the job like draughting, rendering, etc. or taking a managerial task from a local contractor (Interviewee CFC2, CC3, 2015). While managing or outsourcing a service or a product, these firms build their reputation within the ECI without having to invest in Egypt directly, hence avoiding the political and the economic vulnerable. By the time the economic crisis pass, these MCF will be able to penetrate into the Egyptian market directly, fully aware of the challenges, opportunities, culture constraints, client's demands, legal framework etc. (Interviewee CA2, DA2, CFA2, 2015).

Technology trend: Construction market and its growth prospects: Although the country is undergoing economic turmoil, the ECI is expected to grow gradually especially with the

initiation of the New Capital and various residential projects (Interviewee DA1, CA3, CF2, 2015). The necessity of residential projects exclusively the unceasing demand of the gated communities in Cairo and the expansion of suburban projects to distinctions like the North Coast, encourages the presences of foreign real estate companies. The ability of MCF to import technological advancement in terms of design, sophistication and elegances opens a window of opportunities in front of the foreign firms.

Legal trend: Bureaucracy and control

Therefore, the external demands of the ECI encourage the presences of the MCF in terms of economic advantage, the social tendency to prefer a MCF and MCF's advancement in terms of technology.

INTERNAL FACTORS The internal factors are very specific to the demand of the parties indulged in the market and include variables like size, structure of the local construction market and the sophistication of the client's demand and tendering procedures. The following table shows the internal demand factor and their statistical analysis as per the surveyor's responses.

Table III-24: Demand conditions of the variables (Internal factors)

Trend	Variable	Mean	RIV
Economic	Client's requirement on cost	2.31	50.00
Social	Client's requirement on services	3.76	81.38
Technology	Client's requirement on quality	3.45	74.67
	Client's requirement on delivery	3.01	65.15
	Project safety performances record	2.54	54.97
Legal	Transaction processes	2.73	59.09
	Contract relation and its implementation	2.59	56.06
Environment	Error due to site and environment	2.01	43.50
	Client's demand on LEED certification	2.42	52.38

Economic trend: Client's requirement on cost: The cost of hiring MCF is higher than the local companies in most cases unless the MCF is interested to step into the ECI at their own expenses (as mentioned earlier in the external conditions). This could be a disadvantage for the MCF with no competitive edge.

Social trend: Client's requirement on services: According to the interviewees, two types of clients were mentioned, the first entered the industry solely to generate revenues, and the second seek development targeting a strong reputation in the industry. The first type of clients is usually time oriented patrons who seek fast-track projects and pay less attention to the quality or the design aspects. This client prefers to assign the job to a single firm that can perform everything, from the design to interior and urban work. This is mainly because the Egyptian client assume that giving the whole package to a single identity will be cheaper than hiring different parties and also because it may reduce the conflict that might arise if more than one contractor is hired. (Interviewee CA2, CC3, CFC1, 2015). The second type of client's usually prefers to give the job to specialized firm rather than dealing with single parties. These clients care for the overall appearances of the project, looking for a long term benefits. In this case, the MCF has a higher chance of taking the job because they provide a specific package like urban design or interior design or landscape.

Technology trend: Client's requirement on quality: With the advancement of the technology and the complexity of the designs, the client's requirement on quality amplified. No longer is the Egyptian client looking solely for a specific grade in the finishing quality or imported material. The awareness about the quality, maintenance and operation costs encouraged the client to start thinking about the after-construction challenges and solutions. For instance, the client and or the shareholders are interested to have a model that regularity and assist in the maintenance and operation procedures, integrating all the fundamentals of the project. This encouraged the presences of a BIM model, which is a technology imported from the Asian and the European countries. BIM is one of the tools used to integrate not only the different disciplines but also is a way of documentation of contract, cost, operation methods, qualities etc. (Interviewee CA3, CFC3, CD1, 2015). Consequently, clients preferred MCF to carry out the job, at least from a managerial perspective.

Environmental trend: Client's demand on LEED certification: The demand of having a project LEED certified interested and many consultants firms are been established in this regard. With the client's and shareholder incessant demand of having an environmental building, the opportunities in front of the MCF escalates.

Therefore, the internal demand factors encourage the presences of the MCF in Egypt due to their compatibility with the client's demand in terms of quality, services and modern tendency like LEED. However, in term of cost, the MCF may be at a disadvantage because of their high fee and also the devaluation of the Egyptian pound.

III.5.4.3 RELATED AND SUPPORTING INDUSTRIES CONDITION

The related and supporting industry condition provides the MCF with an overview of the ECI in terms of its abilities, strength, weakness and opportunities. The related and supported industry is unchangeable on the short interval and is categorized into internal and external factors.

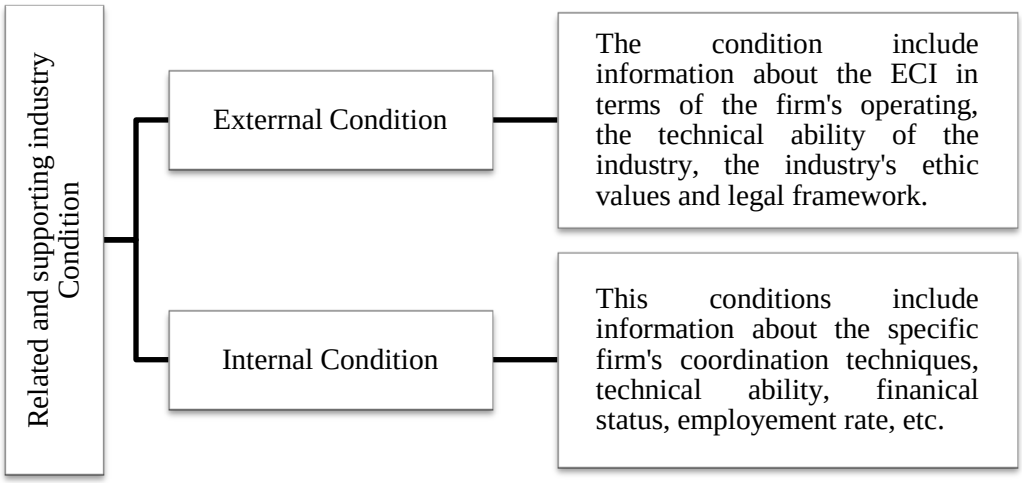

Figure III-9: The related and support industry factors classification

EXTERNAL FACTOR

The external factors provide an overview of the construction industry, stimulating the whole industry with very specific analysis of the supporting industries like cement, brick, equipment etc. This differ from the factor condition in that, it provide specific information about the supporting industries status in the market. The external factor of the ECI is as following:

Table III-25: External factors of the related and supporting construction industries

Trend	Variable	Mean	RIV
Economic	Depression rate of the plant/equipment	2.83	61.25
	Organizational debt status	3.01	65.03
	Organizational profit status	2.43	52.54
	Organizational assets status	2.56	55.30

	Effectiveness of communication with financial institutions	2.32	50.09
	Capacity of loan repayment	2.53	54.59
Social	Level of investment on research and development	3.32	71.60
	Payment to subcontractor on time	2.12	45.70
Technology	Number of accidents over the past 5 years	3.02	65.07
	Ratio of successful committed contracts	2.49	53.62
	Knowledge about previous construction delays	2.82	60.70
	Advancement of technology with sub-contractor or suppliers	2.41	51.84
	Completeness of the supporting industries	3.83	82.35
	Competitiveness of supporting industries	3.23	69.41
	Utilization efficiency of equipment and plant	2.14	45.97
	Number of technical staff	2.92	62.69
	Extend of applying information technology	3.17	68.02
	Establishment of research unit and strengthen it	2.83	60.69
	Development level of the same product	2.13	45.66
	Performances during warranty period	2.41	52.03
Legal	Relationship with government agencies	2.15	46.39
	Relationship with subcontractors and suppliers	2.98	64.27
	Relation with professional association	2.58	55.62
	Knowledge about the local construction law	3.23	69.59
Environment	Effectiveness of site management	3.85	83.43
	Effectiveness of environmental protection measures	3.55	75.82

Economic trend: Debt status**:** The financial resource is considered as one of the main challenges that barrier the development and growth of the construction industry (AmCham, 2003). This is mainly due to the unclear bank regulations, high interest rate for loans, and devaluation of the Egyptian pound against the US dollar. The MCF approaching the ECI with direct investment are desired especially that the local banks lack confidences in the small size local construction firm, which thus reduce the competition favoring the MCF over their Egyptian counterparts. According to Interviewee CFC2 and CA1, it is the financial obstacles that halts many local entrepreneurs from entering the construction market and ease the competition in front of the MCF.

Social trend: Research and Development**:** Research and Development is not merely about generating new innovative technologically advancement. It also includes understanding the needs of the society. This is different than the demand condition of the client's under the demand

condition. The demand conditions are available condition unlike this which arises from the research and development of the market and the society. For instance, firms like Al-Futtaim brought the idea of a fully functioned mall from the UAE and started developing malls with an external and internal cluster of activities. Although this was not necessarily a need, it is currently turning into a need rather than a luxurious requirement. The research and development is always an edge for the MCF especially since most of the local companies lack a department or a team for researching the market. Bringing a new ideology or building type into Egypt is one of the main routes that many MCF are currently exhausting especially that the level of construction building in Egypt is not as enhanced as compare to neighboring countries (Interviewee CFC2, DA2, DC3, CC3, 2015).

Technology trend: Completeness of the supporting industry: Various parameters of the ECI should be examined by the MCF before initiating the operation inside Egypt. One of the main parameters is the completeness rate of the supporting industry, which include information about the material sub-contractor, machinery etc.

The local manufactures dominate 73% of the total market materials and the remaining 27% are the amount of material imported (AmChamber, 2003).The MCF may seek strategic alliances with a main Egyptian contractor to import the wanted material at a reduce cost or with less documentation requirements etc. This can be a route for the MCF to foothold their presences in the ECI. Similar, knowledge about the supporting industry like cement, brick and steel can provide routes for the entry of the MCF. Due to the liberalization under law 203 for the year 1991, the cement market became more dynamic and price competitive. The cost of the cement industry is considered as one of the lowest worldwide because of the factors conditions discussed earlier like supply of cheap labor and the abundance of local limestone. The steel industry on the other hand is one of the fast growing industries with a growth rate of 19% even though the average growth rate of steel industry worldwide does not exceed 3% (CIBC, 2001). The MCF need to take into consideration the increasing prices of steel, been one of the industries that suffered from high inflation rate over the past 10 years.

The supporting contractors in ECI relay on the labor incentive techniques rather than the technology, due to the labors' low cost thus focus on simple straight forward projects. This boosts the operation prospects vacant for the MCF. However this also implies that the foreign

designers and consultants should consider the technological ability of the ECI while designing a sophisticated complicated project (Interviewee DA2, CFC3, CC3, 2015).

Technically, both price and quality are determinant for choosing the bidder, however in many cases, the contractor with the lowest price could be considered, hence compromising the quality. CFC3, CB3, and CFD4 states that the MCF with advancement in technology set higher prices than the local contractors, however since price is favored over quality, this reduce their opportunity to operate in ECI. According to CA2, in order to benefit from the MCF's managerial and technical experience, the ECI need to cooperate and international procedure for bidder selection should be implemented and regularized by the industry.

Legal trend: Knowledge about the local construction laws: One of the main obstacles facing the local companies while seeking the oversea market is the high custom duties on transporting machinery and equipment (AmChamber, 2003). However with the establishment of legal agreement like the General Agreement for Trade in Services (GATS), in 1995, the local companies can now exposure the platform of international market and pursue transfer of technology, skills and quality. Concurrently, the local companies lack the international exposure, so in view of their inefficiency and under-performances, many local companies will suffer loss while competing against the MCF overseas. Thus the encouragement of the MCF to participate in Egypt is a core step for developing the construction industry and a mean to enhance the development of the local companies.

The custom and taxation in Egypt is one of the issues that cannot be ignored by MCF. According to CFE5, a number of MCF target the Egyptian market as a potential investment opportunity but were eventually forced to leave because of the high custom duties and the unclear taxation laws. CC3 explains that MCF could follow the entire legal framework for launching in Egypt but still be hindered due to various paper works. The high level of corruption and bureaucratic in ECI makes it difficult for the MCF to footstep unless affiliated through a local company or recommended by government" (Interviewee CC3, 2015).

Another issue encountered by the MCF is issuing working permit (especially foreign with Arab nationalities) which is categorized by a hectic and unorganized procedure. CFD4 explains his personal situation saying where he has been working in Egypt for the past two year and still

unable to issue a working permit despite the continuous effort by the company's legal department. Arabs especially those from political turmoil countries find difficulties issuing work permits. CFC3 and CC3 also agree that working permit is not easy to obtain, especially for the Arab experts as compare to West nationality candidates. CC3 argues that unless the company is very powerful, obtaining working permit is not easy.

Apart from the regular working permit permissions, other legal rules that regulate the presences of the MCF in Egypt should be considered. According to AmChamber, 80% of the local contractor's effort is wasted while trying to obtain the required licenses. The condition is worst for the MCF (Interviewee CC3, CFD4, 2015). CB3 also explains that currently a lot of the projects are handled by the government and according to the law, no penalties is imposed on the government even if there is a delay in the payment by the government. Another law that also hinders the growth of the construction industry is law No 137 for the year 1981, that forbid the employer to terminate the contract of unproductive employees. CB3 mention that this law negatively affects the entire team's spirit and performances. This is especially problematic if the employee's contract is on the project not on a yearly basis.

Environmental trends: Effectiveness of the environmental protection measures **:** The environmental factors in Egypt are not highly considered while designing or executing the project. Recently, some companies started focusing on the environmental aspects but overall the environmental protection measures remains minimal. DB1 explains that many MCF are currently providing consultant services based on their environmental knowledge. However, sometimes the measures provided by these companies are not applicable in Egypt due to various constraints from the government, technical obstacles or the users. Despite the presences of the EIA (Environmental Impact Assessment), CFC3 thinks that there are no effective measures considered by the ECI and adds that it is a field that is yet to be explored. The environmental protection measure need to be addressed urgently specially that the ECI contributed to 25% of the waste production in the country by 2012(Abou Zeid, 2012).

INTERNAL FACTORS

The internal factors provides specific information about the firm, the technical ability of the firm, the coordination approach, the legal consistent of the firm with the ECI, the ethical values,

mission of the firm etc. The following table presents the various internal factors for the related and supporting industry condition:

Table III-26: Related industry and supplier industry conditions

Trend	Variable	Mean	RIV
Economic	Ratio between direct and indirect costs	3.16	67.77
	Encouragement of international collaboration	2.12	45.51
	Organizational Culture	3.23	69.31
	Mono-cultural and Multi-cultural teams	3.06	65.63
Social	Culture diversity and linguistic diversity,	2.47	52.95
	Communication	2.5	53.97
	Leadership Styles	2.512	54.20
	Decision making approaches	2.86	61.68

Economic trend- Ratio between direct and indirect cost: The direct and indirect cost in Egypt is considered low as compare to the neighboring countries. With the devaluation of the Egyptian pound to the US dollar, the costs for operating in Egypt from the MCF's perspective is relatively low however the profit associated with the ECI is considered neutral (Interviewee CA1). Many MCF may operate in Egypt for outsourcing which is considered highly profitable due to the low engineer's salary, especially with the currency depreciation. The indirect cost associated with outsourcing is also cheap.

Social trend- Culture diversity and linguistic diversity: The lack of information about the culture index requires the MCF to frequently modify the project's schedule, which affects the project's duration and cost. A lot of cultural factors like traffic, sick leaves, employee's inability to perform, low productivity rate, not respecting the working hours, conflicts due to political dogma, etc. affect the productivity and team's spirit (Interviewee CFC3 and CFD4, 2015). CA1 thinks that the multi-cultural teams' performances can be escalated if the employees are provided with a clear career prospects and motivating salaries and bonus. A proper examination of the human resource should be analyzed by the MCF while operating in Egypt (refer to factor's condition).

III.5.4.4 FIRM'S STRATEGY, STRUCTURE AND RIVALRY

The firm's strategy, structure and rivalry discuss the firm's managerial approach which mainly includes knowledge about the organizational culture of the firm. This condition will explain the managerial approach of the ECI under external condition and the same for the MCF initiating its launch in Egypt under the internal conditions.

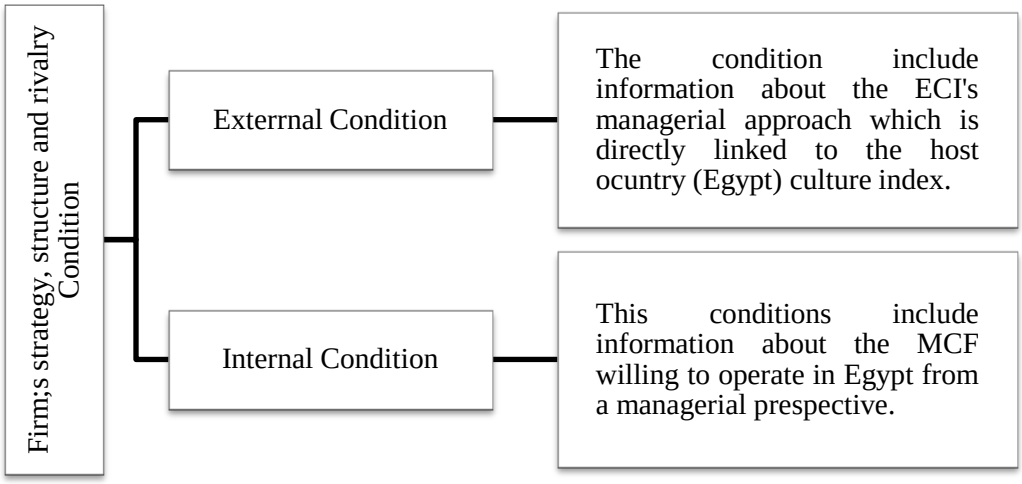

Figure III-10: The external and internal factors of the firm's strategy, structure and rivalry

EXTERNAL FACTORS

The external factors provide detailed information about the ECI'S organizational culture which is directly linked to the culture index of Egypt. The following table summarizes the PESTLE external factors for this condition.

Table III-27: Firm's strategy external sub-indicators

Trend	Variable	Mean	RIV
Social	Competition among construction companies	2.42	52.01
	Level of trustworthiness and fairness in the industry selection process	2.85	61.22
	Firm brand/image	3.53	75.78
	Professional qualification of project manager	3.75	80.46
	Professional qualification of project employees	3.12	66.91
	Certification	3.27	70.09
	Compatibility with the local culture	3.94	85.06

	Career prospects within the organization	3.87	83.51
	Appropriateness of organizational structure	3.98	85.84
	Mechanism of distrusting benefits and reward	3.21	69.20
	Mechanism for staff recruitment	3.75	80.79
	Existence of strategies for human resource development	3.26	70.64
	Social conscience and responsibility	3.11	66.42
Technology	Ratio of general to specialized contractors	2.89	62.33
	Safety procedures on site	3.91	84.73
	Certification (ISO, etc.)	2.93	63.19

Social trends: Appropriateness of the organizational culture: As described earlier, there is no clear organizational culture in most of the Egyptian construction firms. This agrees with the research conducted by the American Chamber in 2003 that recommends the development of the organizational culture which subsequently will help in developing the ECI.

The foreign employees working in Egypt usually are awarded salaries with huge benefit packages; this only raises a feeling of hatred among the Egyptian employees. This is topped by the fact that many of the foreign employees in Egypt are not necessarily evaluated based on their performances but rather their nationalities (Interviewee DA1, CFA1, CC2, 2015). This creates a tension between the multi-cultural teams, reducing their performances and efficiency. Various steps are to be implemented to reduce this gap by taking the cultural and the economic situation of the engineers into consideration. These culture variables are not an excuse for the low productivity nor shall it be considered as an alibi, but the companies shall initiate an alternation to these circumstances. In the survey, the interviewee, both Egyptian and foreigners agreed that high wages is one of the advantage of the globalized construction companies. Providing the employees with better wages, benefits, training and workshops, a clear career development will encourage the employees to perform better narrowing the gap between the foreign and the Egyptian engineers. These actions are labeled under organizational culture which improves the productivity and performances of the multi-cultural team. A MCF seeking success in Egypt should start identifying the organizational culture, which eventually regulate the performances and output of the engineers and thus enhance the company's standards and reputation.

Technology trend - Safety procedure on site: The safety procedure on site is a key challenge for any contractor whether local or foreign. In ECI, there are three problems associated with the execution of project on site, first is the labor's culture, second is the safety procedure and third is the implementation of the safety procedures.

On numerous occasions, the Egyptian labors are reported to maneuver around site without taking any safety precaution into account. This is because the labors in ECI are not trained to be skillful labors but are rather appointed based on the labor force required. The absences of strict working discipline on site affects the labor's safety on site. According to CB1, the organizational culture of most of the Egyptian contractors does not implement a strict working discipline on site. The MCF executing projects on site are not only faced by linguistic conflicts but also face a tough challenge training the labors on simple safety procedures. Many foreign interviewees also noticed that not only is it challenging to train the labors but sometimes even the Egyptian engineer are not aware of safety precautions on site.

According to CB3, a foreign female supervisor with 6 years in ECI and 15 years' experience overall explained that the undisciplined situation of the sites in Egypt requires the interferences of authorized agencies like Engineering Syndicate or the government. CA1 also agrees with CB3 mentioning that the Egyptian Engineering Syndicate should regulate the procedures on site and should be responsible to legalize its implementation.

The ill-definition of safety procedure by the local contractors affected the labor's culture, making the labors unaware of the safety precaution, not recognizing the risk associated with working on site. The MCF seeking employment in the ECI need to consider approaches to implement and regularity the safety procedure on site and facilitate labor's training in this regard.

INTERNAL FACTORS

The internal factor includes managerial approach to be adopted by the MCF including but not limited to salary scheme, market study etc. The MCF need to study its managerial compatibility with the local company's organizational culture, legal framework etc. in order to determine their ability to function and achieve their goals and objectives in Egypt.

Table III-28: Firm's strategy internal sub-indicators

Trend	Variable	Mean	RIV
Social	Organizational culture	3.85	82.53
	Linguistic diversity	2.15	46.42
	Decision making approach	3.64	78.55
	Leadership style	3.22	69.45
Technology	Certification	2.94	63.38
	Internationalized building code	3.53	76.06
	Safety procedures on site	3.91	84.73

Social trend - Organizational Culture: Organizational culture was ranked high among the main strategies that the MCF should consider while operating in Egypt. Organizational culture as mentioned earlier affects the performances and productivity of the multi-cultural teams, consequently the project duration, cost (indirect cost) and effectiveness. The MCF currently try to operate in Egypt face difficulties due to the absent a clear organizational culture and unawareness about the organizational culture. CFD4 explains that inaugurating an organizational culture for an established company is very challenging. Although the Egyptian engineers grasp the technical information rapidly, setting rules and regulating the workflow, it is a real challenge. Interviewee CFD4, CB2, CC3, CFC3 thinks that organizational culture is equally important as the legal constraints faced by the MCF while operating in Egypt. The mono-culture of the Egyptian domestic market is one of the challenges the MCF need to examine closely. This agrees with the literature review (Comu and Taylor, 2011) and the qualitative experiment conducted that proved the multi-cultural teams' performances superset that of the mono-cultural teams. Various issues to be considered include leadership style, communication, decision-making, etc.

III.5.5 SURVEY ANALYSIS CONCLUSION

The analysis of the Porter's model using the data gathered from the survey shows the differences in the prioritization of parameters by the leaders in the ECI as compare to their counterpart in Turkey, China, Asian market, UK and Kenya (refer to II.6). The Porter's model used for the analysis was modified to suit the ECI as per recommendation by Ericsson et al, 2009; Zhen et al, 2012 and Dikmen et al., 2010. The factor condition shows that human resource, material and technology are the main sub-indicator to be considered while operating in the ECI. The cheap cost of the labors, the lack of managerial strategies by the Egyptian engineers are the major challenge that inversely affect the performances of the multi-cultural teams in Egypt. Cultural diversity should be inaugurated into the MCF's organizational culture especially during the design, planning and project's execution phase. This agrees with the study done by Zhen et al. (2012) on the Chinese MCF. Leadership style and decision-making are two main strategies to be agreed on while initiating and planning the project. The styles preferred by the Egyptian engineers differ from those specified by Ochieng and Price, 2008, and Alshami et al., 2015 on the UK, Kenya and UAE market respectively. The styles however are compatible with the culture index of the Egyptian society as per the cultural study by Hofstede (1961). The absences of complex technology and lack of material variation encourage the MCF to step into the ECI but at the same time obstacles the opportunities of new innovative designs. The demand conditions showed that various external parameters to be deliberated especially the prospects of the ECI and the social preference of the MCF over the local companies. The internal demand condition showed that the client's requirement on quality, modifications, should be taken care of while scheduling the project, allocating resource and cost. The related and supporting industry reflected on the importance of researching the social aspects of the host country (Egypt) to allow for successful entry opportunities for the MCF. Studying the legal constraints and the technical qualification of the supporting industries in the ECI determine the task or kind of projects the MCF could be involved in. The internal factors of the related industry specific the prominence of organizational culture and a clear understanding of it assist the MCF elevate its performances while operating in the ECI. The MCF's strategy and structure should be a reflection of the organizational culture, cultural and social diversity of the host country (Egypt) in order to ensure its appropriation and hence enhance the multi-cultural multi-located team performances and efficiency.

CHAPTER IV. FRAMEWORK DEVELOPMENT, VALIDATION AND VERIFICATION

This chapter focuses on developing a framework based on the data gathered from the previous chapter. The framework developed reflects the main key parameters that determine the success of the foreign companies in the Egyptian construction market. In order to ensure the validity, practically, suitability and effectiveness of the above, the framework was validated and verified. The verification and the validation will be presented in this chapter which was essential to determine the extent of generalization of the framework.

IV.1 MIXED METHOD ANALYSIS

The key issues identified through the qualitative and quantitative analysis and established after explanatory research performed on the literature review is analyzed and compared using statistics analysis. These indicators determined using the RIV and internal consistency will form the framework which is verified and validity through the deliberation of the construction leader.

IV.1.1 LITERATURE REVIEW

The literature review concluded the following:

(i) Study on Singapore construction industry revealed that a mix of human-related and project management related factors are to be considered for the success of the multi-cultural teams (Hwang and Lim, 2013).

(ii) Study on Hong Kong's construction industry concluded that social responsibilities, comprising economic, legal, ethical responsibilities are considered as the most important for managing stakeholders and multi-cultural teams" (Yang et al., 2010).

(iii) Study conducted on the UK and Kenya construction industry categorized the success framework for the multi-cultural teams by defining 6 parameters, Leadership, Cross cultural management, communication, collectivism, trust management and uncertainty (Ochieng and Price, 2009).

(iv) Organizational Culture: A direct determinant of a project success is the ability of the company to manage cultural issues among the multi-culture teams (Barthorpe, 1999; Vecchio and Appelbaum, 1995).

(v) Team Composition: Multi-cultural teams outperform the mono-culture team and allow for developing more comprehensive and creative solving techniques (Ely and Thomas, 2001; Dulaimi, 2008, Richard et al., 2007; Earley and Mosakowsko, 2000). Multi-cultural teams requires various parameters to be taken into consideration like managing cultural diversity, understanding the differences and developing team cohesiveness, maintaining communication richness to ensure their superior performances.

(vi) Leadership Style: Various leadership styles are present but the company should try to implement the style that is compatible with the culture, project teams, project's duration, project tasks and the nature of the team operating.

IV.1.2 QUALITATIVE EXPERIMENT

Regarding the qualitative experiment conducted, the following are the main parameters identified:

(i) Organizational Culture: For a multinational company operating in the Egyptian market, the firm's organizational culture needs to reflect the host country culture. It is established that the Egyptian employees are not aware of the organizational culture. The firm should identify the organizational culture through strong straight forward steps. This might include dress code, working hours, annual leaves, national holidays etc. The company needs to define its goals either a mean or goal oriented, open or closed system, employee or work oriented. These parameters help the company identify accurate job description ensuring a more precise pool of candidate for recruitment. The company's management should clearly state whether it is driven by internally or externally factors which also help the employees visualize the company's mission and work accordingly.

The effect of the organizational culture on the employees is important to be considered to ensure their dedication and loyalty. This includes but not limited to the engineer's career prospects within the organization and a clear job responsibilities balancing between the

managerial and the technical duties. With the challenges faced by the team members in a multi-cultural group, more appreciation and motivation techniques are to be followed. A financial appreciation system is to be established and most importantly, clear criteria should be settled for the team member's evaluation.

(ii) Mechanism for team composition: Selecting good calibers that does not fit into the company's organizational culture or cannot adapt to the existing team is a trap that many MCF fail into. Ones the company is settle on the organizational culture, the team selection criteria are easy to understand and implement. Based on the Egyptian market, the technical experience is considered as one of the main criteria for selection. Other factors to be considered are the individual's profiling and ability to work with multi-cultural teams. However, with a more specific organizational culture, the team members' selection is determined.

(iii) Communication: For a firm with multi-cultural and multi-located teams, strong communication approaches need to be recognized. Communication in the case of multi-cultural teams requires a vertical and horizontal effective communication approaches. Management should first customize a communication approach between the virtual teams, which is possible through introducing programs like team viewer and direct voice channels like the usage of Skype, Viber, and Imo etc. Proper documentation between the virtual teams should be established by ensuring a form system where all valuable information is transferred. To ensure an effective communication between members in the same team, a clear job description should be entitled to every member. This avoids conflicts and smoothen the work flow among the team.

(iv) Decision Making: Every member should be encouraged to share his/her opinion and the leaders/heads/seniors should be aware of their decision making power. This will develop the engineers' skills and at the same time highlight the organizational hierarchy.

(v) Leadership Style: Most Egyptians due to their culture index (CI) perform well under leaders who balance between the participative and bureaucratic leadership style. Other

kind of leadership styles that influence the Egyptian engineer's performances is the supportive style. The leaders should consider the culture of the task while allocating the job to the engineer. This ensures higher performances since every individual is driven by his/her competitive edge.

(vi) Complexity: Various complexities can encounter the multi-cultural team especially social and cultural remoteness. Initially this reduces the work efficiency but with the time factor and the well management of the multi-cultural teams, the work performance elevate. Some of the complexity encountered are:

a. Managing multi-cultural teams in the same approach as the mono-cultural teams.
b. Correction action implemented on the Egyptian team rather than inaugurating the cultural differences in the managerial technique
c. Unawareness of the Egyptian managers and leaders about the implementation and exercising of the company's organizational culture
d. Leadership style is not regularity by the company's organizational culture and is left to every manager.
e. Technical skills are highly valued unlike the managerial skills of the employees. Conversely, the managers and the team members complained from the lack of proper management system.

IV.1.3 QUANTITATIVE SURVEY

The quantitative questionnaire on the other hand provided valuable information regarding the practice of the ECI from the foreign and Egyptian perspective.

(i) Generally, there is an urgent need to implement managerial techniques that assist the foreign manager deal with the Egyptian engineers and labors. This can be possible through providing training and awareness program to the newly graduate Egyptian engineers regarding the importance of organizational culture and various compounds associated with it like communication, leadership, decision-making etc.

(ii) Special attention to the social and economic conditions of the labors in the industry will appraise the work performed on site. Inaugurating the cultural index of the Egyptian

society into the managerial approaches is a necessary step to be deliberated as concluded also through the qualitative experiment.

The four conditions, namely, factor, demand, related and support industry, and firm's strategy, structure and rivalry, were analyzed and the results compared together. A correlation analysis was used in order to determine the relationship between the four conditions. The mean, standard deviation and the correlation are presented in table IV-1

Table IV-1: The correlation (is significant at the 0.01 level (2-tailed test)) for the four conditions of the modified diamond model

Factors	Mean	STD	F	D	RS	FSSR
Factor Condition (F)	3.042	0.548	1			
Demand Condition (D)	3.063	0.6313	0.2061	1		
Related and Supportive Industry (RS)	2.678	0.4716	0.1551	0.1468	1	
Firm's strategy, structure and rivalry (FSSR)	3.285	0.5020	0.4120	0.4681	0.6519	1

The correlation analysis shows that the relationship between the related supporting industry and the firm's strategy is the highest with a correlation of 0.6551. This indicates the importance of both these variables which are to be considered while operating in the ECI. The mean of the firm's strategy is also the highest among the four conditions with a mean of 3.285 followed by the demand condition of 3.063. The success of the MCF thus depends mainly on their firm's strategy which includes their compatibility with the local culture and industry's practice. The MCF should also consider the supporting industry. Construction is an industry that requires continuous collaboration with other firms, whether designers, consultants, or contractors. Various elements about supporting industry should be considered because they influence the decision of entry into the host country. However, the other conditions, namely factor and demand will also be considered in order to provide a complete portrait of the requirements and the demand of the local construction industry on the MCF.

The sub-indicators of the four conditions were ranked in section III.5.4 and their RIV values were calculated accordingly. Based on the RIV, the sub-indicators with a score above the

condition's average score and that was assessed a grade of 4 or 5 by 50% of the responses will be included in the key success parameter framework. This selection criterion ensure that the parameters chosen under each condition is highly important in terms of its rating and weighting, thus have a significant impact on the MCF operating in Egypt. The highly important sub-indicator as per the RIV calculation for each condition is listed in the table below categorized into PESTLE trend.

Table IV-2: The preliminary key parameters for the success of MCF in the Egyptian market

Trend	Condition	Variable
Social Trends	Factor	Labor productivity
		Labor education
		Cultural diversity
	Demand	Client's requirement on services
		Foreign demand on working in the selected distinction
		Foreign direct investment present
	Related and supported Industry	Level of investment on research and development
		Completeness of the supporting industries
	Firm's strategy, structure and rivalry	Firm brand/image
		Professional qualification of project manager
		Certification
		Compatibility with the local culture
		Career prospects within the organization
		Appropriateness of organizational structure
		Mechanism for staff recruitment
		Existence of strategies for human resource development
		Organizational culture
		Decision making approach
Technology Trends	Factor	Technology of product development
		Technology for construction plants and equipment
		Standardization of building codes
	Demand	Client's requirement on quality
		Exposure to technology
	Related and supported industry	Construction market and its growth prospects
	Firm's strategy,	Internationalized building code

	structure and rivalry	Safety procedures on site
Legal		Tax incentive
Environmental		Effectiveness of site management
		Effectiveness of environmental protection measures

IV.1.4 COMBINATION OF QUALITATIVE AND QUANITATIVE ANALYSIS

The above preliminary parameters developed through qualitative, quantitative and literature review will be categorized under four main parameters namely:

(i) Organizational culture (OC)
(ii) Mechanism for staff recruitment (TC)
(iii) Leadership (L)
(iv) Communication (C)
(v) Cross-culture management (CM).

This categorization is used because it is user-friendly, provides an organized hierarchical order and prioritization to the parameters. Similar categorization was adopted by Ochieng and Pierre in 2009 regarding the UK and Kenyan construction market. A similar classification was also introduced by Blismas et al (2009) regarding the globalized US market. The table below shows the sub-indicators identified earlier, classifying them into the four main parameters defined above.

Table IV-3: Classifying the sub-indicator concluded from the quantitative analysis into the four main parameters

Variable	OC	TM	L	C	CM
Labor productivity	☑				
Labor education	☑				
Cultural diversity	☑	☑			
Client's requirement on services	☑				☑
Foreign demand on working in the selected distinction	☑	☑			☑
Foreign direct investment present					☑
Level of investment on research and development					☑
Completeness of the supporting industries					☑
Firm brand/image		☑			☑

Professional qualification of project manager		☑			☑
Certification		☑			☑
Compatibility with the local culture	☑		☑	☑	☑
Career prospects within the organization	☑	☑			
Appropriateness of organizational structure	☑	☑			
Mechanism for staff recruitment	☑	☑			
Existence of strategies for human resource development	☑				
Organizational culture	☑	☑	☑	☑	
Decision making approach	☑	☑	☑	☑	
Technology of product development					☑
Technology for construction plants and equipment					☑
Standardization of building codes	☑				☑
Client's requirement on quality	☑	☑			☑
Exposure to technology					☑
Construction market and its growth prospects					☑
Internationalized building code					☑
Safety procedures on site	☑	☑			
Tax incentive					☑
Effectiveness of site management		☑			☑
Effectiveness of environmental protection measures		☑			☑

The second step is to classify the four parameters into degree of influences. Four influence degrees will be defined which are: Required, Flexible, Uncertainty and the Complex parameters. These classifications were derived from the nature of the parameter because as defined earlier by scholars like Moseley and Bubshait, 2005; and Chan et al., 2002, the success parameters are subjective/objective; tangible or intangible. Apart from the highly influence variables, there are supplementary variables that also can catalyst the growth and development of the MCF in Egypt. These supplementary variables are either uncertain or complex issues. These terms were introduced by Thompson (1967); Meredith and Mantel (1995); Baccarini (1996) and Cleden (2009). The complexity and uncertainty variables could be avoidable when a thoroughly study is done to the culture and the social values are inaugurated into the company's managerial system.

However, as outlined by Ochieng (2008), regardless of the client's origin, there remains some of the uncertainty of the globalized construction industry that every MCF deal with.

In this research, the firm's strategy and the related and supported industries scored the highest correlation rate subsequently; the sub-indicators underneath these two conditions receive a required level of influences. The other factors will be classified based on their nature. For instance, the tax incentive is a complex issue in the ECI due to its irregularity. Another complex issue is the legal framework for establishing a company in Egypt. Some of the uncertain variables are fixed for all multi-culture teams as concluded earlier by Ochieng (2008) and Blismas (2009). These are force majeure, foreign and domestic political pressure. Other uncertain variables which are oriented to the ECI include the controlling of the market by certain stakeholder and the tedious requirement of the local clients that may result in project delay.

IV.2 FRAMEWORK DEVELOPMENT

Table IV-4: Required variables for the success of the MCF in Egypt as proved in the survey analysis and the qualitative experiment.

LEVEL OF INFLUENCES	ASSOCIATED FACTORS
REQUIRED ASPECTS	**ORGANIZATIONAL CULTURE** ▪ Culture Diversity: 1. Firm's image/brand including certification like recognized by the ENGR, etc. 2. Addressing Culture Diversity in terms of Communication, Decision-making technique, leadership style 3. Documentation and tracking of quality issues to understand the effect of culture diversity 4. Effect on Employees: a. Career prospects within organization b. Clear Job responsibilities (technical and managerial) c. Salary scheme and benefit packages d. Well management system to ensure higher productivity 5. Rules and regulations are to be implemented on all 6. Balance between the technical and managerial skills 7. Technological development of a product
	MECHANISM OF STAFF RECURITMENT ▪ Selection Criteria should be clear and includes 1. Profiling of the individual 2. Technical experiences

	3. Value of money candidate ▪ Developing strategies for the development of the human resource
	LEADERSHIP STYLES ▪ A leader in Egyptian Construction Industry 1. Ability to lead based on the task culture 2. Balance between a participative and a bureaucratic leadership style 3. Encourage employees to express their opinion and experience project leadership
	CROSS CULTURAL MANAGEMENT ▪ Emerging into the Egyptian construction Industry involves: 1. A general study about the construction market and its growth prospects 2. A thoroughly examination about the local construction law 3. Research and Development about the social needs in the Egyptian market 4. Standardizing the codes between the disciplines and the branches when possible 5. Knowledge about the local client's requirement on services and quality 6. Knowledge and develop relation with the supporting industry 7. Effective management on site, especially the safety procedure, thus include knowledge about the labor productivity, culture and education 8. Business analyst on the economic debt status of the industry 9. An economic study of the ratio between the direct and indirect cost ▪ Operating within the Egyptian construction industry involves: 1. Regular feedback on the performances and open-ended discussion with the employees 2. Team building activities to break the diversity barriers **3.** Implement a strong organizational culture and abide by its regulation
	CROSS CULTURALCOMMUNICATION 1. Regular communication among the virtual teams 2. Developing a strong informative and non-verbal communication scheme 3. Regular business trips in the case of complex projects located overseas.
UNCERTAINTY	▪ Foreign and Domestic political pressure ▪ Force majeure (war, revolution, etc.) ▪ Delays in approvals by consultant, client, local authorities ▪ Controlling of the market by certain stakeholders ▪ Unexpected tedious requirements by client supervisors
COMPLEXITY	▪ Unclear procedure for establishing company ▪ No clear template for the employee contract ▪ Local Code of Building (The land built percentage) ▪ Dealing with vendors/ sub-contractors ▪ No platform to find a proper legal strategically assistances ▪ Managing currency exchange rates and fluctuations ▪ Determine selling price of services and addressing international taxation issues

IV.2.1 ORGANIZATIONAL CULTURE

Although it is invisible but it is one of the essential assets of any company. It is a set of values that define the way the employees interact at the workplace creating a common platform. The organizational culture eases the interaction of the new employees into the company's workspace. The firm should decide between been an employee oriented or work oriented and mean or goal oriented. It is also essential that the company define its objective of been either internal or external driven. These criteria make it easy for the employees to allocate their energy in the right direction and to determine which firm to join. The organizational culture should facilitate the team development activities and define approaches to enhance the productivity of the multi-cultural teams. A balance between the managerial and the technical features should be maintained, which can be achieved through a strongly-defined organizational culture. Although these parameters are needed for the success of any firm in the industry, they are obligator for firms with multi-cultural teams because the diversity of the team can only be beneficial if well managed.

IV.2.2 MECHANISM FOR STAFF RECURITMENT

Selecting the team members is a prime step in implementing the company's organizational culture. Every company should establish a set of criteria for the team members' selection. The criteria are to be linked and based on the company's organizational culture. If the MCF are in Egypt to outsource projects located elsewhere, then team members should be selected based on performances rate, and technical knowledge. The managerial skill of the employees may not be essential in this case and mean oriented individuals should be preferred. However, if an oversea company decides to establish an office in Egypt, then the company should first study the host's country organizational culture from the related and support industry perspective. Accordingly develop its own compatible organizational culture and settle on team selection criteria. The mechanism for staff recruitment should include but not limited to individual profiling, technical background, previous involvement with multi-cultural teams and the candidate's ability to adopt within the company's culture.

IV.2.3 LEADERSHIP STYLE

The Egyptian engineer performs well under a participative and bureaucratic leadership style. The leaders of the industry should also consider the task's culture while exercising their duties. The MCF aiming to operate in Egypt should consider this style in order to manage the multi-cultural team effectively and ensure highly efficient performances. While working with multi-culture teams, the individuals should be encouraged to lead a phase of the project like conceptual phase, or presentation, or moderate the meetings with the clients. It is essential that there is a clear job description provided to every engineer. However while leading the team; the tasks could be allocated based on the team member's drivers which the leader should be able to determine through the individual's profiling and the individual's culture. Although the culture does not affect every individual equally, it is possible that certain traits are inherited in the leaders and individual. Thus, the study of host country's culture is extremely significance especially in the construction industry where labors are the main asset of the industry.

IV.2.4 CROSS CULTURE MANAGEMENT

Various managerial variables are to be examined by the MCF's top management while operating in the ECI. These variables mainly deal with the study of the client's requirement, regularity of change requests, and the nature of the services demanded. One of the variables that determine the direct success of the MCF is the research and development on the local market and the users. The MCF should try to bring an innovative construction idea based on the niche market segment. The MCF needs to pay attention to the legal constraints to establish a firm in Egypt and means for issuing working permit for foreign experts. Not only is a thorough study required for the legal framework of the country but also connections with local firms, consultants can ease the presences and operation of the MCF.

IV.2.5 COMMUNICATION

Communication can either fail or enhance the multi-cultural team performances. There is a two level of communication, one between the MCF and the parties involved (client, government, supporting industry) and the other channel is between the multi-cultural team members. The MCF should establish some effective communication techniques between the local engineers/labor and their international counterparts. One of the main approaches is the regularity

of the meetings, allowing the local engineers to express their opinion and ensure an open system policy where employer respects the employee circumstances. Documentation and continuous remaining the team with the lessons learned is essential and appreciated by the team members. Egyptians engineers, although lack managerial strategies and planning techniques, are hard workers and a clear channel should be established between the foreign expert and the local engineer to overcome this disadvantage. This will elevate their performances, efficiency and loyalty.

IV.2.6 COMPLEXITY

Several constraints that the MCF should be aware of while operating in Egypt are the uncertainty in terms of clients and legal interference. The absences of a platform regarding knowledge about the local competitors, the price for a certain services provided, procedure for work permit and company's establishment create more burdens on the MCF management; hence labeled as complex issues. The costs associated with these uncertainties should not be ignored or negligent. Taxation and the high custom rate in Egypt, which continue to increase with the devaluation of the Egyptian pound to the US Dollar, should also be considered both for the short and the long term plan of the firm.

IV.2.7 UNCERTAINITY

The last parameter to be considered while operating inside the ECI is the uncertainty the MCF encounter. These usually are typical from one society to another, but recently these parameters increased in Egypt forcing many foreign firms to relocate their offices. Since IHS construction report in 2013 ranked Egypt among the top 20 risky countries to operate in, these factors should be seriously considered. Apart from the political and current economic turmoil, the market controlled by certain stakeholders should be examined. Although many MCF step inside the local market, the entry routes available may not necessarily be abundant. The unexpected tedious requirements of the clients should be considered while pricing the services and taken care of while scheduling the project.

IV.3 FRAMEWORK LIMITATION

Theoretically, the acceptance of a framework is challenging and requires numerous studies and research for it to gain national and international recognition. For this framework, the ability of

the company to abide by the management technique plays a crucial role in determining its success. In order to implement new techniques or introduce correction to the present managerial approach of a company, the top management should believe that there is a problem and that the problem arises from the differences in the culture. Therefore, the top management should be involved not only in setting the organizational culture of the company but should also be trained along with the team members in regard to the organizational culture.

Another limitation of this framework is that it integrated information from managers who were involved in outsourcing, offshoring and still others that worked in partnership with the foreign firms. A proper framework should be developed for every stage of the globalization, namely, outsourcing, partnership and offshoring. This is to ensure the reliability of the framework and the ability to provide highly specific information per stage.

IV.4 FRAMEWORK SUMMARY

From the qualitative experiment, it was suggested by the participants that collaboration between team members from different nationalities can be problematic and affect the efficiency of the work performed. However with the implementation of various managerial tools, the efficiency and the effectiveness of these multi-culture teams improve. Also the quantitative experiment concluded that there are various common challenges faced by the MCF in Egypt whose importance is unrecognized or underestimated. Not only are these obstacles unrecognized or underestimated but viewed differently by the foreign engineers and the Egyptian engineers. There is therefore a need to develop a framework that highlights the requirements for the MCF willing to operate in Egypt taking all the cross-cultural constraints into consideration. This framework is also intended to help the MCF currently operating to evaluate their performances and recognize their weakness in the Egyptian market.

IV.5 VALIDATION OF THE KEY SUCCESS FACTORS

Defined as the perception of the goodness of the data and the provision of a description of others' understanding, verification in the research context can be implemented through four main research means (Ochieng, 2008). These four research techniques are:

(i) Validity: This is an assessment of what the research measured. There are three main validity test approaches, which are:

a. Construct validity: this is the application to test the appropriateness of the research content.
b. External validity: defining the generalization scope of the research finding beyond the sample studied.
c. Internal validity: illustrating on the cause and effect relationships of the research findings.

(ii) Reliability: documenting the systems and approaches used in this research to ensure its consistence, i.e. if administrated again would produce the same result.

Since this research used the mixed method approach, implementing a qualitative and a quantitative analysis, the plausibility and credibility of the findings is tested using the external and internal validity and the reliability approach.

Workshop and Group Discussion: Workshop and group discussion was encouraged since this would provide a continuous adjustment and refinement opportunities (Ochieng, 2008). The workshop was conducted, with the same team that was initial involved in the qualitative experiment. The workshop started by introducing the team members with the research objectives and the update of the research results thus far. The teams were given the above framework and asked their opinions. To ensure the participation of all the delegates, the team members were asked to form groups of three (same groups originally formed). They were asked to discuss the appropriateness and the validity of the key indicators in the framework. The suggestion made by the team member's discussion provided fruitful modification to framework. A summary of their output is presented in the table below:

Table IV-5: Summary of the group discussion by the team members involved in the qualitative experiment

Groups	Recommendation
A	a. Team building activities should be part of the company's culture to ensure that a change in the management does not affect the employee's training b. Standardization of the design and construction procedure should be a required compound not flexible.
B	1. Site safety should be included as the company's organizational culture rather than a managerial technique.

C	1. Clear Hierarchy should be added under organizational culture. 2. Knowledge about the local construction law should be a key indicator not under any variable. 3. Communication approaches should include ways like fixed forms, regularity of meetings and discussion, fixation of time slots for discussing briefs (which to be in cooperated in the project's schedule), and appropriateness of verbal communication
D	1. The team selection criteria should not be generalized, but rather based on the company's current requirement.
E	1. Leadership style variable is too broad and should include more specific indicators.
F	1. The identified parameters are proper.

Internal validity: To confirm the validation of the framework developed, an internal validation process was conducted and some of the participants in the initial survey were invited to participate. Regarding the survey takers, invitation letters were sent to all the responders, out of which 8 replied (all holding high positions with +15 years experiences). While some discussed their opinion through phone calls, others answered a short questionnaire and send it through electronic mail. The managers who were originally interviewed in the quantitative survey shared some of the concerns previously mentioned by the participated in the workshop. The other feedback received from the surveyors can be summarized in the following table.

Table IV-6: Summary of the feedback received by the interviewee involved in the survey.

Interviewee	Recommendation
1	1. Economic study of the industry should be a separate parameter and not included beneath the company's study of the industry 2. Leadership style differ from one company to another, it should not be generalized to task culture alone.
2	1. Team selection criteria could include the member ability to accept and emerge into the company's existing teams. With the high value of religion and politics in the country, the team member not belonging to the group can be more problematic than benefit-able.

	2. There are multiple templates for employment contract available through the Egyptian labor office. It should not be a complexity issue.
3	1. Technological development of the product does not belong to the organizational culture but can be in the management culture section.
4	1. The management approach inside the company should be moved to the organizational culture section. 2. Taxation and custom duties should be a separate variable under complexity aspects.
5	1. The identified parameters are a well reflection of the factors required for operating in Egyptian construction market
6	1. No modification is needed, the parameters defined are proper
7	1. The communication means should be elaborated on. 2. The economic study of direct and indirect cost should be defined as a separate parameter along with the economic study of the construction industry.
8	1. Decision-making techniques should be infused more by including it under leadership.

The reason why the key success parameters were send to both the team participants and the survey takers was to ensure that the framework developed was not influenced by one party over the other, and to understand the extend of which these parameters can be generalized on the industry. Based on the responses received, framework is modified to the following set:

Table IV-7: The key success parameters to service the foreign companies operating in the Egyptian market

LEVEL OF INFLUENCES	ASSOCIATED FACTORS
REQUIRED ASPECTS	**ORGANIZATIONAL CULTURE** ▪ Culture Diversity: 1. Addressing Culture Diversity in terms of Communication, Decision-making technique, leadership style 2. Documentation and tracking of quality issues to understand the effect of culture diversity 3. Effect on Employees:

a. Career prospects within organization
b. Clear Job responsibilities (technical and managerial)
c. Salary scheme and benefit packages
d. Team building activities to break the diversity barriers

4. Balance between the technical and managerial skills
5. Regular feedback on the performances and open-ended discussion with the employees
6. Implement a strong organizational culture and abide by its regulation

MECHANISM FOR STAFF RECURITMENT

- Selection Criteria should be clear and includes
  1. Profiling of the individual
  2. Technical experiences
  3. Value of money candidate
  4. Ability to adopt within the company's policy and team's culture
  5. Developing strategies for the development of the human resource

LEADERSHIP STYLES

- A leader in Egyptian Construction Industry
  1. Ability to lead based on the task culture followed by people's culture
  2. Balance between a participative and a bureaucratic leadership style
  3. Encourage employees to express their opinion and experience project leadership.

CROSS CULTURAL MANAGEMENT

- Emerging into the Egyptian construction Industry involves:
  1. A general study about the construction market and its growth prospects
  2. A thoroughly examination about the local construction law
  3. Research and Development about the social needs in the Egyptian market
  4. Knowledge about the local client's requirement on services and quality
  5. Knowledge and develop relation with the supporting industry
  6. Effective management on site, especially the safety procedure, thus include knowledge about the labor productivity, culture and education
  7. Technological development of a product
  8. Firm's image/brand including certification like recognized by the ENGR, etc

- Economic Analysis
  1. Business analyst on the economic debt status of the industry
  2. An economic study of the ratio between the direct and indirect cost

CROSS CULTURALCOMMUNICATION

1. Defining the mean of decision-making whether it is by command, constitutional,

	consultative or consensus. 2. Supporting the employees 3. Regular communication among the virtual teams including fixed a. Time slot for brief decision (including a summary for the brief filled in a standardized forms systems) b. Providing a clear explanation of the final product required through providing inspiration photos, previous projects sample etc. c. Regular meeting after and before every stage submission d. Documentation of the feedback received 4. Developing a strong informative and non-verbal communication scheme 5. Regular business trips in the case of complex projects located overseas.
COMPLEXITY	1. Standardizing the codes between the disciplines and the branches when possible 2. Unclear procedure for establishing company 3. Dealing with vendors/ sub-contractors 4. No platform to find a proper legal strategically assistances 5. Managing currency exchange rates and fluctuations 6. Determine selling price of services 7. Addressing taxation issue
UNCERTAINTY	1. Foreign and Domestic political pressure 2. Force majeure (war, revolution, etc.) 3. Delays in approvals by consultant, client, local authorities 4. Controlling of the market by certain stakeholders 5. Unexpected tedious requirements by client supervisors

IV.6 VERIFICATION OF THE FRAMEWORK DEVELOPED

This section provides a verification of the framework that was generated to aid the MCF operating in Egypt. The verification phase is essential since it establishes a confirmation on the integrity of the framework developed and the logic behind it. Since case study is a suitable way to study and investigate a management framework, the following section describes a case study implemented using the framework developed.

IV.6.1 CASE STUDY

The case study was implemented on Firm A, where the qualitative experiment took place. Some correction measures are introduced as per the framework developed in this thesis. The organizational culture including salary scheme, team composition culture and the cross cultural

management were not tested since it would require an experiment conducted on teams operating from different companies in different countries. The methodology followed in this verification phase was to introduce the same teams initially formed during the qualitative experiment with an amended managerial approach as proposed by the framework developed. The outputs of the team was analyzed and evaluated by the company's branch manager and technical coordinator. The results and discussions of the experiment would determine the extent of generalization of the framework and the reliability of the parameters identified.

IV.6.2 METHDOLOGY OF THE CASE STUDY

The teams where required to work on a small scale commercial mall to be developed for the city of Jeddah in the Kingdom of Saudi Arabia. The team in Saudi Arabia was required to meet the client, understand the client's requirement in terms of services and quality. The information gathered from the client was then sent to the team located in Egypt using a fixed form (attached in the appendix). This is different than the approach followed during the qualitative experiment and the regular practice of the company, where the brief are usually delivered to the team members in Egypt through one of the following means:

(i) The brief is send to the Egypt's office branch manager through electronic mail and he is required to send it to the specific department.
(ii) The brief is verbal communicated to the Egypt's office branch manager, who in-turn is required to verbal communicate it to the one in charge
(iii) The brief is verbal communicated to the head of the specific department (in this case the senior architect) directly.

The verbal communication of project brief is usually very problematic because there are numerous cases where the brief is not fully understood by the responder in the Egypt office. Also the transfer of the brief from the team in Saudi Arabia to the branch manager in Egypt, then to the senior architect and final to the architect increase the factor of error. It also becomes problematic to track the root of the problem. Therefore, a form was used to ensure an accurate transformation of the brief and proper documentation of the project from stage 1. The form used in this case study was originally developed during one of the course outline at the American University in Cairo and re-used in this thesis (CENG 5292, 2014). The form require the team in

Saudi Arabia to provide accurate information about the project's location, nature of the project, client's budget, architecture inspiration images or styles if specified by the client, technical or contextual constraints, etc. This is thus the first step in implementing the organizational culture, where clear documentation of the project brief is needed. The team in Saudi Arabia were required to fill the form through typing rather than hand written to avoid any confusion especially in the case of numbers like plot area, total BUA (build up area) etc. The second step was to select the team members who are to work on the project. The framework developed in this thesis discussed the team selection criteria to be considered by the firm while recruiting. For the sake of this case study, the teams formulated were the same teams that worked on the qualitative experiment. The reason why the same group members are selected is because the multicultural teams perform better by time, and are able to outperform the monoculture teams (Richard et al, 2007). Another reason is to validate the framework by comparing the team's member's performances before and after the introduction of managerial approaches. The evaluation of the groups was done by the technical coordinators under the supervision of the firm's branch manager. The introduction of the framework developed took place through the following steps:

(i) **Organizational Style:** Firm A is mean and employee oriented firm and follow an easy discipline system. Since the team members did not show a clear understanding of the company's organizational culture during the first experiment, they were instructed on the firm's culture. Also the company's presentation template starts mainly by providing a preliminary cost analysis, build up area requirements, inspiration styles followed by any sustainable studies, and finally all the engineering zoning and specs. The correction factor that was implemented was giving every group 4 documents of previous presentation done by the company. The group members were asked to use these documents for references and to produce a similar output, in terms of color scheme, organization of the content, architectural style, fonts, and displaying of the technical approach.

(ii) **Leadership Style:** Defining a leader within a group was not an easy task, because the team members are oriented to have a fixed team leader throughout the projects. So for each group, a leader was defined. The selection criteria of the leaders were based on the evaluation of the team members from the previous experiment. Although this is an architecture competition that is usually led by an architect, other team members showed the ability to lead and communicate ideas better than architects. The leaders were chosen

by the technical coordinator who supervised the first experiment conducted. The leaders per group is as shown in the following table:

Table IV-8: Leadership role assisted to specific team members to regulate the decision making procedure and communication

Group	Position	Previous leadership role played by this member
A	Design Team Leader	Shared opinion equally with other team members and moderated the conversations.
B	Senior Structure	No interaction with other team members was noticed, however a strong ability to dominant the conversation and issuing of innovate ideas.
C	MEP Engineer	A charismatic leadership style that was acceptable by the other two team members. Ability to dedicate tasks and moderate the online discussion.
D	Design Team Leader	Leaded the group successful during the first phase and was accepted by the other members been the most experienced person in the group. Very systematic and is aware of the company's presentations and leadership styles.
E	Architect Engineer	Showed ability to lead the conversation. Very systematic, however needed support in innovating the other team members to voice their opinions.
F	Coordinator	The team members in this group relayed on the participative leadership approach. The coordinator was able to communicate and share ideas between the other two members.

The groups were informed of their group leaders and their respective job responsibilities including technical and managerial duties were discussed briefly. The leaders were also given a short brief of the various leadership styles available in the construction industry but they were directed towards participative leadership approach. The leaders were also encouraged to provide a regular feedback to the members without over interfering with the member's work.

(iii) **Decision Making Approach:** The firm's decision approach is command, where time is the most important compound that determines the working methodology. The teams were asked to abide by this policy and it was also clarified to them verbally. It was the responsible of the leader to make sure that all the decisions strategic followed command

style; however the decision was to be taken by all members either through consent or majority voting.

(iv) **Communication:** The teams were asked to communicate together by allocating 10 minutes at the beginning of the four hours interval, and another 15 minutes after 1.5 hours and finally 15 minutes before the submission by one hour. This time break outs were distributed so that firstly every member informs his/her colleagues of the work accomplished thus far. Later, the leader was asked to discuss the important compounds and moderate the discussion within the allocated time interval. The virtual teams were informed of the various electronic approaches for communication and were encouraged to use applications like WhatsApp for the transferring of images/sketches within a short time interval. An internet connection was made possible to the virtual teams and the connection was tested for its performances and speed to avoid any disconnection of the line during project progress.

(v) **Technical Feedback:** During the first round, the team members received some technical feedback regarding the code followed, major design aspects that should be taken into consideration while providing a conceptual propose to the clients in the Kingdom. Some of the issues included the use of specific materials, the implementation of certain design aspects like open space, solid to void ratio, use of balconies and complexity geometry etc. These comments were made available to the team members through a form that was given to the teams along with the brief form. This was implemented to test whether the documentation of lessons learned from previous projects will enhance the output of upcoming projects or will have a neutral output.

IV.6.3 CASE STUDY OUTPUTS

After introducing the above measure, the teams were allocated four hours to finalize their conceptual phase of the brief. The output of the teams was evaluated by the technical coordinator and their outcome was compared with the literature review. The output of the teams during this simulation is summarized using the same attributes used in the first experiment.

Group A

(i) Organizational Culture: The group abided by the company's presentation content and order. They were scored a 40 out of a possible 50 by their technical coordinator. They

showed an employee's oriented and a mean oriented approach. However, since the team leader allocated the tasks at an early stage and provided a time frame for the project, the team members followed an easier work discipline as compare to their previous attempt.

(ii) Communication: Less time spend on discussing issues. It was also noticed that the teams were able to multi-tasks by working and discussing various elements of the project concurrently.

(iii) Decision- Making: The decision making approach was consent. However, unlike their first attempt, time here seemed to be valued more by the team members after receiving a comment about time allocation.

(iv) Leadership Style: The design team leader chose the participative leadership style to inspire the rest of the team members.

(v) Complexity: The complexity in terms of language was adjusted when the team members paid more attention to the brief. One team member was allocated by the team's leader to summary the brief in few keywords and phrases which was their references throughout the project duration.

(vi) Performances and Output: The technical feedback provided by the technical coordinator (from the previous experiment) was taken into account although some points were discarded by the team members.

Group B

(i) Organizational Culture: They abided by the company's presentation scheme in term of design style and the presentation of the information. This team scored 49 points. Although this team still continued to follow a close system, their work was oriented towards been mean which complies with their company's style.

(ii) Communication: The group communicated better during the allocated time for discussion. The leader of the team obligated the other two members to (i) explain their work and (ii) express their opinion regarding the project and the presentation performed thus far.

(iii) Decision-Making: The leader encouraged the command decision making. The remarkable behavior of the structure engineer is his ability to explain why such decisions were made.

(iv) Leadership Style: The structure engineer allowed for the involvement of the other two members. However it was clear that he followed a directive approach.

(v) Complexity: This team excelled during the second trial because the task allocation problem was resolved and the leaders showed a great ability to enforce the team members to express their opinion.

(vi) Performances and Output: The technical feedback this team received during round one included minor comments. It was noticed that this team took those comments and implemented them on this project to produce a cohesive output. In fact, the team members created a check list of the comments made and added their remarks on the comments that were discarded.

Group C

(i) Organizational Culture: During their first attempt, this group treated the assignment as an individual work and every member was trying to impress the other members. During the second experiment, they were able to create a semi cohesive presentation but it was very similar to one of the projects given to them as a sample. They were scored 40. This team cannot be categorize into a mean or a goal oriented, because they were intermediate trying to fulfill their personal satisfaction and at the same time abide by the previous feedback received.

(ii) Communication: The allocated time for communication forced the team members to initiate a conversation together. The leader with his charismatic character was able to motivate the members to share their opinions. Although the tension was noticeable, the team members were still able to perform and express their opinions in a systemic manner

(iii) Decision-Making: The decisions were taken to service the project well, so although time was taken into consideration, quality was given more attention. This contradicts the company's decision approach that was explained earlier to the team members.

(iv) Leadership Style: Although abiding by leadership approach was not dominant, the leader used the participative leadership style, creating an environment where all team members were equally involved. The extra role played by the team leader was moderating the situation and making the final decision after receiving consent.

(v) Complexity: Working virtually is a challenge for many teams especially when it is a multi-cultural team. This team was able to keep their personal issues aside and be professional about their performances during this second attempt. The usage of fast electronic media especially application like Whatsapp was dominant among the team members, who preferred to create a group on the application and share any updates with each other.

(vi) Performances and Output: The semi-cohesive feature of the project was unexpected by the technical coordinator. This team was able to deliver a project with all its components.

Group D

(i) Organizational Culture: Mean-oriented and individualism, this team was able to show their understanding of the company's organizational culture.

(ii) Communication: The team members assisted each other by providing constructive criticism to each other's work. It was noticed that the comments made by the members to each other were positive and most of the issues raised were regarding common design trends followed by the company's management. For instance the usage of corridor to the maximum, increasing the parking lots, usage of a hollow slab structure and reduction in the cantilever areas.

(iii) Decision-Making: Command decision approach was taken, treating time as the most important compound of the project. It is remarkable how smooth the decision making procedure was for this group. All members accepted the team leader and no objection was noticed during their work or while discussion.

(iv) Leadership Style: The team leader followed a participative leadership style.

(v) Complexity: Nothing major reported

(vi) Performances and Output: The previous technical feedback was taken into account and the final output was a more enhanced level than the level required. The amount of work done showed the good allocation of time and proper usage of resources. High level of professionalism was also observed and the group's productivity was among the highest with very calm attitude till the very last minute of the project's duration.

Group E

(i) Organizational Culture: This team scored a high on the organizational culture because of the improvement in the output. While their first trial failed the group, their output during the second experiment was more professional, showed a level of sophistication to it. This team scored a 45 and showed an understanding of been mean oriented.

(ii) Communication: The time allocation slot also proved to be very beneficial for this group as it encouraged the team members to brainstorm their ideas. The unifying of the language spoken shirked the amount of problem encountered. It was notable that out of all six teams, this was the only team that was organized and documented all the stages of the conceptual development.

(iii) Decision-Making: The architect leading the team followed the command decision approach where he infused the importance of time throughout the communication time slot. He encouraged the team members to express their opinion and directed them to propose only opinions that were possible to implement taking time into consideration. The technical coordinator however noticed that this could be very stressful on a long run because remaining the groups of time storage can eventually block them for proposing innovative out of the box ideas.

(iv) Leadership Style: The architected followed a directive leadership approach while managing the team and allocating tasks.

(v) Complexity: The team members were more encouraged to perform better, and produce a product that represents them as individuals and groups (as quoted by one of the team members).

(vi) Performances and Output: The visuals used were cohesive with their company's style. This team showed a great benefit from the sample projects given to them by trying to integrate the various styles into their own. They were able to create a new template that was considered like a refinement of the company's style by the technical coordinator.

Group F

(i) Organizational Culture: The group showed a higher level of commitment but the final output was considered weak as compare to their previous performances. The team's working discipline can be defined as intermediate working discipline. They are both

mean oriented and follow an individualism approach while working, which abide by the company's organizational culture.

(ii) Communication: These team members had a smooth flowing dialogue throughout the project's duration. The team spirit is high and the team showed confidences in delivering the requirement within the allocated time.

(iii) Decision-Making: Decisions were made taking time and quality equally. The coordinator showed a higher ability to handle the team and concurrently the team members supported the coordinator.

(iv) Leadership Style: A participative leadership approach was followed in both the first and second experiment.

(v) Complexity: Nothing major was encountered

(vi) Performances and Output: They developed a concept to their initial idea, which according to the technical coordinator is one of the main concepts followed in most design performed by the company. The concept was however presented in a new way using more attractive visual aids.

IV.6.4 DISCUSSION OF THE CASE STUDY

The data gathered from this experiment was analyzed using the framework developed. The key parameters namely organizational culture, mechanism for staff recruitment, leadership style, management, and communication were discussed in details with special attention to the performances of the multi-cultural and mono-cultural teams.

IV.6.4.1 BENEFITS OF GLOBALIZATION

The team members were asked whether it is intentional to join a MCF or it merely depends on the market availability. A high percentage of 72% seek employment in a MCF believing that it opens a window of opportunities to work abroad especially in the GCC region. Three members from Group A and Group B explained that they prefer to work for companies that outsource projects in the GCC because it will directly educate them on the technical and design trend followed in the GCC, thus enhancing their competitive edge in this regard. Another important reason is the salary scheme, while the local companies give an average of 3,000 Egyptian pounds for fresh graduate, and an average of 5,000 for mid-career employees; the global companies provide a better salary and bonus scheme.

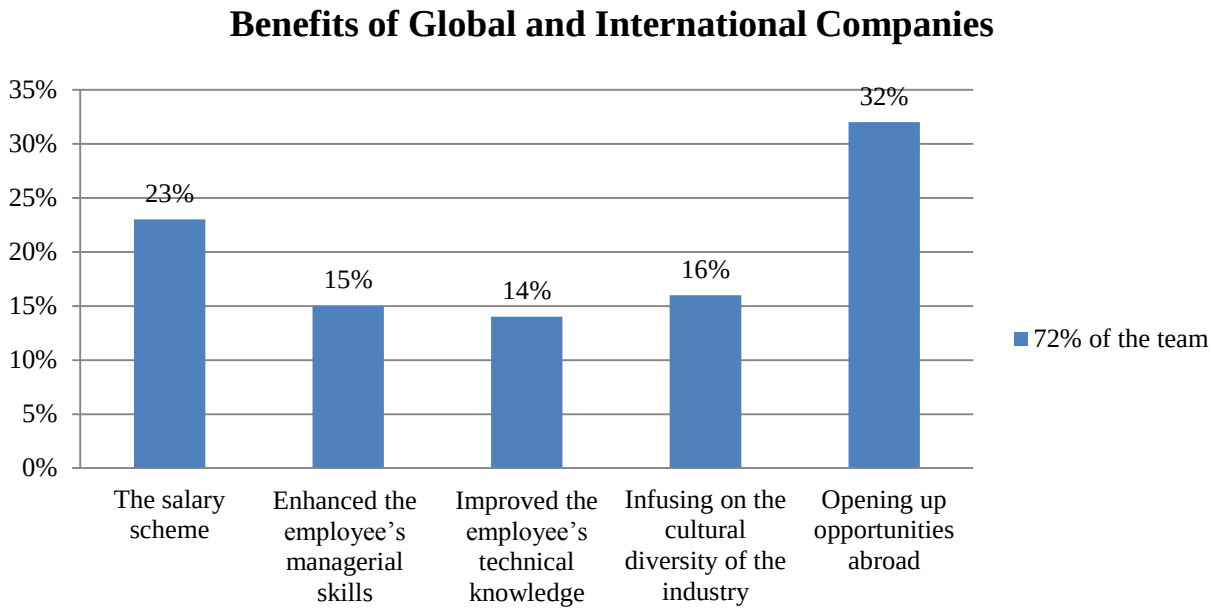

Figure IV-1: The benefits provided to the employees by the global and international companies

IV.6.4.2 ORGANIZATIONAL CULTURE

To account for the reduced efficiency of the multi-cultural teams and the virtual teams during the initial stages, the firms are encouraged to consider cross-cultural management approaches like the ones introduced in this experiment as correlation actions. This agrees with Ofori (2009), Ochieng and Price (2008) and Comu et al (2011) who believes that the introduction of the cross cultural managerial approaches is essential. However, these aspects differ from one nation to the other based on the cultural index of the community (Comu et al, 2011; Ofori, 2009). In the experiment conducted, the cross cultural measure that was introduced after the first experiment were mainly leadership styles, cross cultural communication and team selection. Another important aspect that rose was the Benchmarking and Learning. Knowledge sharing is a major managerial approach which enhances the productivity and the efficiency of the multi-cultural teams and should be handled in a clear organized approach. This directly affects the learning curve of the multi-cultural teams and improves the collaboration between them. The output of the teams showed an improvement after the instruction provided. This agrees with Barlett and Gosha (1989) who suggested that having fixed managerial norms that are clearly stated to all team members' help overcome the cultural gaps.

IV.6.4.3 MECHANISM FOR STAFF RECURIEMENT

Numerous evident and opinions shows that an integrated team is the primary reasons behind improving the output of the construction industry (Egan, 2002). The research conducted on the Kenyan and UK construction industry showed the prioritization of people selection for the success of the globalized projects (Ochieng and Price, 2009). In order to establish a team that is fully aligned and focused on delivering the best values for the project, there need to be a structural team selection process for the members (Thomas and Thomas, 2005). Understanding the team and putting a clear selection procedure is the duty of the Head of the departments, seniors and the team leaders. It is not merely about forming a team but about having a cohesive integrated team, willing to work together, sharing similar values or goals.

The teams in this research were selected based on a number of criteria to fulfill the objective of the research, which in the order of priority were: nationality, location, years of experience, and position. It was significant to have different discipline per group and to choose candidates that did not have an experience in cultural diversity. Since the mission of this experiment was to understand the role of multi and mono cultural teams, the team selection criteria was set to fulfill this mission. Similar, detailed selection criteria should be conducted depending on the mission of the company, in order to ensure the efficiency and the effectiveness of the work performed. The following are the parameters highlighted from the experiment:

(i) Cultural Diversity- Individuals are influenced by their culture and this can be notable in their design technique, working behavior and attitude. Group A's work was typical to what an Egyptian architect could produce as remarked by the technical coordinator. The usage of the neo classic design with the regular slab column systems and the distribution of spaces and the minimal area allocation are regular among the Egyptian engineers. The Lebanese and Syrian on the other hand follows the simple styles dominant by the usage of stone and pitched roof which is a sign of elegances. While the Egyptian engineers focus on having a busy presentation with a lot of data, the Lebanese and Syrians were more focused on providing very minimal information on the slide. Group D, the monoculture team from the Philippines are characterized by their ability to adapt quickly to the changes and abide by it, which explains their consistence with the company's

organizational culture. Cultural knowledge hence empowers the team leader to efficiently manage the multicultural projects.

(ii) Linguistic Diversity- Language constituted a major problem for Group A since the brief was misinterpreted by the team members and Group C who suffered from cultural and linguistic diversity. It was added by the branch manager of Firm A that an average of one-fifth the project time is usually allocated for adjustment, because the brief was misunderstood or misinterpreted by the team members in Egypt. This can be because the way the brief is delivered from the headquarter to Egypt, allowed for interpretation reducing the accurateness of the output.

(iii) Individual's profiling: The team member should be screened by profile, in order to predict the possibility of this candidate's compatibility with the rest of the team. Group B and E suffered from a chaotic working atmosphere which is mainly because the team members were not compatible together, neither in their technical experience nor culturally. If the profiling of these individuals were read well, there could have been a rearrangement of the team, which subsequently ensures better performances among the multi-cultural teams.

(iv) Individual's value of money: While forming the teams, the management should clearly define its organizational culture and based on it settle on a selection criteria. In many cases, individuals are chosen based on their technical skills only and other skills like managerial experience is ignored. This is especially true for entry and mid-career levels. The company in this case will have teams like Group C and Group F where none of the team members wanted to initiate any leading skills or sought any extra responsibilities other than the regular technical duties. A clear job description should be given to the engineers where both technical and managerial aspects addressed clearly.

Thus team selection is not about hiring the most technical individuals nor is it about selecting the less expensive candidates, because the company's reputation is usually determined by its employees. It is of a great importance to enforce mutual respect, trust and honesty among the team members to avoid conflicts like that faced by Group C. In order to understand the

importance and the weight of each of the parameters discussed above, a short questionnaire was distributed among the team members to know their opinion in regard to engineer's recruitment strategies.

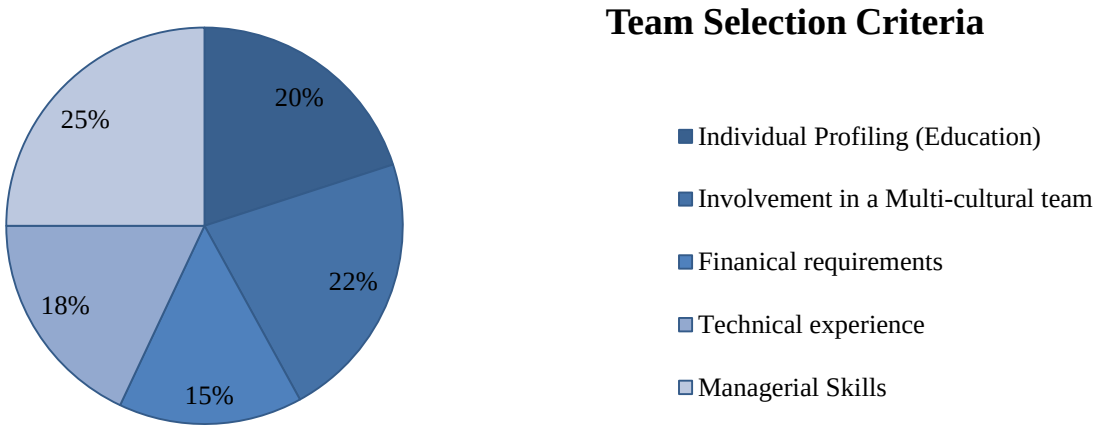

Figure IV-2: The team selection criteria as per the team members' responses

The team members deliberate that the managerial skills and pervious involvement in the multi-cultural teams are the most important factors to be considered while recruiting a team member. Group B team leader explained that any engineer is capable of learning the technical aspects of the industry because of its systemic nature. However, the managerial skills although can be inquired through experience, it usually requires more efforts from the engineer. Group F team member explained that one of the main advantages about working in Saudi Arabia is the diverse of nationalities present in the construction industry. This imposes the engineer to develop various means of communication and ways for dealing with others.

The second questionnaire aimed at knowing the characteristic that define a virtuous leader in the team. 25% of the team members think that the most important criteria for a virtuous leader is the ability to clearly define the job responsibilities of the team member without creating conflicts or leaving a job task unattended. Group E team member explained that one of the major problem encountered in work is the lack of a clear job description especially in terms of the decision making authority. Team building activities although is an organizational culture attribute, but some leaders emphasize on building a more cohesive team through introducing various collaboration activities for the team. Ochieng and Price (2009) also pointed out that carrying a

team building workshop that break the ice between the employee and create an awareness of the company's organizational culture contribute positively in the performances of the teams. Leadership, dominant characteristics and mutual respect scored third position with 18% each. The scoring of the variables are very close which indicate that all these skills are important and need to be possessed by the leader to ensure high performances.

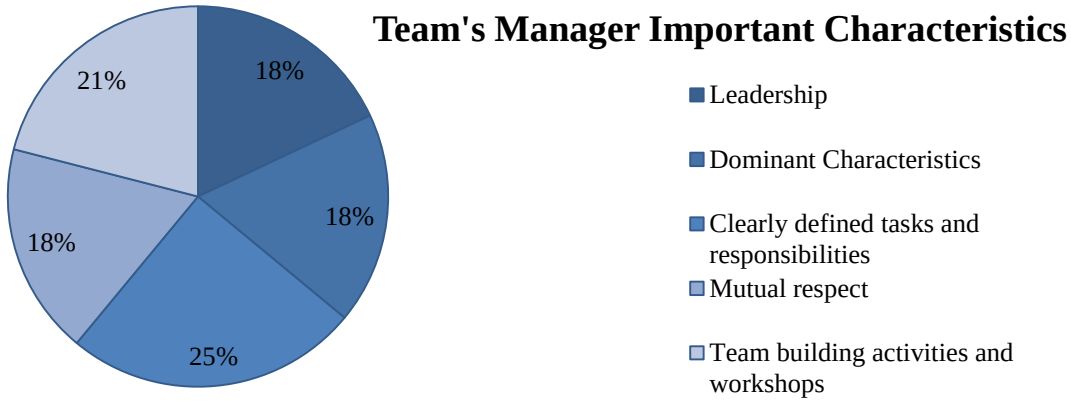

Figure IV-3: The importance of various management skills as per the team members

Team selection decides the managerial approach to be followed, the leadership style, the priorities of the team, and the reward system to be implemented. While some companies have a fixed organizational culture and based on it, the hiring procedures are prepared. Other construction companies follow haphazard recruiting methods. As agreed earlier by Comu and Taylor, 2011; Beamish and Delios, 1997; Ochieng, 2008; poor performances of the global teams are usually associated to managerial disability rather than technical deficiency. Team selection and managerial approaches is a viscous lobe, where in order to solve one, the other need to be considered in the equation.

IV.6.4.4 MONO-CULTURAL AND MULTI-CULTURAL TEAMS

Using the statistics analysis developed from the first and the second simulation experiment, the multi and mono culture teams' performances is analyzed. Although the multicultural teams initially had a low performances as compare to their monoculture teams. By the second simulation and after the introduction of the correction measures, the multicultural teams were able to identify approaches to overcome their cultural differences. Group F was able to use the diversity to resolve various discrepancies that challenged the design and the presentation. This agrees with the research conducted by Comu et al (2011), Miller et al (2000) and Nemeth (1986)

who showed that the multicultural teams are able to introduce various tactics to resolve discrepancies. The outcome of the groups also demonstrates that the performances of the multi-cultural teams may be significantly lower during the initial stage of a globalized project as compare to the work performed by domestic collaboration. Group C which encountered major challenges due to cultural diversity, performed well because of the straight forward job responsibilities and allocating the leadership task to a specific team member. Apart from the multi-located multi-cultural teams, the mono-cultural teams, both group A and group D had consistent outputs throughout the two phase of the stimulation.

The performance of the six groups was evaluated and scored by the technical coordinator and the branch manager based on the framework key parameters, namely organizational culture, team composition, leadership, decision-making approach and communication. Each of the five criteria was scored out of 50 and the standard deviation, mean and p value was calculated using R program. The final output (issued a week after this experiment) of the project was also scored by the technical coordinator based on the same criteria and presented. The following table represents the final score of the teams during the first and the second stimulation and the final output phase. The detail of the scores is in Appendix.

Table IV-9: The performances of the groups with the sd and p value for each.

	Project 1	Project 2	Project 3	Standard deviation	T-test	P value	Mean
Group A	190	180	150	20.8167	14.422	0.004773	173.333
Group B	200	220	240	20	19.053	0.002743	220
Group C	100	130	170	35.1188	6.576	0.02235t	133.333
Group D	240	240	210	17.3205	23	0.001885	230
Group E	150	190	210	30.5505	10.394	0.00913	183.333
Group F	180	220	240	30.5505	12.095	0.006767	213.333

In order to know the reliability of the team's performances t-test and p value was calculated for each group. Since the mono-cultural teams were hypothesized to be performing better than the multicultural teams during the first experiment, a t-test was applied in order to confirm that the initial performances during the first experiment independent. The p value for the first experiment was found to be $5.02 * 10^{-5}$ which less than the acceptable error tolerances of 0.05.

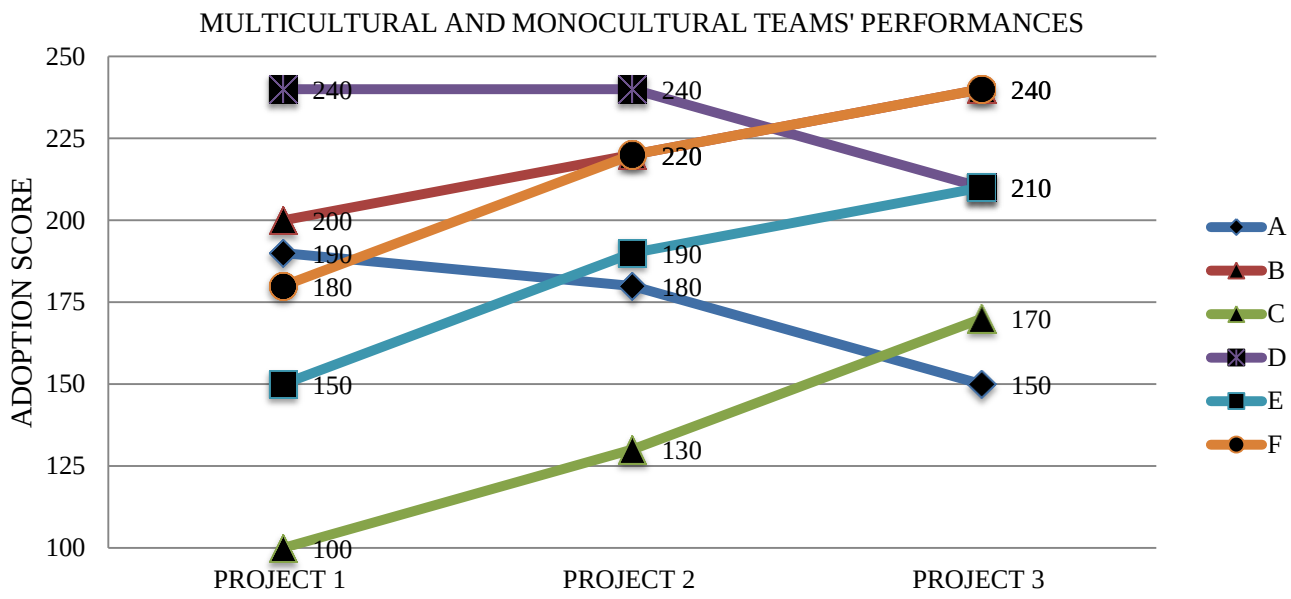

Figure IV-4: Performances of the Multi and Mono cultural teams throughout the stimulation duration

The correlation factor and the p value are calculated, and it is expected that the R value will be relatively small and this can be due to the small sample size that has been studied. A research by Richard et al., (2007) showed that the relationship between the project team diversity and the performance follows a curvilinear shape over time. This is similar to the output of the six groups where the performances of the mono-culture team were higher at the beginning as compare to the multi-cultural teams. However, by the second stimulation, the performances of the multi-cultural teams are higher in terms of their efficiency and abiding by the company's organizational culture.

IV.6.4.5 LEADERSHIP STYLE

According to Hofstede (1961) studies, the Egyptian society is a highly emotional society and consequently using leadership techniques like that of participative and supportive are encouraged. This contrast with the research conducted on the United Arab Emirate which showed that the Arab managers and employees prefer the bureaucratic leadership style followed by the participative approach (Alshamsi et al, 2015).The group leaders were advised to follow the participative approach since it agreed with the company's leadership style in general. Groups like Group A, D and F used the participative leadership approach during the first experiment so

maintaining it during the second stimulation was smooth. The groups which had difficulties applying this leadership approach were mainly Group B and Group C. This can be explained because group B had a senior structure engineer who was well-experienced and highly respected by all, so the other two team members allowed him to make most of the decision. Although group C showed relatively better performances in the second stimulation as compare to the first one, the team members still faced difficult adapting the participative leadership approach. This can be explained through understanding the nature of the virtual teams. Virtual teams need a more bureaucratic leadership style due to the absences of face to face communication. In order to know whether the participative leadership approach is the most suitable style for the team members, a short questionnaire was developed. The survey developed relayed on information from the FAO (2006) and Alshamsi et al (2015) which included basic study of the leadership styles. The survey presented to the team members and its calculation is presented below in table IV-10 (the results of the group's leaders) and table IV-11 (from the perspective of the remaining 12 team members).

Table IV-10: Leadership survey given to the group's leaders regarding the responsibilities of participative leader

Questions	Total scores	Standard deviation	Z score	P value
Limited control and authority is demanded	18	1.231	-1.1955	0.2321
Project related decision is easily taken	24	1.327	0.6642	0.5066
Decision making responsibilities can be consulted by rest of the team but final decision is for leaders	21	1.089	-0.265	0.7910
Leader should be authorized to punish/ reward team	26	1.0388	1.2841	0.1991
Development of fellow colleagues is a priority	20	1.451	-0.5756	0.5649
Further training for self and the team members	18	1.211	-1.1955	0.2319
Team member takes incentive for self-achievement in the group	26	1.0388	1.28414	0.1991

The survey provided to the leaders of the groups, showed their acceptances of the major roles and responsibilities of the participative leaders with R value of 0.933. The responses of the team members also showed a high acceptances level for the participative leadership styles with an R value of 0.82.

Table IV-11: Leadership survey given to the team members regarding the responsibilities of participative leader

Questions	Total scores	Standard deviation	Z score	P value
Limited control and authority is demanded	33	0.452	-1.604	0.1096
Project related decision is easily taken	38	0.7177	-0.919	0.3581
Decision making responsibilities can be consulted by rest of the team but final decision is for leaders	40	0.778	-0.645	0.5189
Leader should be authorized to punish/reward team	52	0.651	0.998	0.3183
Development of fellow colleagues is a priority	54	0.5222	1.271	0.2037
Further training is needed for self and team members	46	0.7177	0.176	0.8603
The team member takes the incentive for self-achievement in the group	50	0.7177	0.724	0.4691

However, by analyzing the group's outputs, the virtual groups, both Group C and Group E showed relatively low acceptances to this approach. So in order to understand the performances of the virtual multicultural teams, another short survey was given to them regarding the roles and the responsibilities of the directive and bureaucratic leadership approach. The results below show that the virtual teams rated the bureaucratic leadership higher than the participative leadership.

Table IV-12: Leaders response on the bureaucratic leadership approach

Questions	Total scores	Standard deviation	Z score	P-value
Rules and regulation are strictly followed	17	0.9831	-1.06	0.2891
Maximum authority and control is demanded	16	0.8164	-1.378	0.1682
Decision making responsibilities is for the leader	25	0.752	1.484	0.137
Leader should be authorities to punish or financial reward the members based on regulation and rules followed	23	0.752	0.848	0.396
Development of consistent output is a priority	21	0.836	0.212	0.832
The team leader takes the incentive for team's achievements	20	1.032	-0.106	0.9156

Table IV-13: Team members' responses on the bureaucratic leadership approach

Questions	Total scores	Standard deviation	Z score	P-value
Rules and regulation are strictly followed	29	1.0919	-1.58444	0.1131
Maximum authority and control is demanded	32	1.13	-1.09272	0.2748
Decision making responsibilities is for the leader	42	0.73	0.54636	0.5851
Leader should be authorities to punish or financial reward the members based on regulation and rules followed	40	0.86	0.21854	0.827
Development of consistent output is a priority	46	1.05	1.20199	0.2298
The team leader takes the incentive for team's achievements	43	0.71027		

Numerous factors stimulus the leadership style but the most dominant influencers are the cultural and the political features. While the groups (mono-cultural and multi-cultural) preferred the participative approach, the virtual multi-cultural teams scored the bureaucratic leadership style higher. This could be because the bureaucratic styles are more direct and does not involve the interference of the cultural or the employee's behavior and thus labeled as a more fair and effective approach Another explanation is the political nature of the MENA countries where the individuals got use to the bureaucratic system while dealing with a lot of variables (culture diversity in this case). (Technical Coordinator, Firm A, 2015).

IV.6.4.6 COMMUNICATION

Communication as agreed by many scholars can either break or strengthen the multi-cultural teams (Comu et al, 2011; Ochieng and Price, 2008; Ofori, 2009; Thomason, 1988). Discussing the challenges, benefits, opportunities, difficulties with the team members were necessary to help the employees visual the root of the problems they normally face. It was obligatory to discuss the job responsibilities of each team member among the group, this allows the employee to take full charges of their respectively tasks, and also prevent the occurring of any conflict during project progress.

It is no surprise that many employees were not aware fully of their managerial responsibilities. Since not all employees got a dominant leadership and communication skills, the introduction of

the time breaks was required. This time-break interval gave every team member the opportunity to discuss and elaborate more on his/her work, which afford a sense of satisfaction and enhanced the dedication level. This encouraged the employees to take more responsibility and speak their ideas out loud. This was noticeable especially among groups B, E and F where the team members shared valuable ideas during the break out time interval. The benefit of this time interval is that each member is forced to at least describe his/her work. Most engineers started proposing ideas that although they did not work on, but had in mind. This encouraged the brain storming which was lacking during the first trial.

Ochieng and Price (2009) study acknowledged that effective communication aid in the management of multicultural teams. However, deciding on the communication patterns varies from one country to another. While asking the team members about their preference of communication pattern at work, 85% preferred the verbal communication. Verbal communication enhances the understanding and avoids any attitude problem that may arise. However, due to the working condition of MCF, the electronic and non-verbal communications are mainly used. Various solutions are possible to avoid the demerits of the non-verbal communication. The multi-cultural teams for instance can be involved in team building activities, regular time should be allocated for discussion of the brief and task distribution. The project progress should be followed regularly and a summarized email should be send to all project team members after every phone call or Skype conversation regarding the updates and progress of the project. The smoothness of the handover of the task, co-operation, issue resolution and joint decision making are also essential to ensure a high performing team. However, this needs to be backed up with a strong communication approach.

IV.6.4.7 CULTURAL DIVERSITY

After the completion of the experiment with its phases, each participant were requested to fill a cultural assessment test, the Value Survey Model 2008 (VSM 2008) which was developed by Hofstede (1994) and used in the construction industry by scholars like Kogut and Singh (1988); Comu et al (2011). This assessment is essential in order to determine whether the study of the culture index will help the construction leaders while managing the multi-cultural teams. The cultural distance index is calculated through the following formula:

$$CDI_{ij} = \frac{1}{5}\sum_{k=1}^{5}\left(\frac{I_{ik}-I_{jk}}{V_k}\right)$$ Equation IV-1

where CDI_{ij} = cultural distance index between the countries i and j, I_{ik} = index of country I on the k^{th} cultural dimension, V_k is the variance of the index of the k^{th} dimension. Before studying the cultural performances of these teams, the data of the participant's nation was extracted from Hofstede (1994) analysis which is represented below.

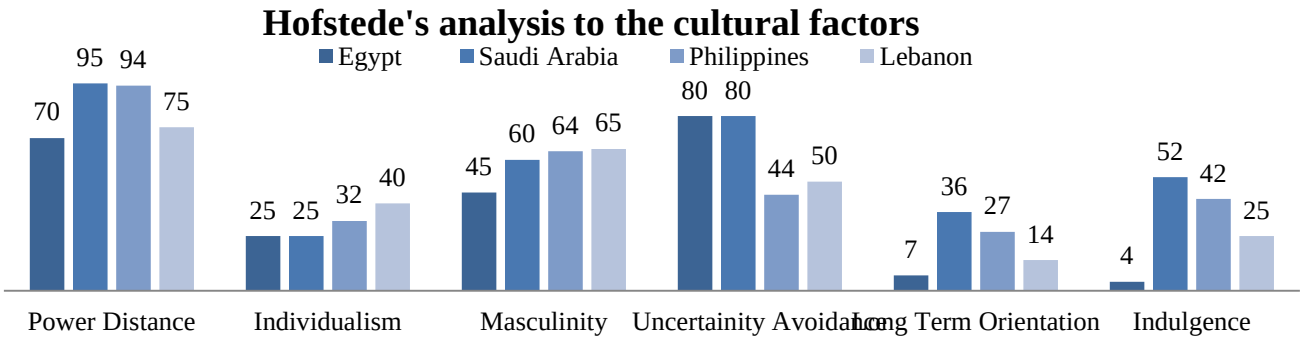

Figure IV-5: Comparsion between the cultural diversity of the participant's nations

Table IV-14: Hofstede analysis to the cultural diversity for some countries

Country	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long term Orientation	Indulgence
Egypt	Hierarchy is highly preferred showing inherent inequalities, subordinates expect to be told what to do,	Commitment to the group members	More feminine society, where managers strive for consensus, people value equality, solidarity and quality in their working lives. Compromise and negotiation is the core of problem solving. Managers are supportive, decision making is achieved through involvement	High preferences for avoiding uncertainty, maintaining rigid codes, inner urge to be busy, work hard, precision and punctuality are norms, innovation is resisted, security is important for motivation	Great value for tradition and small propensity to save for the future	Cynicism and pessimism society

Saudi Arabia	Ideal boss is a benevolent autocrat, centralization is popular, subordinates expect to be told what to do	Commit ment to the group members	Masculine society, managers are expected to be decisive and assertive, emphasis on equity, competition, performances and conflicts resolved by fighting them out.	High preferences for avoiding uncertainty, maintaining rigid codes, inner urge to be busy, work hard, precision and punctuality are norms, innovation is resisted, security is important for motivation	Great value for tradition and small propensity to save for the future	No clear preferences on this dimension
Philippines	Ideal boss is a benevolent autocrat, centralization is popular, subordinates expect to be told what to do	Commit ment to the group members	Masculine society, managers are expected to be decisive and assertive, emphasis on equity, competition, performances and conflicts resolved by fighting them out.	Low preferences for avoiding uncertainty. Schedules are flexible, hard work is undertaken when necessary, innovation is not seen as threatening	Great value for tradition and small propensity to save for the future	Cynicism and pessimism society
Lebanon	Ideal boss is a benevolent autocrat, centralization is popular, subordinates expect to be told what to do	Between commit ment to self and to the group	Masculine society, managers are expected to be decisive and assertive, emphasis on equity, competition, performances and conflicts resolved by fighting them out.	No clear preference for this dimension	Great value for tradition and small propensity to save for the future	Cynicism and pessimism society

The VSM (2008) is a 34 questions questionnaire, which follows the Likert scale of 5 points (1= outstanding, 2 = very important, 3 = moderate important, 4 = little important and 5 = no important). The process of this test was not to compare the scores of the team with the data exerted earlier by Hofstede (1994). It is only a mean to understand the behavior of every team member and determine where the study of the culture variables can assist in choosing the managerial approach or not. The mean, standard deviation and the correlation coefficient for Hofstede variables were calculated for the team members based on their responses from the survey.

Table IV-15: Cultural analysis of the teams participated in the qualitative experiment

Group	Team Composition	Team Type	Cultural Distance Index				
			PDI	IDV	MAS	UAI	LTO
A	Mono	Traditional	60	40	25	80	80
B	Multi	Traditional	70	60	55	85	55
C	Multi	Virtual	65	65	60	65	25
D	Mono	Tradition	80	25	70	50	20
E	Multi	Virtual	70	35	55	70	60
F	Multi	Virtual	85	50	85	55	45

Studying the mono-cultural teams, Group A scored 25 in the masculinity (MAS) section defining them as a more feminine society, where managers prefer the supportive technique and everyone is involved in the decision making. However, this group preferred the participative leadership not only during the first stimulation but also during the second stimulation. Another notable score is the long term orientation (LTO) of group A, B, E and F. Although all the participating nationalities showed great value of tradition (Hofstede, 1994), these groups showed lesser value of the company's organizational culture. This is clear during the first experimental where groups didn't abide by the culture of the place, which according to Hofstede (1994) are the tradition to be followed in the working environment.

It is remarkable that the multi-cultural groups, both traditional and virtual groups (Group B and C), showed a high level of individualism which reflect their commitment to the self rather than the group. This explains the team members' attitude where the members were busy doing their individual tasks well, regardless of its cohesion with the rest of the team's output. However, when the multi-cultural teams were instructed on managerial approach, their performance improved.

The scores of the power distance index (PDI) are compatible with the performances of the teams and the country's score by Hofstede (1994). These scores indicate that the teams prefer to be told what to do and benevolent autocrat leadership is encouraged. Although this leadership style was

preferred by the Arab managers in the UAE (Alshamsi et al, 2015), the teams during their assessment preferred the participative leadership. The participative leaderships also agree with Hofstede (1994) study showing that the highly emotional cultures (like Egypt) prefer leadership styles like supportive and participative.

Comparing between the teams' output (verification results), VSM survey, and the Hofstede culture distance index, there is a high level of similarity. One of the recommendation that this thesis propose is that the team leaders study the cultural distance index of the team's nationality and try to implement some of the managerial approach linked to these index. However, not all parameters should be followed strictly; the cultural distance index is just one indicator for the success of the multi-cultural teams.

IV.6.5 CASE STUDY CONCLUSION

The following table presents the comparison of the team's performances during the first (qualitative experiment) and the second (verification experiment) trials conducted after implementing the measures as per the framework developed.

Table IV-16: Comparison of the team's performances based on the key parameters identified in the framework

Framework Parameter	First (Qualitative Experiment)	Second (Verification Experiment)
Organizational culture	The mono-cultural teams were aware of the organizational culture more than the multi-cultural and virtual teams. The mono-cultural teams' performances were consistent with the company's culture and of higher efficiency and cohesion as compare to the other four groups.	The performances of the multi-cultural teams improved and the curve followed the studies conducted by Richard et al. (2007) and Comu and Taylor (2011). The multi-cultural teams abided more by the organizational culture (refer to table V-17).
	Most of the teams showed very little knowledge about the company's presentation technique and design aspects. The brief was not satisfied and team's faced linguistic barriers and misinterpreted of brief's items.	The final output of the teams was consistent with the company's undefined template and the product fulfilled the brief requirement. The form given for the brief made it easier for the teams to start working on the right parameters directly.
Mechanism of staff recruitment	Teams were chosen to include as much variety as possible for the purpose of the research.	The framework implemented on the teams should that regardless of the team composited, there is a possibility that the multi-cultural teams

		prefer well. However, the consistence of the teams together makes it easy to ensure a highly effective managerial approach and a higher team spirit (to avoid tension like group C). Teams are to be selected based on criteria that is extracted from the company's organizational culture. This includes the company's open/closed system, employee/work oriented, easy/strict working discipline and whether the company is mea/goal oriented.
Leadership style	The unbalance definition of job responsibilities result in team members either interested in controlling the project or others who do not contribute except in technical regard. This problem was encountered by multi-cultural, mono-cultural and virtual teams equally.	The definition of a leader and a proper description of the technical and managerial duties made the performances of the teams higher and reduced the tension. All the tasks of the project need to be assisted to ensure that no task is left unattended. Ones the leaders are defined by the top management, the horizontal hierarchy respect this and abide by the regulation, unlike when someone takes over leading the team. This was essential true for multi-cultural multi-located teams. It is essential to understand the culture impact on the selection of the leadership style. In the case of the Egyptian society, a combination of participative, supportive and bureaucratic leadership style was preferred while the Philippinos preferred the participative style solely. The virtual teams require a more bureaucratic style due to the cultural, social diversity and the absences of direct face-to-face communication
Decision-making approach	Unawareness of the team members about the company's organizational culture, enforced every team to introduce a decision procedure that suit the team composition and the nature of their respectively culture.	A clear explanation of the company's objective, made the team members aware of the importance of time factor. Consequently, most of the groups abided by the command decision approach which valued time. As mentioned earlier by Ochieng and Price, the usage of managerial approach doesn't result in immediate success of the teams. Time is an important factor that is to be considered while developing multi-culture teams. Thus, it is not expected that all teams response to the specified decision-making approach from the

		first trial. The decision-making approach need to reflect the company's organizational culture, in terms of it been internal/external driven and employee/work oriented.
Communication	Communication was unorganized, followed an informal settlement and depended on the team's personal relations with one another. It was also noted that the communication pattern did not focus on the core competence of the brief.	Time was allocated at different interval to ensure an effective-organized communication while developing the project. These time slots and the enforcing of all the team members to express their opinion and elaborate on the individual work done thus far help in developing the employee's dedication to the project and develop the employee's communication skills.

Table IV-17: Comparison between the teams' understanding of organizational culture before and after the implementation of the framework.

Teams	**Organizational Culture**					
	Open vs. Closed System	Employee vs. work oriented	Acceptances of Organizational culture	Easygoing vs. strict work discipline	Acceptance of Leadership style	Means vs. goal oriented
Company's system	Open system	Employee oriented	☑	Easygoing work discipline	☑	Mean oriented
Group A	Open system	Work oriented	☑	Strict	☑	Mean
	Open system	Employee oriented	☑	Easygoing	☑	Mean
Group B	Closed system	Employee oriented	×	Easygoing	×	-
	Open system	Employee oriented	☑	Easygoing	☑	Mean/Goal
Group C	Closed system	Employee oriented	☑	-	×	Goal
	Closed/Open System	Employee oriented	☑	Easygoing	☑	Mean/Goal
Group D	Open system	Work oriented	×	Strict	☑	Mean
	Open system	Employee oriented	☑	Easygoing	☑	Mean
Group E	Open system	Employee oriented	×	Easygoing	×	-

	Open system	Employee oriented	☑	Easygoing	☑	Mean
Group F	Closed system	Work oriented	☑	Strict	☑	Mean
	Open system	Employee oriented	☑	Strict	☑	Mean

The case study conducted above concludes the importance of the framework developed and the role the top management play in the multi-cultural teams. The absences of guidance from the top management result in a risk that the team members can develop their own working culture within the working environment. As shown in this case study, the cultural diversity of the multi-cultural teams can cause conflicts, misinterpretations and affect the performances and productivity of the teams. The participants in this case study recognized the importance of the guidance that was provided to them during the verification experiment. This guidance contributed to developing the team's culture by inaugurating it into the company's organizational culture resulting in more cohesive outputs, better understanding of the company's standard and managerial approach. The participants also noticed that knowing the company's organizational culture assist them since the managerial techniques required are no longer surprising or undeclared.

Therefore, the key parameters identified in the framework verified its significance in managing multi-cultural virtual teams. The five main key parameters, namely, organizational culture, team composition criteria, leadership style, cross culture management and communication approaches were not only significant but interconnected together and directly affect each other.

CHAPTER V. MODEL DEVELOPMENT

The key parameters identified are used to determine the competitiveness level of the foreign company planning to operate in Egypt. The key parameters of the foreign company will be compared with that of the host country and also will be compared for the local companies (in case of joint venture or partnership).

V.1 PRINCIPLE OF FUZZY THEORY

Fuzzy logic has been used for decision making in the construction industry because of its ability to read linguistics terms (qtd in Singh, D., and Tiong, R.L.K., 2005; Wang, R.C., and Liang, T.F.2004; Zheng, D.X.M., and Ng, S.T,.2005; Okoroh, M.I., and Torrance, V.B., 1999; Tseng, T.L., Huang, C.C., Chu, H.W.,and Gung, R.R., 2004; Holt, G.D., 1998). The fuzzy logic is used in this research to assist the MCF in determining their position while operating in the Egyptian market. There are numerous definitions for the fuzzy theory principle; however for the process of this model, the triangular fuzzy number is used. The triangular fuzzy number is frequently used when there is a need for linguistic terms (Chen, 200; Deng, 2006). The triangular fuzzy number is a fuzzy number represented with three points as defined below:

$$A = (\boldsymbol{a_1}, \boldsymbol{a_2}, \boldsymbol{a_3}) \qquad \text{Equation V-1}$$

This is represented in the following function:

$$\begin{cases} 0 & x < a_1 \\ \frac{x-a_1}{a_2-a_1} & a_1 \le x \le a_2 \\ \frac{a_3-x}{a_3-a_2} & a_2 \le x \le a_3 \\ 0 & x > a_3 \end{cases} \qquad \text{Equation V-2}$$

The triangular fuzzy number A= (a_1, a_2, a_3) can be represented through the following figure:

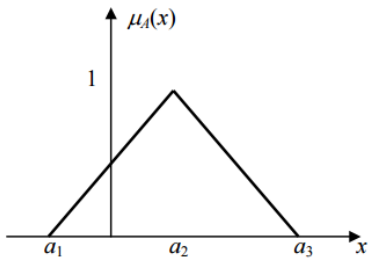

Figure V-1: Representation of the triangular fuzzy logic. (Chen, 2000)

The credibility distribution of the triangular fuzzy variable is calculated by:

$$\begin{cases} 0 & if \quad x < a_1 \\ \frac{x-a_1}{2(a_2-a_1)} & if \quad a_1 \le x \le a_2 \\ \frac{x+a_3-2a_2}{2(a_3-a_2)} & if \quad a_2 \le x \le a_3 \\ 1 & if \; x > a_3 \end{cases}$$

Equation V-3

For this research, the sub-indicator identified in the framework will be rated by the user (for the MCF) and a default set will be included for the host country. The rating of the sub-indicator will be through a standard set of linguistic variables is translated into a triangular fuzzy number. According to Chen (2000), the researchers often use a linguistic set with seven linguistic terms for the rating of the decision attributes. This linguistic variable set which was introduced by Chen (2000) is used for the model development of this research, which is as following:

Table V-1: Linguistic terms for fuzzy rating of the sub-indicators (Chen, 2000)

Linguistic Variables for rating of the parameters	Corresponding triangular fuzzy numbers
VP – Very Poor	(0,0,0.1)
P – Poor	**(0,0.1,0.3)**
FP – Fairly Poor	(0.1,0.3,0.5)
F- Fair	**(0.3,0.5,0.7)**
FG – Fairly Good	(0.5,0.7,0.9)
G – Good	**(0.7,0.9,1.0)**
VG – Very Good	(0.9,1.0,1.0)

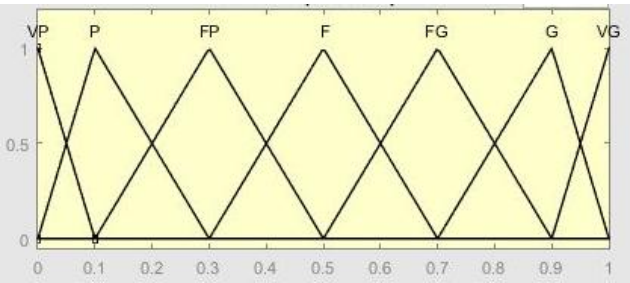

Figure V-2: The membership function for rating the parameters (Image generated using Matlab, 2015).

After translating the rating into triangular fuzzy numbers, the model will compare the results of the same sub-indicator generated by MCF and Egypt to calculate the degree of compatibility of the sub-indicator. The credibility calculated is in numerical form which may not always be clear for the users. Therefore, after the calculation is done, the user will get the output through the natural language expression set. The natural language expression set used in this research was also introduced by Chen (2002) and used for many studies within and outside the construction industry. The following table shows the set used in this research.

Table V-2: The natural expression set (Chen, 2002)

Linguistic Variables for rating of the parameters	Corresponding triangular fuzzy numbers
HL – Extremely Low	(0, 0.1, 0.2)
VL – Very Low	**(0.1, 0.2, 0.3)**
L – Low	(0.2, 0.3, 0.4)
FL- Fairly Low	**(0.3, 0.4, 0.5)**
F – Fair	(0.4, 0.5, 0.6)
FH – Fairly High	**(0.5, 0.6, 0.7)**
H – High	(0.6, 0.7, 0.8)
VH – Very High	**(0.7, 0.8, 0.9)**
EH- Extremely High	(0.8, 0.9, 1.0)

V.2 MODEL INTERFACE

The model developed is intended to be used by any MCF to determine its entry to the Egyptian market and determine the challenges associated with such movement. The model was generated on excel program to maximum the number of users who can benefit from the model. The model is designed to be user-friendly with back and next buttons to ensure the ability of the user to maneuver around the model easily. The model consist of five sheets, the first sheet includes an introduction, aim and objective of the model. It also familiarizes the user with the input procedure, linguistic variable, the natural language expression and its interpretation for the output. Since the model is intended for the MCF willing to operate in Egypt, the second sheet includes the key parameters and the sub-indicators with their rating done as a default set. The rating will relay on the study conducted by the American Chamber in 2003 since it is the latest study conducted on the management aspects of the Egyptian industry by the time this thesis was

produced. However, with the change in rules and regulation, these parameters need to be manually modified by the user. The third sheet includes the parameters and the sub-indicators which the user needs to fill for the firm represented. The firm can chose two or three users to rate the company and the model will calculate the average triangular fuzzy number for the MCF. The user(s) select one of the linguistic terms, Very Poor (VP), Poor (P), Fairly Poor (FP), Fair (F), Fairly Good (FG), Good (G), and Very Good (VG) for each sub-indicator. In order to avoid any error, the above linguistic terms will be in a form of a list where the user will be forced to choose from. A spectrum with the linguistic term and their rating will be provided at the introduction page to ensure every user is aware of the rating values. Since some of the sub-indicator will not be applicable to the company, the user will be added with an option of NA where this sub-indicator will not be translated into a triangular fuzzy number nor evaluated for the final output.

The user will be given the opportunity to choose if there are any strategic alliances or partnership with any local company. In this case, the user will be required to rate the same parameters for the local company. Nevertheless, since the foreign user may not be aware of the local company, a default set of data will be included which is based on the analysis of the construction industry from the American Chamber report based in 2003. This is included in the fourth sheet of the model.

The fifth and last sheet of the model includes the Rader chart and a table with the key parameters (organizational culture, mechanism of staff recruitment, leadership, and communication cross cultural management, complexity and uncertainty) rated using the natural language expression set. This sheet reflects the output that provides the foreign firm with an overview of its compatibility with the ECI and a local company (if any).

V.3 ILLUSTRATION EXAMPLE

In order to understand the model, assume that there is a MCF (ABC) that will be indulged in a design process for one of the projects located in Egypt. The company may use the model in order to know their compatibility with the ECI and the kind of managerial challenges faced by them while operating. The user's journey in the model includes the following main steps.

Step 1: Firm ABC chose two representatives, user 1 and user 2, to rate the sub-indicators for the company. In sheet one, the users are instructed on the linguistic variables, natural

language expression sat, and how to insert the data for the sub-indicators. Sheet two includes the sub-indicator which both users will rate based on their experience and understanding of the firm. Theoretically, the data entered by the two users should be similar or close to each other, this is to ensure the reliability of the output. Sheet three includes the default set of Egypt, which the user can modify if needed otherwise left as is.

Assuming that firm ABC decided to form a strategic alliances with a local contractor XYZ, the two users, user 1 and user 2, rate XYZ according to the sub-indicators defined in sheet four. The output of the tables is as following:

Table V-3: The success parameters and the scoring technique using the linguistic terms defined earlier

ASSOCIATED FACTORS	ABC		EGYPT	XYZ
	USER 1	USER 2		
MANAGEMENT PROCEDURES				
Career prospects within organization	G	FH	G	FL
Job description reflect the task allocated and responsibilities	FG	F	FP	FL
Salary scheme is followed in the company	P	FH	FP	F
The company engage its employee in trainings, team building activities etc.	FP	F	VG	F
Balance between the technical and managerial skills	G	F	G	FL
Regular feedback on the performances and open-ended discussion with the employees	VG	FH	FG	FH
Implement a strong organizational culture & abide by its regulation	G	H	G	FH
MECHANISM FOR STAFF RECURITMENT				
Profiling of the individual	G	FH	FG	FH
Technical experiences	FG	FH	FG	FH
Value of money candidate	FG	F	G	FH
Ability to adopt within the company's policy and team's culture	FG	H	FG	H
LEADERSHIP STYLES				
Clear leadership style is adopted by the company's leaders and managers	FG	FH	FG	H
Please specify the leadership style ……	F	F	G	H
Encourage employees to express their opinion and experience project leadership.	F	F	F	FH
CROSS CULTURAL MANAGEMENT				

Studied the construction market and its growth prospects	FG	H	F	FH
A thoroughly examination about the local construction law	G	H	F	FH
Research and Development about the social needs in the Egyptian market	G	H	F	H
Knowledge about the local client's requirement on services and quality	G	F	FG	F
Knowledge and develop relation with the supporting industry	G	FL	FG	F
Effective management on site, especially the safety procedure, thus include knowledge about the labor productivity, culture and education	FG	FL	FG	FH
Technological development of a product	FG	F	FG	F
Business analyst on the economic debt status of the industry	F	FH	G	F
An economic study of the ratio between the direct and indirect cost	F	FH	G	F
CROSS CULTURALCOMMUNICATION				
The decision making approach is clear and defined	F	FH	FG	F
Please specify ……	F	FH	FG	FH
Regular communication among the virtual teams	FG	FH	FG	FH
Developing a strong informative and non-verbal communication scheme	FP	F	FG	FH
Regular business trips in the case of complex projects located overseas.	G	F	G	FH
COMPLEXITY				
Standardizing the codes between the disciplines and the branches	FG	F	G	F
Unclear procedure for establishing company	F	FL	FG	F
Dealing with vendors/ sub-contractors	F	FH	FG	F
No platform to find a proper legal strategically assistances	F	FH	FG	F
Managing currency exchange rates and fluctuations	F	FH	G	FH
Determine selling price of services	FG	FH	F	FH
Addressing taxation issue	FG	F	F	FH

Step 2: The model will first translate the linguistic variable entered by the user 1 and user 2 into triangular fuzzy numbers as shown in table 45. The triangular fuzzy number for the four parties is as shown below:

Table V-4: The average triangular fuzzy number for Firm ABC, Egypt and XYZ

ASSOCIATED FACTORS	ABC		EGYPT	XYZ
	USER 1	USER 2		
MANAGEMENT PROCEDURES				
Career prospects within organization	(0.7,0.9,1.0)	(0.5,0.7,0.9)	(0.7,0.9,1.0)	(0.5,0.7,0.9)
Job description reflect the task allocated and responsibilities	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)
Salary scheme is followed in the company	(0,0.1,0.3)	(0.5,0.7,0.9)	(0,0.1,0.3)	(0.5,0.7,0.9)
The company engage its employee in trainings, team building activities etc.	(0.1,0.3,0.5)	(0.3,0.5,0.7)	(0.1,0.3,0.5)	(0.3,0.5,0.7)
Balance between the technical and managerial skills	(0.7,0.9,1.0)	(0.3,0.5,0.7)	(0.7,0.9,1.0)	(0.3,0.5,0.7)
Regular feedback on the performances and open-ended discussion with the employees	(0.9,1.0,1.0)	(0.5,0.7,0.9)	(0.9,1.0,1.0)	(0.5,0.7,0.9)
Implement a strong organizational culture and abide by its regulation	(0.7,0.9,1.0)	(0.7,0.9,1.0)	(0.7,0.9,1.0)	(0.7,0.9,1.0)
MECHANISM FOR STAFF RECURITMENT				
Profiling of the individual	(0.7,0.9,1.0)	(0.5,0.7,0.9)	(0.7,0.9,1.0)	(0.5,0.7,0.9)
Technical experiences	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)
Value of money candidate	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)
Ability to adopt within the company's policy and team's culture	(0.5,0.7,0.9)	(0.7,0.9,1.0)	(0.5,0.7,0.9)	(0.7,0.9,1.0)
LEADERSHIP STYLES				
Clear leadership style is adopted by the company's leaders and managers	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)
Please specify the leadership style ……	(0.3,0.5,0.7)	(0.3,0.5,0.7)	(0.3,0.5,0.7)	(0.3,0.5,0.7)
Encourage employees to express their opinion and experience project leadership.	(0.3,0.5,0.7)	(0.3,0.5,0.7)	(0.3,0.5,0.7)	(0.3,0.5,0.7)
CROSS CULTURAL MANAGEMENT				
Studied the construction market and its growth prospects	(0.5,0.7,0.9)	(0.7,0.9,1.0)	(0.5,0.7,0.9)	(0.7,0.9,1.0)
A thoroughly examination about the local construction law	(0.7,0.9,1.0)	(0.7,0.9,1.0)	(0.7,0.9,1.0)	(0.7,0.9,1.0)
Research and Development about the social needs in the Egyptian market	(0.7,0.9,1.0)	(0.7,0.9,1.0)	(0.7,0.9,1.0)	(0.7,0.9,1.0)
Knowledge about the local client's requirement on services and quality	(0.7,0.9,1.0)	(0.3,0.5,0.7)	(0.7,0.9,1.0)	(0.3,0.5,0.7)
Knowledge and develop relation with the supporting	(0.7,0.9,1.0)	(0.1,0.3,0.5)	(0.7,0.9,1.0)	(0.1,0.3,0.5)

industry				
Effective management on site, especially the safety procedure, thus include knowledge about the labor productivity, culture and education	(0.5,0.7,0.9)	(0.1,0.3,0.5)	(0.5,0.7,0.9)	(0.1,0.3,0.5)
Technological development of a product	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)
Business analyst on the economic debt status of the industry	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)
An economic study of the ratio between the direct and indirect cost	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)
CROSS CULTURALCOMMUNICATION				
The decision making approach is clear and defined	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)
Please specify ……	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)
Regular communication among the virtual teams	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)
Developing a strong informative and non-verbal communication scheme	(0.1,0.3,0.5)	(0.3,0.5,0.7)	(0.1,0.3,0.5)	(0.3,0.5,0.7)
Regular business trips in the case of complex projects located overseas.	(0.7,0.9,1.0)	(0.3,0.5,0.7)	(0.7,0.9,1.0)	(0.3,0.5,0.7)
COMPLEXITY				
Standardizing the codes between the disciplines and the branches	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)
Unclear procedure for establishing company	(0.3,0.5,0.7)	(0.1,0.3,0.5)	(0.3,0.5,0.7)	(0.1,0.3,0.5)
Dealing with vendors/ sub-contractors	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)
No platform to find a proper legal strategically assistances	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)
Managing currency exchange rates and fluctuations	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)
Determine selling price of services	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)	(0.5,0.7,0.9)
Addressing taxation issue	(0.5,0.7,0.9)	(0.3,0.5,0.7)	(0.5,0.7,0.9)	(0.3,0.5,0.7)

Step 3: The model will then calculate the average triangular fuzzy number for the data entered for firm ABC by users, user 1 and user 2. After this, the final rating is calculated by consolidating the fuzzy rating for sub-indicator for every key parameter (Management procedures, mechanism for staff recruitment, leadership styles, cross cultural management, cross cultural communication and complexity factors) and the average fuzzy rating per parameter is calculated. The crucial parameters will be highlighted in the fifth sheet in the model. For the example above, the average fuzzy rating for every parameter was calculated to be as following:

Table V-5: The average fuzzy rating and weighting per sub-indicator and for the key parameter

ASSOCIATED FACTORS	AVERAGE FUZZY RATING		
	ABC	EGYPT	XYZ
Management procedures	(0.4,0.68,0.94)	(0.82,0.42,0.43)	(0.94, 0.64, 0.28)
Mechanism for staff recruitment	(0.36, 0.54, 0.91)	(0.21, 0.44, 0.31)	(0.11, 0.21, 0.17)
Leadership styles	(0.64, 0.21, 0.64)	(0.53, 0.46, 0.42)	(0.23, 0.41, 0.63)
Cross cultural management	(0.41, 0.68, 0.34)	(0.24, 0.45, 0.34)	(0.49, 0.98, 0.35)
Cross cultural communication	(0.56, 0.76, 0.65)	(0.49, 0.25, 0.53)	(0.12, 0.45, 0.5)
Complexity	(0.43, 0.86, 0.57)	(0.54, 0.76, 0.65)	(0.23, 0.37, 0.82)

Step 4: In the fifth sheet also a radar chart will be generated to ease the understanding of the key success parameters.

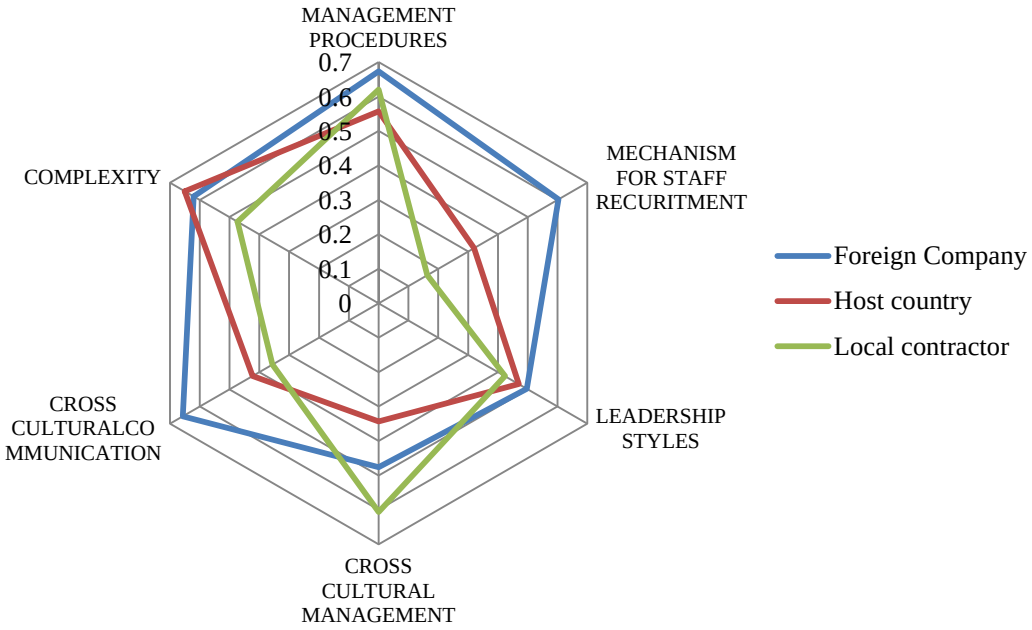

Figure V-3: Radar chart showing the six key parameters of the MCF, host country and the local contractor

Step 5: To ensure the ease of delivering the information, the average triangular fuzzy number calculated per key parameter will be translated into natural language expression. For the example above, the final output that is also seen in sheet five is as following:

Table V-6: The linguistic output presented to the user regarding the rating of every parameter

ASSOCIATED FACTORS	ABC	EGYPT	XYZ
Management procedures	H	FH	FH
Mechanism for staff recruitment	**FH**	**L**	**HL**
Leadership styles	F	F	FL
Cross cultural management	**FL**	**L**	**FH**
Cross cultural communication	H	FL	FL
Complexity	**FH**	**FH**	**F**

Step 6: A simplified recommendation is available to the user in sheet six that describe the key parameters of the framework developed from the ECI perspective. This provides the foreign users with an insight view of the ECI managerial techniques and parameters. A version of this explanation which is standardized is as following:

Table V-7: Insight of the Egyptian Construction Industry managerial approaches as per the framework developed

ASSOCIATED FACTORS	RECOMMENDATION
Management procedures	Clear organizational culture should be established and implemented, which include defining the company into: mean/goal oriented, work/employee oriented, open/closed system, easy/strict working discipline, and internal/external driven.
Mechanism for staff recruitment	Specific criteria should be specified while composing the team. These criteria should include individual profiling, technical experience, value of money candidate and the candidate's ability to adopt with the company's culture and the team. The priority of the criteria is based on the company's organizational culture.
Leadership styles	The leadership style to be followed can be a combination of participative, bureaucratic, supportive styles to ensure the multi-cultural teams efficiency performances.
Cross cultural management	While operating in the Egyptian industry, an explanatory study on the local market should be done. The American chamber and the Egyptian engineering syndicate are good sources to be referred to. It is essential to have a complete knowledge about the local companies, in terms of their contractual procedures, technological advancement, and safety procedures on site. Study on the human resource should be done with focus on the social and economic constraints associated with each.
Cross cultural communication	During the initiating phase of a project, communication necessity is at its peak, where the project's brief, client's objective, etc. should be clearly defined among the

	top management and the team working on the project. Various means of communications should be introduced for multi-culture and multi-located teams, like forms, regular meetings, minutes of meeting, online discussion, decision-making sessions etc. Virtual teams should be treated with more bureaucratic leadership style to ensure their efficiency.

V.4 MODEL VALIDATION

The objective of this section is to validate the model developed regarding the success parameters of the MCF operating or intending to operate in ECI. The benefit of this step is to ensure that the model is workable and can add value to the users. The main objective of carrying out the verification and the validation phase is to achieve the following:

(i) To ensure that the key success parameters proposed fulfill the demand of the ECI.
(ii) Validating the application of the framework in real life situation
(iii) Validate the compatibility of the results with the literature review

V.4.1 VALIDATION TECHNIQUE

In order to validate the model, various approaches can be implemented as discussed earlier in Chapter IV- 5.1. To ensure the reliability of the model, external validity approach was chosen. The importance of the external validity approach is that it is mainly related to generalization. In theory, there are two means to achieve external validity, they are:

(i) Sampling Model: This model includes identifying the population that the model can be generalized on and then a sample size is determined and the research is conducted (Trochim, 2006).
(ii) Proximal Similarity Model: This model is about determining the different generalization context in term of time, people and place. This creates a gradient of similarity upon which the model developed to be generalized.

In this research, the model developed is intended for the MCF operating or intending to operate in ECI either through outsourcing, offshoring or partnership. Therefore the sampling model will be used for external validity.

V.4.2 VALIDATION METHDOLOGY

To implement the external validity approach, the model was send to three leaders in the construction industry who did not originally participate in the research. The information about these three leaders is provided in the table below.

Table V-8: Information about theparticipants for model validation phase

Leaders	Nationality	Experience	Field	Company
User A1	Foreigner	Total : 15 years Belgium and Egypt	Project Management	CB
User A2	Egyptian	Total: 12 years UAE and Saudi Arabia and Egypt	Technical Office	CA
User A3	Foreigner	Total: 10 years Lebanon, Saudi Arabia and Egypt	Project Management	CFD

Apart from the above participants, the model was also shared among 5 other users (A4-A8) who are in their mid-career with an average of 4-8 years' experience in the field. It is important to evaluate the model from the perspective of the fresh engineers in order to know the generalization possibility of the model developed. The participants in the validation phase were given the model along with a short validation questionnaire. The questionnaire was designed to include four questions, which aimed to provide the participants with a tool to evaluate the model without consuming a lot of their precious time. In order to measure the level of acceptances and agreement to the various parameters, the participants were asked to use the model and evaluate it on a Likert scale (1- strongly disagree, 2- disagree, 3- fairly agree, 4- agree and 5- strongly agree). The experts were asked the following:

(i) Is the model user-friendly and does it follows logical sequences?
(ii) Are the graphs enough to provide an understanding of the MCF position in the ECI?
(iii)Rate the usage of the model in the Egyptian market
(iv) Is the recommendation sheet is useful for the ECI ?

The participants used the model, evaluated it and their responses is recorded in the charts below

Table V-9: Feedback on the model's interface

Question	A1	A2	A3	A4	A5	A6	A7	A8	Std. dev.
Model's user interface	5	4	4	4	4	3	4	5	0.599
Linguistic and phraseology understanding	**3**	**3**	**3**	**3**	**5**	**4**	**4**	**5**	**0.829**
Number of parameters	4	4	5	3	4	5	4	3	0.707
Ease of handling the model	**3**	**3**	**4**	**5**	**3**	**3**	**5**	**4**	**0.829**

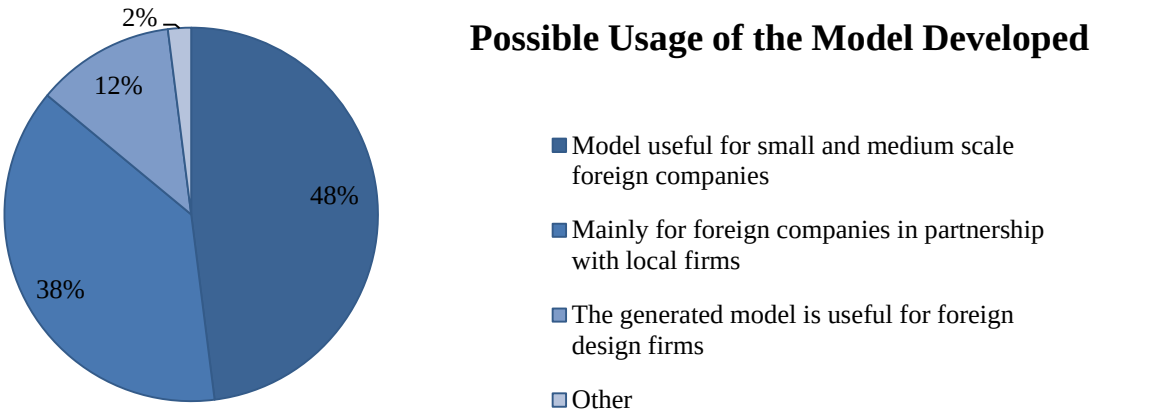

Figure V-4: The possible usage of the model developed

Table V-10: Feedback on the model's outcome as per the 8 experts

Question	A1	A2	A3	A4	A5	A6	A7	A8	Std. dev.
Output follows a logical sequence	4	4	5	3	4	3	4	4	0.5994
The recommendation sheet is reasonable and useful	**5**	**4**	**4**	**4**	**5**	**4**	**5**	**4**	**0.4841**

V.4.3 VALIDATION RESULTS

The 12 experts who used the model agreed that the model is a useful step for the integration of the MCF operating inside Egypt. It was agreed that this model is user-friendly, straight forward and easy to interact with. Participant A6 entered his respectively company's data and the results were computability with the company's position, thus confirming that the results follow logical sequences. Participants A4 and A8 mentioned that the model may not be useful for the design specialized firms because the parameters included does not include specific design phases however agreed that it is a tool to manage the multi-cultural teams operating at design firms. The

interface of the program is easy to use because of the presences of an instruction sheet. Participant A1 noted that the parameters in the model follow a logical sequence starting with the company's culture followed by the other parameters which reflect the structure followed by companies while launching a new branch or team.

V.4.4 MODEL SUMMARY

This chapter presented the main stages for the development of the model along with the validation phase. The aim of the validation phase was to measure the ability of generalizing the framework and also to determine the usage and reliability of the framework developed. The objective of the model is to assist the project leaders to assess their company's/ team's performances in regard to managing the multi-cultural teams. The model is intended to provide guidance for the project leaders to establish an understanding of the cultural influences on the team through known-terminology within the construction management. In conclusion, it was revealed that the model developed provide a clear straight forward approach in examining the team's performances.

CHAPTER VI. CHAPTER VII - CONCLUSION AND RECOMMENDATIONS

The objective of this research is to develop a framework useful for the MCF operating in the ECI. While the aim of the research was developed in chapter 1, the preceding chapters discuss the research objective within the context of literature review, theory and model. The key finding and the conclusions of the research is highlighted briefly in this chapter. Finally, the chapter provides recommendation to the ECI and suggests future area of research based on the literature review.

VI.1 CONCLUSIONS

(i) With the drastic demand of the globalization movement, there is an emerging tendency to develop success parameters for working overseas. A number of research are conducted across the global focusing on various globalized market yet none presented a permanent set of success parameters. Another issue inquired was the minimal research on the MENA region and lack of information on the Egyptian globalized market. The objective of this research was to first determine whether having a multi-culture team require a modified managerial approach or a regular management tool. The research also aimed to recognize the main challenges faced by the MCF and what managerial steps are required to handle the multi-cultural teams. This research focusing on the MCF's experience in the ECI, established a set of parameters which proved to have a significant bearing on the success of the MCF in the ECI.

(ii) Explanatory studies of the literature review reveal the positive attribution of globalization and discuss various entry route and motives behind seeking a globalized market. However, for the MCF to operate oversea, various managerial approaches need to be implemented taking the social and cultural diversity into account. The nature of the host's country construction industry should also be indulged into the MCF's organizational culture to ensure efficiency and effective performances of the multi-culture and virtual teams.

(iii)The qualitative and quantitative experiment confirmed the hypothesis of implementing an amended managerial approach while managing multi-cultural teams. Multi-cultural teams require a well-defined organizational culture, with clear job responsibilities balancing

between the technical and the managerial duties. The organizational culture set the base for staff recruitment, and decision-making approaches. The leadership style that suits the nature of the multi-cultural teams in Egypt is established to be a balance between participative, supportive and bureaucratic where the latter is essential for the virtual teams. Communication and Cross-cultural management are essential to determine the level of efficiency and effectiveness of the multi-cultural teams. As pointed out by the literature review, various issues remain either complexity and or uncertainty which are mainly influenced by a third party, client or governmental regulation.

(iv) The findings of the research confirmed the influences of both cultural parameters on the multi-culture and multi-located teams. The cultural parameters of the Egyptian culture influence the conceptual phase of the design, the leadership style, and organizational culture to be implemented. Social parameters that influence the performances of the multi-cultural teams include the communication, loyalty, and motives to join the globalized market.

(v) Based on the mixed method analysis, the framework is developed to include the key attainment parameters which affect the success of the MCF in the ECI. These parameters are:

a. Organizational culture: Clear organizational culture should be established and implemented, which include defining the company into: mean oriented, employee oriented, open system, easy working discipline, and external driven.
b. Mechanism for staff recruitment: Specific criteria should be specified while composing the team. These criteria should include individual profiling, technical experience, value of money candidate and the candidate's ability to adopt with the company's culture and the team.
c. Leadership: The leadership style to be followed can be a combination of participative, bureaucratic, supportive styles to ensure the multi-cultural teams efficiency performances.
d. Communication: While operating in the Egyptian industry, an explanatory study on the local market should be done. The American chamber and the Egyptian engineering

syndicate are good sources to be referred to. It is essential to have a complete knowledge about the local companies, in terms of their contractual procedures, technological advancement, and safety procedures on site. Study on the human resource should be done with focus on the social and economic constraints associated with each

e. Cross cultural management: During the initiating phase of a project, communication necessity is at its peak, where the project's brief, client's objective, etc. should be clearly defined among the top management and the team working on the project. Various means of communications should be introduced for multi-culture and multi-located teams which are forms, regular meetings, minutes of meeting, online discussion, decision-making sessions. Virtual teams should be treated with more bureaucratic leadership style to ensure their efficiency.

(vi) The framework developed is verified and validated to ensure its generalization on the ECI using external, internal validity and reliability test. The framework was later developed into a model to assist the MCF test their compatibility with the ECI and the local companies. The model is developed using the Fuzzy logic and the model was also validated through the deliberation of the ECI leaders.

VI.2 CONTRIBUTION OF THE RESEARCH

This research thus emphasize on the importance of indulging the participant's behavior, values, beliefs and cultural background into the managerial system. With the continuous demand of the globalization of the ECI, new direction need to be adopted in the management of the multi-cultural teams especially that culture issues are complex which affect the performances and the outcome of the team. Unfortunately the amount of research conducted in this regard remains limited across the global especially in the MENA region.

VI.3 RECOMMENDATIONS TO THE INDUSTRY

A number of recommendations can be concluded from this research. The following section presents the recommendation to the construction industry in Egypt.

(i) **Motiving the presences of MCF in Egypt:** There is a global tendency for globalizing the construction industry, which is clear through the statistics conducted by organizations like

ENR, HIS Construction Outlook and the Global perspective and Oxford Economics. For many of the Egyptian construction firms, this move can be regarded as a threat to their business and an exist step from the market. With the continuous demand of the local clients for higher standard and qualification, the foreign counterpart will be favored over the local contractor. Therefore, it is the responsible of the local contractor to start learning international standard, advanced technology and the project management technique. This experience can be gained from the MCF themselves. So, the ECI should allow for an environment that encourage the MCF to step inside the industry and at the same time regulate the MCF's presences. The presence of the MCF in Egypt is one of the main routes that will allow for the development of the local companies and the ECI.

(ii) **Managerial Techniques:** The Egyptian managers and leader should be encouraged to develop managerial skills among their teams. There is a gap between the educational system and the practice of the industry. So for this gap to collapse, the fresh graduates should be engaged in rotation programs that indulge their managerial skills as well as technical skills. Allowing for leading opportunities for small tasks and providing a clear job responsibilities should be taken care of by the leaders of the industry especially that in most cases, the HR are not aware of the differences between the various engineering disciplines.

(iii) **Cultural Diversity:** More awareness and knowledge about the cultural issues is required in order to enhance the development of the multi-cultural teams, which consequently determines the project's status. The ECI needs to identify the importance of integrating the technical as well as the managerial skills in order to enhance the industry's competitiveness level.

(iv) **Governmental Influences:** The government should recognize that the laws and the codes affect the development of the construction industry, which is one of the main contributors to the national GDP. Therefore, taxation issues and the high custom on importing machinery, equipment etc. should be addressed. Work permit for the foreign experts especially those with Arab nationality should also be addressed to encourage the presences of foreign experts inside the industry.

(v) **Egyptian Engineer Syndicate:** Since labors are the main element of the construction industry, a special attention should be given to the labors. In most of the cases, the labors in the construction industry are given low wages, no contract, no social or medical insurances is awarded to them. Consequently, the performances of the labor cannot be guaranteed and usually more labors are recruited for the job than required. The Egyptian engineering syndicate understanding the importance of the labor force especially that the ECI relay on the cheap cost of the labor rather than importing technology, should take various steps in this regard. Legal contract or an increase in the labor's wages or ensuring a biweekly rather than daily wages should be implemented. Labors should also be paid for national holidays. These steps might encourage the labors to be dedicated to the industry and improve their performances.

VI.4 RECOMMENDATIONS FOR FURTHER RESEARCH

This study was able to achieve it's primarily aim of developing a framework for the success parameters regarding the presences of the MCF in the ECI. The framework and the model were validated and verified in order to ensure the general application of the model in the ECI. However, several issues were not covered in depth and require further research. These issues are highlighted as below:

(i) There are different means of globalization, outsourcing, offshoring and partnership. The success parameters of each could be slightly different and in that case, a detailed research should be conducted treating each case differently. This will help to provide a more reliable and accurate information for the MCF operating in Egypt.

(ii) This research assumed that certain parameter (age, gender and employee's years of experience) has no or negligence influence on the performances of the multi-cultural teams. For further study, these parameters can be considered to verify their role in multi-cultural virtual teams.

(iii) Developing models and software to assist the construction managers working on large and complicated projects will be a useful tool. There are currently minimum amount of

software that address project management and provide guidelines for the engineers. Further studies in this regard will help the managers and the mid-career engineers to understand the procedural and the contractual techniques of the industry.

(iv) The ECI remains a male dominant industry. Therefore the female representatives should emerge more into the industry. For this to take place, further studies should be conducted to understand the main obstacles the Egyptian and the foreign female face while operating in the ECI. The study could explore the national, social and the economic factor that resulted in masculine the construction industry.

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APPENDIX

QUALITATIVE EXPERIMENT - SURVEY

THE AMERICAN UNIVERSITY IN CAIRO

DEPARTMENT OF CONSTRUCTION AND ARCHITECTURE ENGINEERING

April 2015,

Title of Study: Multi-Culturism in Construction Industry

Under the supervision of Dr Samer Ezedin

Dear Sir,

I, Rania Busada, M.Sc Candidate at the Department of Architecture and Construction Engineering, The American University in Cairo, invite you to participate in a thesis project entitled "Multi-Culturism in Construction Industry" by answering the attached survey.

Globalization is a phenomenon that has been emerging for decades now and was capable to connect the construction industry in various means. Some of the impact of globalization were general, for instance the polarization of the global economy, the new rules and regulations controlled by organizations like World Trade Organization (WTO). However, the globalization had a direct impact on the construction industry, like development of construction techniques, collaborating culture diversity, development opportunity for the economic and social status of the countries especially the developing countries.

The focus of this survey is to understand the challenges of globalization, in both of its forms outsourcing and offshoring and tack the roots of problems faced by managers and organizations.

I would therefore greatly appreciate if you could complete the brief questionnaire attached below. By completing and returning the survey you are giving consent for your response to be included in this study. If you have any questions about this survey feel free to contact me. Results from this study will be shared with you when completed.

Sincerely,

Rania Busada

M.Sc Caliber in Construction Management

The American University in Cairo

SECTION 1a – INFORMATION ABOUT THE COMPANY

1. Company Size:

☐ 0-10

☐ 11-50

☐ 51-100

☐ 101-500

☐ 501+

2. The Company belongs to the (Design/Contractor/Consultant) Sector
3. The Company was established in ……
4. Number of Branches for the company world wise: ……
5. Company was involved in which kind of globalization:
    a. Offshoring (Working in one country but the projects are located offshore)
    b. Outsourcing (Sales office is located in country's project while operating elsewhere)
    c. Partnership, please specify kind of partnership (JV, etc.)……
    d. Other, please specify ……

SECTION 1b – INFORMATION ABOUT THE INTERVIWER

1. Name ……
2. Title ……..
3. Years of experiences in Construction Industry ……
4. Number of Globalization Project Worked on……
5. Scale of these Project (Small – Mid – Mega) ……..
6. Host Country of these Projects……..
7. Project country……..

SECTION 2 - GLOABLIZATION CULTURAL DIVERSITY AND LANGUAGE

1. Thinking Phase – WHY GO FOR GLOBALIZATION? : While deciding to proceed for a multi-culturism company/branch, what were the main objectives to be achieved from such move?

REASONS	5	4	3	2	1
Shortened design cycle time					
Increased quality at overseas engineering office					
Access to better investing opportunities					
Customers and project have moved offshore					
Cost reduction					
Other, please specify					

2. Thinking Phase – DESTINATION CHOSEN: What were the criteria that your organization relayed on to choose the destination country for globalization action?

REASONS	5	4	3	2	1
Political stability of the country and an encouraging legal framework					
Wide spreading the company's name					
Gaining International Experiences					
The economical revenues generated encourage the investment					
Availability of resource (in terms of labor, equipment, etc.)					
Other, please specify					

3. Operating Phase: As a manager, which of the following constitute the major constraints that you face while managing the multi-culturism branch/office?

REASONS	5	4	3	2	1
Cultural Diversity (Culture values, believes, political differences)					
Language Barrier					
Communication between the team members (Misunderstanding)					
Effectiveness of the performances is not as expected (especial with Code differences)					
Coordinating with Head office especially with time differences.					
Other, please specify					

4. Operating Phase: As a manager, rank the following from the most important criteria to least, taken while hiring an employee?

REASONS	5	4	3	2	1
Education: Western Education System and Certifications					
Language Knowledge					
Character: Ability to be a team player, decision- maker					
Financial Status: The salary expected					
Experiences: Worked on Similar Project scale and exposed to international projects					
Other, please specify					

5. Operating Phase: While hiring a Head or a senior, rank the following criteria from the most important to least?

REASONS	5	4	3	2	1
Education: Western Education System and Certifications					
Nationality					
Character: Ability to deal with cultural differences – Cultural Empathy					
Experience: Worked with various building code					
Experiences: Worked on Similar Project scale					

SECTION 3 – THE EFFECT OF GLOBALIZATION ON LOCAL MARKET

1. What is the impact of the globalization office on the host country?
   a. Positive Impact on the operating country
   b. Negative Impact on operating country
   c. No Effect

POSITIVE IMPACT (Tick all that applies)	
Better Life Style: Contributed to developing the infrastructure of the host country	
Economic Status: Encouraged foreign investment.	
Other, please specify	

NEGATIVE IMPACT (Tick all that applies)	
Increased the rate of unemployment (not hiring from the local country)	
Increasing the idle status of local competitors (encouraging foreign companies only)	
Other, please specify	

2. What is the impact of the globalized office on the employees working?
   a. Positive Impact on the operating country
   b. Negative Impact on operating country
   c. No Effect

POSITIVE IMPACT (Tick all that applies)	
Improved the employee's skills (Technical Knowledge)	
Enhanced the employee's managerial skills (Decision-Making, Leading a team, etc.)	
The salary scheme contribute to employee satisfaction	
Other, please specify	

NEGATIVE IMPACT (Tick all that applies)	
Local experts are not given Managerial roles.	
Developing the employee's skills is not given enough priority.	
Salary Scheme and Reward System is missing and only focus on foreign experts	
The local vacations/ religious holidays are not respected	
Other, please specify	

3. What is the impact of the globalized office on the local competitors?
   a. Positive Impact on the operating country
   b. Negative Impact on operating country
   c. No Effect

POSITIVE IMPACT (Tick all that applies)	
Contributed to technology transfer (know-how of techniques, managerial issues, etc.)	
Motivated the local companies to meet International Standard and be aware of it.	
Opened a gate of opportunities for local companies in different countries	
Other, please specify	

NEGATIVE IMPACT (Tick all that applies)	
Does not allow technology transfer (know-how of techniques, managerial issues, etc.)	
Local companies lost confident in development since foreign companies are preferred over.	
Reduced the opportunities of local companies to growth and be tendered as main contractors	
Other, please specify	

SECTION 4 – THE EFFECT OF GLOBALIZATION ON DESIGN PHASE

1. Conceptual Design: Rank the following from the major demerit to the least while working on conceptual phase of a project located overseas?

REASONS	5	4	3	2	1
Communication: Time consumption in explaining client's requirements					
Technical: Understanding and Studying the different building codes					
Technical: Not fully aware of the environmental constraints					
Communication Misunderstanding due to cultural norms					
Language Barrier					
Other, please specify					

2. Schematic Design: Rank the following from the major demerit to the least while working on schematic phase of a project located overseas?

REASONS	5	4	3	2	1
Coordination between different disciplines and team members (local branch)					
Communication between head office and local branch					
Unclear assignment of tasks and responsibilities between members					
Inability to understand technical issues due to project location					
Language Barrier					
Other, please specify					

3. Design Development Design: Rank the following from the major demerit to the least while working on final design development phase of a project located overseas?

REASONS	5	4	3	2	1
Coordination between different disciplines and team members					
Communication between head office and local branch					
Unclear assignment of tasks and responsibilities between members					
Disputes, Variation Order, and BOQ					
Language Barrier and Cultural Diversity					
Other, please specify					

SECTION 5 – THE EFFECT OF GLOBALIZATION ON CONSTRUCTION PHASE

1. Initiating Phase: Rank the following from the major demerit to the least while trying to initiate the project in the host country?

REASONS	5	4	3	2	1
Delay in delivery of drawings					
Unavailability of skilled labor and staff					
Language barrier					
Unrest in the political scene					
Currency Exchange rate and liquidity of cash					
Other, please specify					

2. Planning Phase: Rank the following from the major demerit to the least while trying to plans the project's milestone in the host country?

REASONS	5	4	3	2	1
Cultural Diversity (Norms, Values)					
Meeting Frequency and Language barrier					
Decision- Making criteria/norm is missing					
Unrest in the political scene ceasing the experts from finalizing the schedule					
Currency Exchange rate and liquidity of cash					
Other, please specify					

3. Executing Phase: Rank the following from the major demerit to the least when your company started working on site?

REASONS	5	4	3	2	1
A lot of modifications are required in the drawing to meet local building code and legal requirements (ignored previous in the design development drawings)					
Unavailability of skilled labor and staff					
Safety instruction is difficult to settle because of language barrier					
Communication issues because of cultural diversity (Ethics, values, beliefs, morals, etc.)					
Currency Exchange rate and liquidity of cash					
Other, please specify					

-THANK YOU FOR YOUR PRECIOUS TIME-

VSM QUESTIONNAIRE

INTERNATIONAL QUESTIONNAIRE (VSM 08)- page 1

Please think of an ideal job, disregarding your present job, if you have one. In choosing an ideal job, how important would it be to you to ... (please circle one answer in each line across):

1 = of utmost importance
2 = very important
3 = of moderate importance
4 = of little importance
5 = of very little or no importance

01. have sufficient time for your personal or home life	1	2	3	4	5
02. have a boss (direct superior) you can respect	1	2	3	4	5
03. get recognition for good performance	1	2	3	4	5
04. have security of employment	1	2	3	4	5
05. have pleasant people to work with	1	2	3	4	5
06. do work that is interesting	1	2	3	4	5
07. be consulted by your boss in decisions involving your work	1	2	3	4	5
08. live in a desirable area	1	2	3	4	5
09. have a job respected by your family and friends	1	2	3	4	5
10. have chances for promotion	1	2	3	4	5

In your private life, how important is each of the following to you: (please circle one answer in each line across):

11. keeping time free for fun	1	2	3	4	5
12. moderation: having few desires	1	2	3	4	5
13. being generous to other people	1	2	3	4	5
14. modesty: looking small, not big	1	2	3	4	5

15. If there is something expensive you really want to buy but you do not have enough money, what do you do?
    1. always save before buying
    2. usually save first
    3. sometimes save, sometimes borrow to buy
    4. usually borrow and pay off later
    5. always buy now, pay off later

16. How often do you feel nervous or tense?
    1. always
    2. usually
    3. sometimes
    4. seldom
    5. never

17. Are you a happy person ?
    1. always
    2. usually
    3. sometimes
    4. seldom
    5. never

18. Are you the same person at work (or at school if you're a student) and at home?
    1. quite the same
    2. mostly the same
    3. don't know
    4. mostly different
    5. quite different

19. Do other people or circumstances ever prevent you from doing what you really want to?
    1. yes, always
    2. yes, usually
    3. sometimes
    4. no, seldom
    5. no, never

20 . All in all, how would you describe your state of health these days?
    1. very good
    2. good
    3. fair
    4. poor
    5. very poor

21. How important is religion in your life ?
    1. of utmost importance
    2. very important
    3. of moderate importance
    4. of little importance
    5. of no importance

22. How proud are you to be a citizen of your country?
    1. not proud at all
    2. not very proud
    3. somewhat proud
    4. fairly proud
    5. very proud

23. How often, in your experience, are subordinates afraid to contradict their boss (or students their teacher?)

1. never
2. seldom
3. sometimes
4. usually
5. always

To what extent do you agree or disagree with each of the following statements? (please circle one answer in each line across):

1 = strongly agree
2 = agree
3 = undecided
4 = disagree
5 = strongly disagree

24. One can be a good manager without having a precise answer to every question that a subordinate may raise about his or her work	1	2	3	4	5
25. Persistent efforts are the surest way to results	1	2	3	4	5
26. An organization structure in which certain subordinates have two bosses should be avoided at all cost	1	2	3	4	5
27. A company's or organization's rules should not be broken - not even when the employee thinks breaking the rule would be in the organization's best interest	1	2	3	4	5
28. We should honour our heroes from the past	1	2	3	4	5

Some information about yourself (for statistical purposes):

29. Are you:
    1. male
    2. female

30. How old are you?
    1. Under 20
    2. 20-24
    3. 25-29
    4. 30-34
    5. 35-39
    6. 40-49
    7. 50-59
    8. 60 or over

31. How many years of formal school education (or their equivalent) did you complete (starting with primary school)?
    1. 10 years or less
    2. 11 years
    3. 12 years
    4. 13 years
    5. 14 years
    6. 15 years
    7. 16 years
    8. 17 years
    9. 18 years or over

32. If you have or have had a paid job, what kind of job is it / was it?
    1. No paid job (includes full-time students)
    2. Unskilled or semi-skilled manual worker
    3. Generally trained office worker or secretary
    4. Vocationally trained craftsperson, technician, IT-specialist, nurse, artist or equivalent
    5. Academically trained professional or equivalent (but not a manager of people)
    6. Manager of one or more subordinates (non-managers)
    7. Manager of one or more managers

33. What is your nationality?

    _____

34. What was your nationality at birth (if different)?

    _____

FORM USED DURING THE VERIFICATION

XYZ COMPANY
ARCHITECTURE ENGINEERING SERVICES

PROJECT BRIEF

PROJECT MANAGER		OWNER'S NAME	
IDENTIFY CARD:		CILENT NAME:	
RECIEPENT		PROJECT TYPE:	
EMPLOYEE CONDUCTING MEETING		PROJECT NAME:	
EMPLOYEE'S POSITION		PLOT AREA:	
IDENTIFY CARD:		BUA REQUIRED %:	
DATE:		NUMBER OF FLOORS:	

DETAILS ABOUT THE PROJECT

- ☐ EXISTING BUILDING
  - ☐ RESTORATION
  - ☐ RENINOVATION
- ☐ NEW BUILDING
- ☐ EXPANSION REQUIRED

LEGAL INFORMATION ABOUT THE PLOT

- ☐ OWNED BY THE GOVERNMENT
- ☐ PRIVATE OWNERSHIP
- ☐ FAMILY PROPERTY
- ☐ OWNED BY A REAL ESTATE DEVELOPER _____
- ☐ OWNED BY A COMPANY _____
- ☐ OTHERS (PLEASE SPECIFY) _____

CILENT'S OBJECTVIES

- ☐ PRIVATE OWNERSHIP
- ☐ REAL ESTATE DEVELOPMENT
- ☐ COMMERICAL NEEDS - RENTING
- ☐ OTHER, PLEASE SPECIFY .....

PROJECT BUDGET

- ☐ LIMITED BUDGET
- ☐ OPEN BUDGET
- ☐ DESIGN TO BE WITHIN A RANGE OF _____

PROJECT GOALS

- ☐ SIMPLE ARCHITECTURE FORMS
- ☐ COHERENT WITH THE CONTEXT
- ☐ CONTRACT THE URBAN CONTEXT
- ☐ COMPETITION ENTRY
- ☐ SOPHISCATED STRUCTURE SYSTEM
- ☐ SOPHISCATED GEOMETRICAL SHAPES
- ☐ INNOVATIVE FORMS
- ☐ PARAMETRICAL MODELING
- ☐ OTHER, PLEASE SPECIFY _____

GENERAL TASKS REQUIRED

- ☐ ARCHITECTURE:
  - ☐ INTERIOR
  - ☐ EXTERIOR
  - ☐ PRESPECTIVES
  - ☐ BRANDING

IV.6.4.4 MULTLI-CULTURAL VS MONO-CULTURAL TEAMS

PROJECT 1	GROUPS					
	A	B	C	D	E	F
Organizational Culture	40	40	15	50	30	30
Team Composition	50	50	50	50	50	50
Leadership	40	35	10	45	20	35
Decision Making Approach	30	35	15	50	20	35
Communication	30	40	10	45	30	30
TOTAL	190	200	100	240	150	180

PROJECT 2	GROUPS					
	A	B	C	D	E	F
Organizational Culture	40	40	15	50	40	45
Team Composition	50	50	50	50	50	50
Leadership	35	40	25	45	30	40
Decision Making Approach	25	45	20	50	35	40
Communication	30	45	20	45	35	45
TOTAL	180	220	130	240	190	220

PROJECT 3	GROUPS					
	A	B	C	D	E	F
Organizational Culture	30	45	25	40	40	50
Team Composition	50	50	50	50	50	50
Leadership	25	50	35	40	30	50
Decision Making Approach	20	45	30	40	45	45
Communication	25	50	30	40	45	45
TOTAL	150	240	170	210	210	240