Change Management in A/E AND Contractors' Organizations in Saudi Arabia

BY

Mohannad Zaaza

A Thesis Presented to the
DEANSHIP OF GRADUATE STUDIES

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DHAHRAN, SAUDI ARABIA

In Partial Fulfillment of the
Requirements for the Degree of

MASTER OF SCIENCE

In

CONSTRUCTION ENGINEERING AND MANAGEMENT

April 2020

CHANGE MANAGEMENT IN A/E AND CONTRACTORS' ORGANIZATIONS IN SAUDI ARABIA

Master Thesis

MOHANNAD BASSAM ZAAZA

CONSTRUCTION ENGINEERING AND MANAGEMENT

April 2020

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

DHAHRAN- 31261, SAUDI ARABIA

DEANSHIP OF GRADUATE STUDIES

This thesis, written by **MOHANNAD BASSAM ZAAZA** under the direction of his thesis advisor and approved by his thesis committee, has been presented and accepted by the Dean of Graduate Studies, in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE IN CONSTRUCTION ENGINEERING AND MANAGEMENT**

ashash

Prof. Dr. Ali Shash
(Advisor)

Dr. Khalaf Aidha Al-Ofi
Department Chairman

Bubshait

Prof. Dr. Abdulaziz Bubshait
(Member)

Dr. Sulaiman Al-Humaidan
Acting Dean of Graduate Studies

Dr. Firas Tuffaha
(Member)

19/5/2020

Date

عمادة الدراسات العليا
DEANSHIP OF GRADUATE STUDIES

Dedication

This research is dedicated to Almighty Allah, my beloved creator and master, who has been the greatest source of strength in my darkest times while achieving this study. Also, my work is dedicated to my most beloved person; Prophet Mohammad peace be upon him. The first revealed word from Qura'an to him was "Iqra" which literally means "read" emphasizing on vitality of the continuous learning process.

I would like also to dedicate my research to my beloved parents; Bassam Zaaza and Hanadi Sarakbi. No word can never express their limitless emotional support and precious prayers which elevated me to be on the right path for my entire life. Moreover, all my love goes to my only and one sister, Noor. Her smile and soul inspired me throughout the journey. My brothers; Ahmad, Ghaith and Abdulrahaman were always there when I needed help. May Almighty Allah bless and protect them all.

I want to express my deepest gratitude for my grandparents; Ahmad-Zakai Zaaza and Basema Taqi-eddein. They are no longer living among us on Earth, but within my heart, they have always been there providing me with all the trust and passion I need to survive the life.

I want to like also to mention my colleague, friend and brother; Mohammad Moutasem Al-Salti. During my hardest times in my study, he has always been there. I could not ask for a better and more honest friend.

I would also to thank Dr. Adel Al-Shibani; The first one to teach me the basics of academical researching skills which allowed me to be what I am today as a scholar.

I wish this work contributes to the current body of knowledge and to promote the growth and prosperity within the humanity.

Acknowledgement

If I was asked to acknowledge only one person, I would mention instantly My supervisor; Prof. Dr. Ali Shash. No word can never express my deepest gratitude. His continual support and endless guidance enlightened my road to accomplish my study. Most importantly, I never felt that he is my professor only, it goes beyond that to treat me as if I was his son.

I also would like to mention Prof. Dr. Abdulaziz Bubshait and Dr. Firas Tuffaha. Their instructive comments and instructions are invaluable. I cannot be more blessed.

I would like to thank King Fahd University of Petroleum and Minerals for providing me with all the resources I have needed for conducting the entire study and for providing such a great program of Construction Engineering and Management. Also, I thank Dr. Khalaf Al-Ofi, Chairman of Construction Engineering and Management. He does not hesitate to help and support his students by all means.

Also, I thank my colleagues who helped me in the research journey, mostly, Hamza Hamida and Mohammad Hamida.

Lastly, I am more than gratitude for all expert consultants and contractors who participated in the survey which allowed me to achieve the objectives of this study.

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ABSTRACT

Full Name: [MOHANNAD BASSAM ZAAZA]

Thesis Title: [CHANGE MANAGEMENT IN A/E AND CONTRACTORS' ORGANIZATIONS IN SAUDI ARABIA]

Major Field: [CONSTRUCTION ENGINEERING AND MANAGEMENT]

Date of Degree: [MAY 2020]

Unlike other industries, the business nature of the construction industry is sensitively influenced by significant count of factors. The unstable environment of the construction industry obligates practitioners to adjust their organizations accordingly to keep on the competitiveness track. Organizational change is any modification on the existing system of an organizations which is primarily addressed as a response to either external or internal drivers. Change Management is the people side of any organizational change. Whether an organization is fixing problems or taking advantage of new opportunities, it is always about ensuring that the whole team embraces top management's new direction or adopts and learns to use the new systems and processes. After the initiation of Saudi 2030 Vision, organizations may be required to change their organization to adapt to the vision. After a comprehensive literature review, it was noticed that there is a lack in studies conducted about the field of organizational change in the MESA region. To fulfill such a gap, the author of this research established three objectives; determining driving forces for initiating organizational changes, determining the processes in managing organizational changes and determining the factors of effective change management. All the objectives were evaluated from the perspectives of consulting offices and contracting firms. To accomplish the study objectives, a structured questionnaire was developed. All from top management, 32 contractors

and 15 consultants participated in the study. Six tools were utilized to examine the collected data. The analysis showed that, for external drivers, “Increased competition” was first and critical by contractors while for consultants it is “Advancement of the technology”. On the side of internal drivers, “Organizational growth” was determined to be top and critical for contractors and for consultants it is “Goal succession”. In terms of processes in managing organizational changes, both consultants and contractors have a similar framework of management process that is instructions come from the top management to change agents who ensure that employees comply with change implementation procedures. However, the difference becomes major in issues related to the employees and planning the change. Most of the Consultants are concerned about employees characteristics, such as their mental and physical enthusiasm toward change. Furthermore, consultants have a solid documentation system in comparison with the contractors. Analysis of factors of change management indicated that there is a fair agreement between the two parties. “Top management support during change implementation” is a critical and top by contractors and comes second by consultants. The first factor for consultants is “Tracking the change performance periodically”. Welch’s t-test and Kendell’s concordance coefficient showed that consultants and contractors overall disagree about the importance of group “employees” and “planning and scheduling”. Merger cases inside the construction industry are rare. Gradual implementation of organizational changes are preferred by most of the consultants and contractors.

ARABIC ABSTRACT

ملخص الرسالة

الاسم الكامل: مهند بسام زعزع

عنوان الرسالة: إدارة التغيير في منظمات المكاتب الفنية والمقاولين في المملكة العربية السعودية

التخصص: هندسة وإدارة التشييد

تاريخ الدرجة العلمية: مايو 2020

على عكس الصناعات الأخرى، تتأثر الطبيعة التجارية لصناعة التشييد بحساسية بسبب عدد كبير من العوامل. تلزم البيئة غير المستقرة لصناعة البناء الممارسين بتعديل منظماتهم وفقًا للمتغيرات لمواكبة المسار التنافسي. التغيير التنظيمي هو أي تعديل على النظام الحالي لمنظمة ما والذي يتم تناوله في المقام الأول كاستجابة لعوامل خارجية أو داخلية. إدارة التغيير هي جانب الناس في أي تغيير تنظيمي. سواء كانت المنظمة تعمل على إصلاح المشكلات أو الاستفادة من الفرص الجديدة، فإن الأمر يتعلق دائمًا بالتأكد من أن الفريق بأكمله يحتضن الاتجاه الجديد للإدارة العليا أو يتبنى ويتعلم كيفية استخدام الأنظمة والعمليات الجديدة. منذ الإعلان عن رؤية 2030 الخاصة بالمملكة العربية السعودية، يُطلب من المنظمات تغيير منظمتها للتكيف مع الرؤية. بعد إجراء المسح الأدبي، لوحظ أن هناك نقصًا في الدراسات التي أجريت حول مجال التغيير التنظيمي في منطقة الشرق الأوسط وشمال أفريقيا. لسد هذه الفجوة، حدد مؤلف هذا البحث ثلاثة أهداف رئيسة: تحديد العوامل الدافعة لبدء التغييرات التنظيمية، ومعرفة العمليات المتبعة في إدارة التغييرات التنظيمية بالإضافة إلى تحديد عوامل المرتبطة بإدارة تغيير فعالة. تم تقييم جميع الأهداف من منظور المكاتب الاستشارية وشركات المقاولات. لتحقيق أهداف الدراسة، تم إنشاء استبيان. شارك في الدراسة 32 مقاولاً و15 استشاريًا، جميعهم من الإدارة العليا داخل الشركات. تم استخدام ست أدوات لفحص وتحليل البيانات التي تم جمعها. أظهرت نتائج التحليل أنه بالنسبة للدوافع الخارجية، تم تقييم "المنافسة المتزايدة" أولا وعامل حرج من قبل المقاولين بينما بالنسبة للاستشاريين "تقدم التكنولوجيا". على مستوى الدوافع الداخلية، تم تحديد "نمو المنظمة" ليكون في الصدارة بحسب تقييم المقاولين بينما للاستشاريين هو "تحقيق الأهداف". بالحديث عن العمليات المتبعة في إدارة التغييرات

التنظيمية ، لدى كل من الاستشاريين والمقاولين إطار مشابه لعملية الإدارة التي هي عبارة عن تدفق التعليمات من الإدارة العليا باتجاه وكلاء التغيير الذين بدورهم يقومون بالتأكد من امتثال الموظفين لإجراءات تنفيذ التغيير. لكن، يصبح الفرق كبيرًا في القضايا المتعلقة بالموظفين والأنشطة المتعلقة بجدولة عملية التغيير. يهتم معظم الاستشاريين بالخصائص المتعلقة بالموظفين، مثل حماسهم العقلي والجسدي اتجاه فكرة التغيير. علاوة على ذلك، لدى الاستشاريين نظام مستندات وتوثيق متين بالمقارنة مع لك المتواجد عند المقاولين. إجماليا، أشار التحليل إلى وجود اتفاق عادل بين الطرفين. يعد "دعم الإدارة العليا أثناء تنفيذ التغيير" أمرًا حاسمًا ويأتي أولا بحسب تقييم المقاولين ويأتي في المرتبة الثانية عند الاستشاريين. العامل الأول للاستشاريين هو "تتبع أداء التغيير بشكل دوري". أظهرت اختبارات ويلش ومعامل كندل للتوافق أن الاستشاريين والمقاولين يختلفون بشكل عام حول أهمية مجموعات "الموظفين" و "التخطيط والجدولة". حالات الاندماج داخل صناعة التشييد نادرة في المجمل. يفضل معظم الاستشاريين والمقاولين التنفيذ التدريجي للتغييرات التنظيمية.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Throughout history, the construction industry has been a major indicator of civilization. An increasing rate of construction reflects a healthy economy. In general, construction projects can vary significantly in terms of type, complexity, duration, and stakeholders (Ming et al., 2004). This variation indicates the sensitive environment in which the construction industry is situated. Operational management must adapt to this rapidly changing atmosphere and be able to predict long-term circumstances survive in this type of market. According to Turner (2009) and Abrahamson (2010), change is becoming a necessary tool for and essential determinant of competitiveness. In the construction industry, change can mean shifts in either the types of project attempted or overall organizational structure (Abouzaid, 2013). In the context of the present study, change means organizational change. Organizational change is the alteration of a firm's internal setting in response to either internal or external factors, or in certain cases, both. As Alhazemi et al. (2013) stated, "this variation from the existing state may be triggered purposefully by the organization itself or may be imposed on the organization by the changes in the external environment." The process for managing organizational change is systematic in nature, requiring certain procedures in suitable conditions for such change to be implemented (Jan & Veronica, 2012). According to Crawford (2013), 70% of organizations fail to achieve their full potential because of poorly executed changes and not failures in the proposed execution strategy itself. The goal of this research is to highlight issues affecting the implementation of organizational change.

1.2 Problem Statement

The occurrence of change within any firm is inevitable. The business of construction is dynamic and shifts rapidly. In certain conditions, change can occur on a daily basis (Abouzaid, 2013). The field of change management in engineering is rich and offers promising potential research topics that will further the advancement of construction industry management. According to Coutts (1997), change management has been relatively ignored in academic research, at least as compared to other engineering fields. Saudi Arabia's 2030 Vision, announced in 2016, encourages all industry sectors to be creative, cost-efficient, and environmentally friend (Banawi, 2017). Hence, the construction industry in Saudi Arabia, or at least key mega-firms, must adapt to this vision. This will require modifying their organizations in multiple respects. Organizational change management is a crucial structured process that strategizes for a proposed change to be made with the least cost and in the shortest amount of time.

Since organizations in the construction industry are project-based and the final product is delivered by interacting with multiple parties (e.g., owner, consulting offices, contractors), research on change management in other industries is not applicable. Thus, the present study identifies actors contributing to effective organizational change management in the construction industry in order to facilitate the process of change. Also identified are forces responsible for initiating change. Both must be identified from different parties' points of view, including consulting offices (A/E) and contractors. Hence, a set of questions was developed to guide this research:

- What are the reasons behind organizational changes initiated by consulting offices (A/E) and contractors?
- How do consulting offices (A/E) and contractors manage their organizational changes?

- In general, what factors contribute to the successful achievement of set goals for consulting office (A/E) and contractor organizations in Saudi Arabia.

1.3 Research Objectives

Primarily, this study demonstrates the factors influencing organizational change in the construction industry in Saudi Arabia. The particular objectives of this research are as follows:

- Determining the critical forces driving organizational change for consulting offices and contractors in Saudi Arabia.
- Identifying the factors essential to effective organizational change management for consulting offices and contractors in Saudi Arabia.
- Establishing a process for managing organizational changes for consulting offices and contractors in Saudi Arabia.

1.4 Significance of the Study

The body of literature on factors influencing the implementation of organizational change management is rich in the West, but in the developing regions of North Africa and the Middle East, academic studies on the topic are rare (Rees et al., 2007). The present work will fill this gap for the local Saudi construction market by analyzing area firms that have progressed through the change process. The Kingdom of Saudi Arabia is experiencing significant change in terms of the different income sources upon which the government now depends. Initiation of Vision 2030 began in 2016. Since then, the local market for different industries in Saudi Arabia has faced numerous challenges, especially in terms of adapting to the goals of that vision (Banawi, 2017). This study contributes to the current knowledge by providing an effective change management process that will help contractors and consultants manage organizational change. Therefore, this work will help executive managers and management councils of construction firms and consulting offices in Saudi Arabia in the following ways:

- Identifying the critical factors affecting effective organizational change management.
- Determining the common forces driving the initiation of change plans in the local market.
- Minimizing the negative impact of implementing organizational change.
- Optimizing the process of change implementation.

1.5 Scope and Limitations

The scope of this study includes identifying and ranking issues affecting organizational change implementation in Saudi Arabia from the perspectives of contractors and consultants. Specifically, these issues include the driving forces behind suggesting organizational change, factors contributing to effective change management, and lastly, the processes by which change is managed in Saudi Arabia. All three issues are analyzed from two perspectives, those of contractors and consultants. Only consulting offices classified as excellent were considered in this study. In terms of contractors, only those of Grades 1 and 2 were analyzed. Furthermore, to obtain reliable results, both the contractors and consultants examined specialized in building construction. This study was conducted in the central region of Saudi Arabia. However, since governmental regulations are the same throughout the country, the findings can be generalized on the overall local market in Saudi Arabia.

CHAPTER TWO

LITERATURE REVIEW

2.1 Organizational Change Definition

A significant number of authors and researchers have defined the term of Organizational Change. Shoura & Singh (1999) have defined the organizational change as a dynamic process of repeated adaption which is considered as a response to the changing external environment or as response to internal necessary conditions within the organization. Moran & Brightman (2001), defined the change on the organizational level as continues renewing process in structure, direction and capabilities of a company to satisfy the external and internal needs initiated by the customers. As Wambua (2017) stated in his study, explained the change is resulted from certain problems or opportunities that are either caused by external or internal incentives. Organizational Change by Ebongkeng (2018) is a process in which the performance standards of the firm is optimized by managerial staff who are always re-active or pro-active to the surrounding conditions

2.2 Types of Organizational Changes

Organizational change term in any industry is widely-complex in such a way the is no certain types could fit the classification of the organizational change. However, the change can be sorted with a reference to multiple parameters, such as but not limited to; timing, severity, origin, necessity and depth (Manvi, n.d.). Furthermore, the cataloging types of changes is perspective from a person's or entity's view of point over the situation. As Ebongkeng (2018) stated in his study, *"A manager* *in technology may see it in terms of systems, tools, software, hardware, etc., the CEO will invariably perceive change in terms of structure and strategy, an operations manager will mainly see it in terms of processes, etc.*". The examination of the literature revealed various classifications of the organizational changes. The sorting types in the literature can be generalized into three categories; The Intensiveness of implementing the change, the change target and the element of the change.

2.2.1 In Terms of The Intensiveness of Implementing the Change

The term *Intensiveness* in the context of the change implementations refers to time period that development of a change takes until the final completion of the process. The change might be suggested as response to not-predicted emergent situation which could be but not limited to political, social and economic. Hence, the change has to be rapidly applied. On the other hand, when a certain firm sets a plan to achieve a new vision or to deliver multiple predefined goals, the change process can be implemented gradually or incrementally over a relatively long period of time. The progress of change is monitored in order to detect any deviation from the plan. Rodat (2018) named the rapid change, which is initiated as a reaction to an emergent situation, *Unplanned Change,* while she named the change that is implemented with a reference to a defined schedule, or as a research analysis result, under a term of *Planned Change*. However, according to Erdogan et al. 2005 (as cited in Burnes, 1996) when the change occurs as a result of continues improvement, or in other words, a process that is driven from bottom-up and in most cases is open-ended, the change named as *Emergent Change*.

2.2.2 In Terms of the Change Implementation Process

The business environment of the construction industry is dynamic and rapidly changes at a significant rate in comparison with the other industries (Abouzaid, 2013). In case of the change type is clearly declared, then the firm manager is able to select the most suitable method to interpret the proposed change. According to Al-Haddad (2014), change type could be defined as the basic specifications that highlight the kind and change form as well as the qualities which create what is the change. There are common change types in which the entire company's working framework is re-structured to adapt to the goals or insisting incentives. Changes can be also sorted according to the methods they are implemented. In the paper of Erdogan et al. 2005 (as cited in Jick and Peiperl, 2003) and Kumar (n.d.), three perspectives of change exist in reforming process; development; transition and transformation. Development change is described as a continues progression of change. The transition is turning the old state of a certain firm into a new state involving the time period between the two states. In certain scenarios, the transition state involves the development change. The third type of the series, transformation, occurs as a sequence to bad situations in which the firm has faced ups and downs and reached to the point when a compete shifting change is necessary to rescue the firm from the chaos. *Figure 1* illustrates the last three mentioned types. Another type mentioned in study conducted by Ebongkeng (2018), *Mission and Strategy Change.* The business strategy of a certain company reflects the orientation and may involve the whole company or part of it.

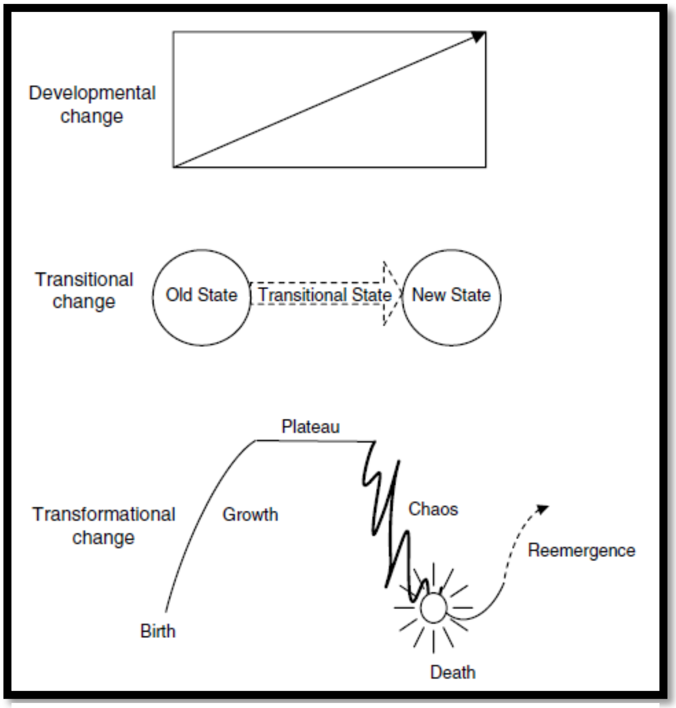


Figure 1.Three change perspectives as suggested by Jick and Peiperl (2003

2.2.3 In Terms of Component of the Change

Leavitt's diamond model was developed in 1965. The model proposes that the organization's main system is consisting of four major sub-systems that are interdependent and interconnected with each other. This enables the main system to be viewed as a framework branching further into four interactive components. The four components are tasks, people, structure and technology. In his model, the Leavitt implied that the any change in the mechanism of one of the four components, will affects the other three components either directly or indirectly. As a brief definition; the component tasks refers to all the services and products need to be delivered, the component People refers to all the personals working in the firm (such as managers and employees), the component structure refers to the levels of the organization's hierarchy besides all the communications methods and tools utilized, the component technology refers to all the machines and equipment used (Tetteh, 2012; Wigend, 2007). Hence, when an executive manager wants to re-orient the strategy of his firm, he can modify one or more components of *Leavitt's diamond model*. This leads to developing four types of changes; *Task Changes, People Changes, Structure Changes and Technology Changes.* Figure 2 illustrates the visual shape of *Leavitt's diamond model*.

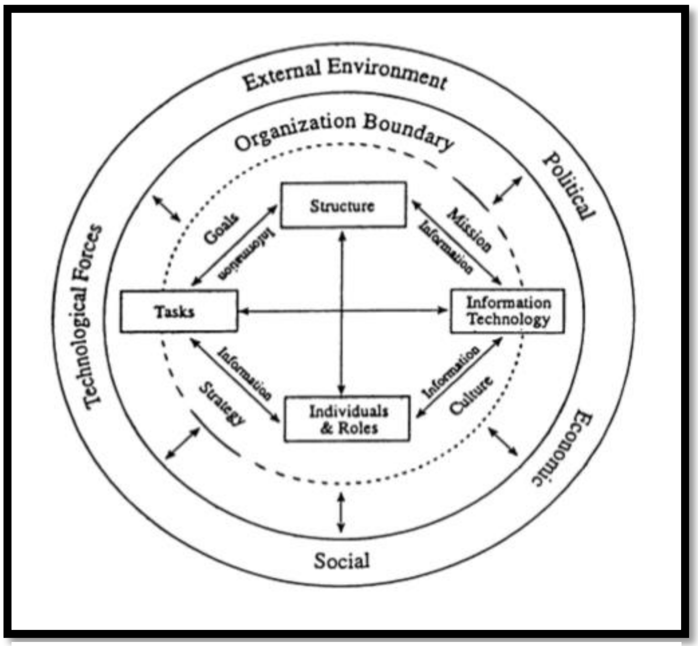


Figure 2. An illustration of Leavitt's diamond model

2.3 Drivers for Proposing an Organizational Change

As mentioned earlier in Section 2.1, the organizational changes are initiated by either external forces or internal forces. In *Force Field Analysis Model* of Lewin (1951), he states that in any situation or task, there are two opposing forces; driving forces and re-straining forces. When the situation is examined, both driving forces and re-straining forces are identified and weighted. The equilibrium is accomplished when the sum of driving forces equals the sum of re-straining forces.

This section is going to list briefly the common driving forces in terms of reasons that may lead to proposing a change from two points of view, internal affairs or the external surrounding environment. However, some reasons could be classified under either internal or external categories. The external and internal organizational change drivers, as reported in the literature, are summarized in Table 1 and Table 2.

Table 1. Common external drivers from literature

External Reasons	**Brief Description**	**Reference**
Technology Changes	The advancement of the available technologies used in machines and system which will facilitate achieving the ultimate purpose of the firm.	• **(Zafar, 2014)** • **EbongKeng, 2018 (As cited in Murthy, 2007)** • **(Senior, 2002)** • **(Kumar, n.d.)**
Domestic Market Maturation	The volume of a product or service in a local market has been maximized. No further improvements can be done to rise the growth.	• **(Zafar, 2014)**
Changing Customer Needs	The behavior and preferences of the customers base is shifting to other direction.	• **EbongKeng, 2018 (As cited in Murthy, 2007)** • **(Morrison, 1998)** • **(Kumar, n.d.)**
Increased Global Competition	The continues competition enforces the competitors involved to look forward to re-analyzing the market to survive the challenges.	• **(Zafar, 2014)** • **EbongKeng, 2018 (As cited in Murthy, 2007)** • **(Dawson, 2003)** • **(Morrison, 1998)** • **(Kumar, n.d.)**

Rules and Regulations	The setting of a new legislation which may include rules and regulations that limit or contradict the current firm working system.	• **EbongKeng, 2018 (As cited in Murthy, 2007)** • **(Kumar, n.d.)**
Political Forces	Wars, borders close, exporting and importing issues and limitations.	• **(Senior, 2002)** • **(Kumar, n.d.)**
Social and Cultural Forces	The structure of the society and the relations among the members. Demography of the society may be altered. Assumptions and beliefs may be altered as well.	• **(Senior, 2002)**
Business Expansion	The supply does not satisfy the demand of a local market.	• **(Dawson, 2003)** • **(Morrison, 1998)**
Labors Market	The fluctuation of the labors market enforces the managers to initiate a change of shortage qualified labors may affect firms' strategy.	• **(Lunenburg, 2010)**

Table 2. Common internal drivers from literature

Internal Reasons	**Brief Description**	**Reference**
Growth	When the number of either employees or members increases, or budget	• **(Esparcia & Argente, 2010)**

	growths, more complex hierarchical organization may be needed	
Goal Succession	With the ultimate purpose is achieved, firms may disappear. Thus, a change is essential to survive.	• **(Esparcia & Argente, 2010)**
New Administrative Behavior	All the issues related to the decision-making process, claims and disputes resolving procedures may result in a move toward a change.	• **(Esparcia & Argente, 2010) (Lunenburg, 2010)** • **(Kumar, n.d.)** • **(Dallavalle, 1991)**
Merging and Acquisitions	The firm may adapt to the vision and purpose of the other firm after being merged.	• **(Esparcia & Argente, 2010)**
Crisis	Unexpected loss, instant decline in profits, efficiency decrease, all may lead to re-structuring the organization.	• **(Esparcia & Argente, 2010)**
Economical Restriction	The current economic status may develop new constraints in which that firm might re-structure	• **(Esparcia & Argente, 2010)**

	itself to adapt to the new limitations.	
Group Resistance	Issues in adherence among the different groups. Group Strikes against the management. All of these may insist the firm to take a step to adapt different methodology.	• **(Lunenburg, 2010)**

2.4 Organizational Change in the Construction Industry

The architecture, engineering, and construction industries are project-based in nature. Project-based organizations can take a variety of forms, with temporary structures and systems for performing certain project-related tasks (DeFillippi et al., 2004). Project-based organizations can be found in various industries, including professional consulting services such as accounting, advertising, structural and architectural design, and management, as well as cultural industries like fashion, filmmaking, and video games. In high technology, computer and phone software and computer hardware fall into this category. What differentiates project-based organizations from more typical types is that they are often short-lived. They are also specifically tailored to meet customers' end needs, preferences, and customized demands. In project-based organizations, an owner can implement organizational change for that project alone, testing the change before full implementation throughout the company (DeFillippi et al., 2004). Organizational changes in the construction industry, whether in the public or private sectors, can affect materials, design methods, construction techniques, project delivery systems, and stakeholders.

Lines et al. (2015) examined how the level of change readiness is affected by the experiences of personnel. The researchers based their analysis and results on 16 construction firms, each of which had executed a strategic change in their project delivery processes. The participating firms had three objectives for their organizational change: (1) the introduction of entirely new evaluation criteria in the procurement process for selecting construction firms within the owner's organization; (2) changes to specific matters found in project contract documents such as risk mitigation, project milestone schedule, and coordination of resources provided by the owner; and (3) introduction of a new project management system to track risk management performance. Teo et al. (2019) studied the technology of building information modeling (BIM). According to their study, BIM implementation was mandated in the construction industry in Singapore. Thus, contractors had to go through a process of organizational change to adapt. The authors analyzed the critical factors driving BIM implementation. Yang et al. (2010) identified aspects influencing stakeholder management of potential organizational change in the construction industry. In Gharaei et al. (2017), the use of prefabricated construction materials and elements as an organizational change was explored. The authors assessed barriers to accepting prefabrication.

2.5 Factors of Effective Organizational Change Management in Construction Industry

The term factor, in general, means a fact, circumstance, influence that contributes to a specific result either negatively or positively. In order to implement change successfully, it has to be managed properly. Hence, the change management process is crucial to interpret the proposed change into reality and to achieve the required objectives completely. Factors contributing to effective change management must be identified and defined to ensure having the required knowledge of efficacious change implementation. Crawford (2013) identified five major areas within the change management and called them *Change Facilitators.* The five areas are mutually-exclusive collectively-exhaustive in which all the areas together lead to a successful change implementation. The *Change Facilitators* are; ability, people, change framework, change desire and inhibitors. He divided further each facilitator into sub-categories as following:

- Ability: Capabilities
- Ability: Competencies
- People: Manager
- People: Leader
- People: Culture
- Change Framework: Architectures
- Change Framework: Change Principles
- Change Framework: Change Methodology
- Change Desire: Clear Scope
- Change Desire: Achievable Outcome
- Change Desire: Achievable Benefits
- Inhibitors: Understood Risks

Figure 3. Facilitators Sub-categories (Crawford, 2013)

This section contains factors contributing to the effectiveness of organizational change management from the literature. To ensure the reliability, only common or usual factors are considered. Factors that can be applied in any organization regardless of its specialization, technical advancement or employees' hierarchy. The factors found can be linked to the upper management, employees and the project itself. The collected influencing critical factors (***ICF***) are listed as follows:

- **ICF 1**: Individual's readiness to change.
- **ICF 2**: Individual's personal experience.
- **ICF 3:** Employees commitment to change.
- **ICF 4:** The extent to which employees are involved in the change process.
- **ICF 5:** Communication among the employees.
- **ICF 6:** Training and teaching the employees before starting the change implementation.
- **ICF 7:** Leadership techniques.
- **ICF 8:** Communication between management and employees.
- **ICF 9:** The extent to which a change agent/ supervisor is participating in the change process.
- **ICF 10:** The capability and availability of a change agent/ supervisor.
- **ICF 11:** Defining change vision clearly before starting the change implementation.
- **ICF 12:** Developing a realistic change implementation schedule.
- **ICF 13:** Tracking the change process performance periodically.
- **ICF 14:** Proper selection of a project in which the organizational change process is going to be initiated.
- **ICF 15:** Forecasting challenges that may occur during the change implementation process.
- **ICF 16:** Top management support during the change implementation process.

Table 3. ICF references

#ICF	References												
	Erdogan et al.	*Ghanim et al.*	*Veronika & Jan*	*Lines et al.*	*Ahmad & Chang*	*Abo-Zeid*	*Al -Sediry*	*Neislen et al.*	*Neislen et al.*	*Teo & Leo*	*Lines et al.*	*Ingeborg et al.*	*Wambua*
ICF 1				✓	✓						✓		
ICF 2				✓									
ICF 3		✓			✓					✓			✓
ICF 4	✓						✓	✓	✓				
ICF 5	✓	✓				✓	✓		✓	✓		✓	✓
ICF 6	✓	✓		✓		✓			✓	✓		✓	
ICF 7	✓	✓				✓		✓		✓			✓
ICF 8	✓	✓				✓							
ICF 9				✓				✓		✓	✓		
ICF											✓		
ICF	✓	✓							✓	✓			
ICF			✓			✓					✓		
ICF	✓												
ICF				✓									
ICF		✓	✓										
ICF		✓											

2.5.1 Individual Readiness to Change

The readiness of individuals inside a company to change significantly affects implementation outcomes. As Crawford (2013) stated, “organizations don’t change; people change and then they change the organization.” Studies have examined what defines change readiness in an individual. According to Lines et al. (2015), direct observations of emotional responses, whether negative or positive, indicate both the level of change readiness and amount of enthusiasm. A person’s level of enthusiasm with respect to the change will result either in behavior that is supportive of the change or that which directly rejects it (e.g., resistance, avoidance); both eventually impact the outcomes of the change implementation process.

2.5.2 Individual Personal Experience

Both personal and career experience contribute to the ultimate achievement of the proposed change. Past experience with projects, technical experience with information technology, and work practice and learning capabilities all affect one’s attitude and personal behavior when experiencing change. Lines et al. (2015) argued that oppositional behavior usually arises in employees of lower hierarchical levels inside the organization. Furthermore, it was found that a direct relationship exists between a person’s position and change readiness. The study confirmed that administrators and supervisors are generally more enthusiastic about change than are employees in lower-level positions.

2.5.3 Employees’ Commitment to Change

In this study, employee commitment refers to the extent to which all employees and members adhere to the change through positive behavior and by exerting effort to develop the change process. People are a major component in the process of transformation. Any personal deviation from what is supposed to be accomplished in a certain time will eventually impact the final results and change outcomes.

2.5.4 Employee Involvement in the Change Process

Empowering employees and providing an environment of collaboration between top management and lower-level workers will contribute to the success of change delivery and accomplishment of related goals. Those who are involved in the planning stages of the change process are usually more enthusiastic; they tend to visualize the change as a promising opportunity rather than a challenge. Change is not just about the manner in which people act, but also how they think. This perspective formulates a basis for the link between change management in organizations and internal communication with the individuals in charge of ensuring these changes occur (Erdogan et al., 2005, as cited in Kitchen & Daly, 2002).

2.5.5 Communication Among Employees

The construction industry differs from other industries in multiple aspects, including the number of stakeholders involved, various parties working on a single product (i.e., project), large area required to produce the final result, and significant number of onsite and offsite employees working in parallel. Providing effective communication channels among the different members facilitates connections throughout the change process. In so doing, the change implementation process becomes more efficient and fruitful.

2.5.6 Training Employees Before Change Implementation

As mentioned above, people are a major component in the change management process. Individuals vary with respect to personal experience, technical knowledge, social culture, and psychological behavior. Thus, thoroughly training employees is paramount to minimizing negative impacts and reducing resistance to the change being implemented. Offering proper direction ensures that work procedures will be followed and undesirable deviations from the process avoided. According to Abou-Zeid (2010), training sessions should include change drivers, an awareness of the requirements of the proposed system, and detailed procedures for applying the change. The training plan should target every level of the company, including managers, engineers, technicians, and project staff. Proper message delivery regarding the change significantly reduces employees' uncertainty and fear associated with initiation of the change process. Communication regarding the change before that change is initiated positively affects personal acceptance.

2.5.7 Leadership Techniques

Along with employees, top management is a major component in transitioning to change. Top management is responsible for analyzing the need for a change, planning that change, monitoring and tracking change progress, and defining the necessary human resources. The leader (such as the executive manager) must seek optimum approaches to communicating, directing, and interacting with all lower-level employees. Top management's commitment to the change will encourage all personnel to achieve their best, ultimately delivering the proposed goals. The general style of upper management's behavior shapes the company's attitude, which influences all working staff.

2.5.8 Communication Between Management and Employees

Establishing communication channels between management and employees while organizational changes are being developed is an important factor in their implementation. Inefficient communication between management and staff will delay progress. Face-to-face communication methods such as conferences, periodical meetings, seminars, and interactive sessions, along with traditional methods like telephone, fax, and email should be managed effectively to enhance the connection between top management and employees.

2.5.9 Change Agent/Supervisor Participation in the Change Process

The group or individual in charge of initiating and administrating the change development process is called the change agent. Change agents oversee and monitor a change as it is being implemented. Change agents can be either internal or external. Internal agents such as managers and employees can be trained to act as change agents inside their organization. Conversely, consultants are brought in from outside the organization. Mega-firms that seek to implement major organizational changes often hire consultants because they are not bound by the firm's culture and traditions. Change agents generally have three roles: consulting, training, and research. As consultants, their purpose is to interpret data (from either outside or inside the company) and help employees find solutions to obstacles affecting implementation. Besides acting as consultants, they may function as trainers, providing firms with new sets of skills, as well as retrieving and translating data for future purposes. As researchers, change agents may analyze the effectiveness of action plans associated with change implementation (Lunenburg, 2010).

2.5.10 Capability and Availability of Change Agents/Supervisors

When a consultant is hired, they usually work closely with a manager or representative of management, who then communicates directly with the employees. Hence, the closer the linkage between consultant and manager, the higher the probability of a successful change implementation process. Capability refers to the knowledge and skills that change agents possess that help them with the analysis process. Generally, the more skilled the change agent is, the more successful the change implementation process.

2.5.11 Clear Definition of the Vision for Initiating Change

To facilitate a better change implementation process, the need for the organizational change should be demonstrated clearly, as well as the ultimate benefits. Hence, the proposed change must be defined unambiguously without vague terms and vocabulary, in a way that can easily be understood by any level of personnel. When employees understand the need for change and the possible benefits, their resistance is reduced, contributing positively to a successful change execution process.

2.5.12 Development of a Realistic Change Implementation Schedule

The planning stage of any proposed project is the foundation upon which the project depends. Current resources should be defined, along with a valid work schedule. Sufficient time to implement the change is crucial. Lack of time could significantly affect all employees involved in the change process. When the time allocated to implementing the change is relatively short, rejection behaviors among personnel become more likely. Veronika and Jan (2017) argued that when a change is planned carefully and the time variable taken into account, it is more likely to be successful.

2.5.13 Periodic Tracking of the Change Process

Periodic evaluation of the progress of the change implementation process is essential to ensuring that goals are being accomplished without undesirable deviations that could negatively impact the final outcome. In Veronika and Jan (2017), monitoring and tracking were found to be crucial to delivering a successful new system. These authors considered monitoring the progress of the process to be as important as the planning stage.

2.5.14 Proper Selection of the Project in which to Initiate the Organizational Change

Leaders such as managers and change agents are responsible for selecting the project most suitable for implementing the new system. Significant challenges can obstruct implementing a change to a current project delivery process. Factors related to the project such as scope, duration, and size should be examined extensively before selecting among the alternatives. Indirect factors should be analyzed as well. The construction industry is project-based by nature (DeFillippi et al., 2004). Projects are managed by headquarters or department heads, but design and engineering are handled by the planning department. Hence, direct project factors are not the only criteria necessary to the evaluation process. The strategic value of a project over the long term is often a concern for capital department. Also, the learning ability of the personnel working on the project's alternatives should be examined and evaluated.

2.5.15 Forecasting Challenges to the Change Implementation Process

Predicting challenges in the planning stage that may appear during implementation will significantly reduce the probability of failure. Management should consider undesirable situations and decide on actions to minimize deviation from the proposed change's progress track. Furthermore, identifying current and upcoming constraints will optimize the change implementation process and facilitate decision-making.

2.5.16 Support from Top Management During Change Implementation

Certain organizational changes alter the orientation of a company or a significant portion of the personnel. Changes often replace existing beliefs, culture, and work systems with which individuals are familiar and comfortable. Hence, when changes are applied, employees may feel anxious and resistant, increasing the level of opposition. Thus, top management should verbally and physically support all the employees involved in the change, such as through kind messages or by providing monetary compensation or work breaks. This will reduce resistance and decrease the likelihood of rejection behavior.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the essential steps needed to fulfill the objectives presented previously in chapter one this study. It explains the approaches utilized to collect the data required for the analysis purposes. Moreover, the methods of obtaining information from the data is going to be explained in detail. In a summary, this chapter acts as a roadmap guiding the researcher to accomplish the proposed study efficiently.

3.2 Required Data

The objective of this study is to determine three main issues involving the change management process; driving forces to change, factors of effective change management and identifying the methodologies in managing organizational changes. The data to be collected are related to those issues which are listed as follows:

1- Critical factors for effective change management

The factors that contribute to the outcomes of the change implementation process. If the top management is concerned about those factors, the process of change management could be more effective leading to a successful change implementation. The factors are grouped into four group as following:

Employees

- Individual's readiness to change:

  Readiness can be measured by the individual's response to the change decision. In other words, his/ her emotional status toward the notion of initiating the change in the organization. Also, the level of enthusiasm can identify the person's readiness to change. The readiness of the staff is essential for a successful change implementation.

- Individual's personal experience:

  The experience of the individuals affects positively, in general, the change implementation process. The greater experience in parameters like career, personal matters, adventures and education, the greater extent to which the individual could adapt the change effectively.

- Employees commitment to change:

  The commitment is defined as the state being dedicated to an activity. Hence, the dedication of the employees to apply the change plan or to follow the instructions will positively contribute to a successful change process. Any undesired deviation by the employees is going to hinder the progress of change process.

- The extent to which employees are involved in the change process:

  Providing a collaborative environment between top management and the lower employees will make the change process more effective. Furthermore, the early involvement of the employees in the change process, such as involving them in the planning stage of the process, will increase the level of individual's readiness which will eventually impact positively to the final outcome of the change process.

Communication

- Effective communication among the employees:

  the existence of effective communications channels among the employees is going to facilitate the acceleration of the change implementation process since the count of conflicts will be significantly reduced. Furthermore, the tasks will be delivered in a less time.

- Leadership techniques:

  This could be defined as the approaches and methods of the top management in treatment with the lower employees. For example, day-to-day routines and oral and verbal actions.

- Communication between management and employees:

  This factor could include establishing effective communication channels and tools between the top management and employees. Also, face-to-face meeting and sessions are included as well.

- Top management support during the change implementation process:

  the employees may feel stressed and confused during change process. Thus, management supports them emotionally and financially to increase their level of enthusiasm.

Change Agent

- The extent to which a change agent/ supervisor is participating in the change process:

  The involvement of an individual who is responsible for tracking and monitoring the change implementation process and to detect any deviation from the change schedule. Furthermore, the rights, power and responsibilities of the super-visor/ change agent define the extent to which he/ she is involved in the process.

- The capability of a change agent/ supervisor:

  The knowledge, personal experience and the number of a similar past projects of the hired consultant or the change agent defines the capability.

- The availability of a change agent/ supervisor:

  The availability means the easiness level to communicate with the consultant/ super-visor.

Planning and Scheduling

- Defining change vision clearly before starting the change implementation:

  Defining and stating the intended purposes of the change plan clearly and making sure that ambiguity level among the employees as lowest as possible.

- Training and teaching the employees before starting the change implementation.

Providing training sessions, conferences and teaching lessons before the initiation of the process or in the early phases of the process will affect the outcome of the change.

- Developing a realistic change implementation schedule:

The schedule of the change implementation schedule shall be realistic. All the resources shall be defined and when to use them. Human resources also shall be analyzed properly to develop a valid schedule.

- Tracking the change process performance periodically:

Checking the performance of the change implement from time to time to detect any deviation and to select the proper action to fix up the situation.

- Proper selection of a project in which the organizational change process is going to be initiated:

The best selection of a project, among alternatives, in which the change is going to be implemented on. The parameters of comparison could include but not limited to; size, type, number of involved stakeholders, off-site employees and in-site employees.

- Forecasting challenges that may occur during the change implementation process:

Predicting issues and difficulties that may appear during the planning phase of the process in addition to defining the constraints for the whole implementation process life.

2- Driving forces toward change plan initiation

The notion of the change is not initiated arbitrary. There must be a situation in which the change was recognized as a necessity to overcome the current problem faced by the firm. This section contains driving forces-to-change collected from the literature.

External Forces

- Advancement of the technology:

  The advancement of the available technologies used in machines and system which will facilitate achieving the ultimate purpose of the firm.

- New laws and regulations:

  The setting of a new legislation which may include rules and regulations that limit or contradict the current firm working system or part of it.

- Domestic market maturation:

  The volume of a product or service in a local market has been maximized. No further improvements can be done to rise the growth

- Increased competition:

  The continues competition enforces the competitors involved to look forward to re-analyzing the market to survive the challenges.

- Labor market issues:

  The fluctuation of the labors market and unavailability of specialized labors enforce the managers to initiate a change of shortage qualified labors may affect firms' strategy.

- Changed customers' needs:

  The behavior and preferences of the customers base is shifting to other direction.

- Social issues:

  The structure of the society and the relations among the members. Demography of the society may be altered. Assumptions and beliefs may be altered as well. Also, unemployment is a significant example of social issues.

- Cultural issues:

  The standards of the society, their traditions and local practices are changing or starting to accept another culture.

- Business expansion:

  The supply does not satisfy the demand of a local market. So, the firm may establish a new product line or specialty.

Internal Forces

- Unexpected crisis:

  Unexpected loss, instant decline in profits, efficiency decrease, all may lead to re-structuring the organization.

- Employees resistance.

  Issues in adherence among the different groups. Group Strikes against the management. All of these may insist the firm to take a step to adapt different methodology.

- Merging and acquisition issues:

  The firm may adapt to the vision and purpose of the other firm after being merged.

- Changed administrative behavior:

  All the issues related to the decision-making process, claims and disputes resolving procedures may result in a move toward a change in the current methodology.

- Organization growth:

  When the number of either employees or members increases, or budget growths, more complex hierarchical organization may be needed

- **Goal Succession:**

  The final goal or the company vision is achieved.

3- change management methodologies followed in Saudi Arabia

This section aims to identify the processes of managing the change in Saudi Arabia. The process commonly may involve the following key-steps, grouped into 5 categories:

Change-Plan Preparation

To see whether change plan prepared by either internal committee formed by top or by External hired team such as consulting offices addressing.

Change-Plan Creation

- Defining goals and vision of the proposed change clearly:

  The proposed change scope is defined well with no ambiguity in the words which could lead to misinterpret the vision completely or partially.

- Identifying the resources prior to planning the change:

  Identifying and defining the resources that is going to be consumed or utilized through the change process.

- Doing change-readiness assessment on employees' level:

  Preparing a test that measures the extent to which the employees are mentally ready for initiating the change process.

- Doing change-readiness assessment on organization level:

Preparing a test that measures the organization readiness to change in terms of financial abilities, administrative abilities and the responsibilities of the firm with the external business.

- Doing risk assessment:

Preparing a test that measures the risk associated with implementing the change process.

- Identifying the people and groups that the change will impact on:

Identifying the entities that are going to be affected directly by the change implementation process.

- Including communication channels for questions and feedback:

The process of the change management could include session where the employees can interact with the top management regarding the change process in the progress periodically.

- Defining the roles and responsibility of the individuals:

The role of every individual in distinctly defined. The certain responsibilities are assigned to the certain individuals.

Change-Plan Content

- Listing process activities

Identifying all the activities of change plan that are needed to deliver the change.

- Identifying the duration of each activity

Determining the duration of each single activity involved in the change process.

- Identifying the start and end dates of the activities

  Setting dates for start and end and tabulating them in including it in the plan documents.

- Identifying the responsibility of each activity

  Identifying the individual or entity that is responsible for certain activity

- Including baseline for cost tracking

  Developing baseline that includes all the cumulative cost up to time.

- Setting major milestones

  The plan includes events of achieving a major accomplishment which aids in tracking and monitoring process.

Change-Plan Implementation

- Involving senior leaders in the process:

  Involving individuals from top management in the process of change management such as; general manager, department manager or operation manager.

- Using new leadership style/ method:

  Adopting new techniques of leadership replacing the original leadership method or style.

- Empowering teamwork:

  Providing collaborative environment within the employees and dividing the employees into distinct teams to work for the ultimate good purpose of the change.

- Reinforcing change implementation through procedures, systems and policies:

Setting a legislation that includes distinct terms regarding the process of change implementation

- Engaging stakeholders early in change process planning:

Inviting the employees to the phase of planning the change before initiation process.

- Conveying motivation for the change:

Encouraging the employees to the notion of change by explaining the potential benefits or involving leaders in the process.

- Providing support by addressing concerns and fears among the employees:

Top management is aware of the negative impact of the change process on the employees which could hinder their enthusiasm resulting in hindering the overall progress of the process.

- Providing training and teaching to stakeholders regarding change:

Training the employees involved in the change process prior to the initiation or during the early phases of the process after starting the implementation.

- Monitoring and tracking the change progress:

The plan includes periodical inspection of the change process during the implementation.

3.3 Data Collection

3.3.1 Conducting the Survey Process through a Questionnaire

Since the study is about change management. Thus, the data need to be collected from the top management level in the firm to ensure reliability of the results. The tool utilized for the data collection is structured questionnaire. The questionnaire was distributed physically and filled up with the presence of the author. Both soft copy and Arabic versions were provided upon request. The structure of the questionnaire included six main sections; respondent's profile section, organization's profile section, driving forces to change, change characteristics section, section of methodologies followed in managing the changes and factors of effective change management.

- **The respondent's profile:** this section included questions regard the respondent; his job title, his number of experience years and finally his educational level.
- **The organization's profile:** This section contained questions regard the firm; its age, its type, whether it went through organizational change or not.
- **Assessment of driving forces toward an initiation of organizational change:** this is the first major section in the questionnaire. The strength of each driving force toward a change initiation is qualitatively assessed a scale. The scale will be graded from 1 up to 5; 1 = "*very low*", 2 = "*low*", 3 = "*Moderate*", 4 = "*high*" and 5 = "*very high*".
- **The characteristics of the change:** in this section, a set of questions are going to figure out the characteristics associated with the change; whether the change plan was prepared by an internal team or external hired consultant, which component of the organization structure the change plan focused on and how the change process was implemented.
- **Identification of process followed in the change management:** this is the second major section in the questionnaire. A set of steps in change management process, grouped in categories, are listed
- **Assessment of factors for effective organizational change:** this is the third major section in the questionnaire. The positive impact of each factor on the implementation process of the change of each factor, that is collected from the literature, is qualitatively assessed

using a scale. The scale will be graded from 1 up to 5; 1 = "*very low*", 2 = "*low*", 3 = "*Moderate*", 4 = "*high*" and 5 = "*very high*"

3.3.2 Population Size

This study examines the issues involving change management of construction industry of Saudi Arabia. the study aims to analyze the market of contractors and consultants (A/Es). In terms of contractor size, the population size is going to include all the contractors, who are graded 1, 2, specialized in building and located in the eastern province of Saudi Arabia only, in addition to all consultancy agencies and firms who are also classified excellent and are located in the central region of Saudi Arabia. To increase the reliability, only establishments who are recorded the governmental departments, such as chamber of commerce, were counted as the population size. Hence, based on information obtained by ministry of municipality and rural affairs, the number of contractors, that are specialized in building and graded 1 and 2, were found to be 182 as a population and 35 as count of consultants.

3.3.3 Sample Size

As a sequential step after the determination of the population count, the required sample size is going to be obtained using formulas of (Kish, 1995). The formulas are shown in the following equations 1 and 2.

$$n_o = \frac{p \times q}{E^2} \qquad (1)$$

$$n = \frac{n_o}{1+\frac{n_o}{N}} \qquad (2)$$

Knowing that;

n_o: $The\ initial\ estimate\ of\ the\ sample\ size$

p: $The\ planning\ value\ of\ the\ sample\ propotion,$ set 0.5

q: $The\ complement\ of\ p$, 1-0.5 =0/5

E: $Desired\ margin\ of\ error, \%10$

n: $The\ final\ estimate\ of\ the\ sample\ size$

Therefore, applying the Kish formula, 22 sample size for contractor and 15 for consultants (A/E's)

3.4 Data Analysis Procedure

3.4.1 Ranking Using Relative Importance Index

After the data is collected from the survey process, they need to be examined and analyzed to accomplish the proposed objectives of this study. The first two sections of the questionnaire were qualitatively analyzed using frequency and distribution analysis methods, such as pie charts. Regard the last section, the data collected was assessed from scale 1 to 5. The data collected were then assessed and tabulated. The relative importance index was used to rank the factors based on the gathered data by the survey process. This method was used because it is:

- Easy to understand by all the levels of the personalities.
- Easy to come up with the results.
- Easy to compare the results.

The following formula of the RII that will be used in the comparison:

$$RII = \frac{\sum SR}{W(N)} \tag{3}$$

Where:

SR = scale of each factor collected from the survey.

W = the highest value of the weight which equals 5.

N = the number of the participants.

RII varies from the value of 0 to 1. The higher value means the higher importance.

3.4.2 Welch's t-test

Welch's test is typically used when the data samples have unequal variances. Welch's t-test is also called Welch's adjusted T or unequal variances t-test). is a modification of a Student's t-test to see if mean of two samples are significantly different. The modification is to the degrees of freedom utilized in the test, which tends to increase the test power for samples with unequal variances. Welch's t-test can be performed directly without checking upon the variance among different groups of interest which implies that Welch's t-test can be used in case of samples having equal variance (Welch, 1947). In this study, the purpose of using Welch's t-test is to measure the level of agreement between contractors and consultants (A/E) over the required data. The following hypotheses were developed to be verified by Welch's t-test in the analysis.

- $\boldsymbol{H_0}: there\ is\ no\ convincing\ evidence\ of\ agreement$
- $\boldsymbol{H_1}: there\ is\ a\ convincing\ evidence\ of\ agreement$

The procedure of applying Welch's t-test involves following multiple steps; computing the statistic t, computing the degree of freedom, computing the critical value for the test (in this study, two-tailed test is used) and finally comparing the statistics t with the critical value to determine the degree of means difference between the two samples. In this study, Welch's t-test was conducted through Microsoft Excel.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}} \qquad (4)$$

Where;

t = Statistic value

x̄ = Sample mean

s_n^2 = Sample standard deviation

N_n = Sample Size

$$\mathrm{v} \approx \frac{\left(\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}\right)^2}{\frac{s_1^4}{N_1^4 \mathrm{v}_1} + \frac{s_2^4}{N_2^4 \mathrm{v}_2}} \qquad (5)$$

Where;

v = degrees of freedom

v_n= Degrees of freedom of sample n = $N_n - 1$

s_n^2 = Sample standard deviation

N_n = Sample Size

3.4.3 Spearman's Rank Correlation

Spearman's correlation tool measures the level of agreement degree between two distinct groups of interest. Since it does not require the data to be normally distributed, it has a privilege in utilization over the other tools. When degree of freedom is calculated, the developed hypotheses could be tested using the graph of Spearman's Rank Correlation (Figure 4).

$$\rho = 1-\left(\frac{6\sum d^2}{n^3-n}\right) \qquad (6)$$

Where;

ρ = Spearman's Rank Correlation index

d^2= Square of the difference between ranks of each of the two groups

n = Number of variables

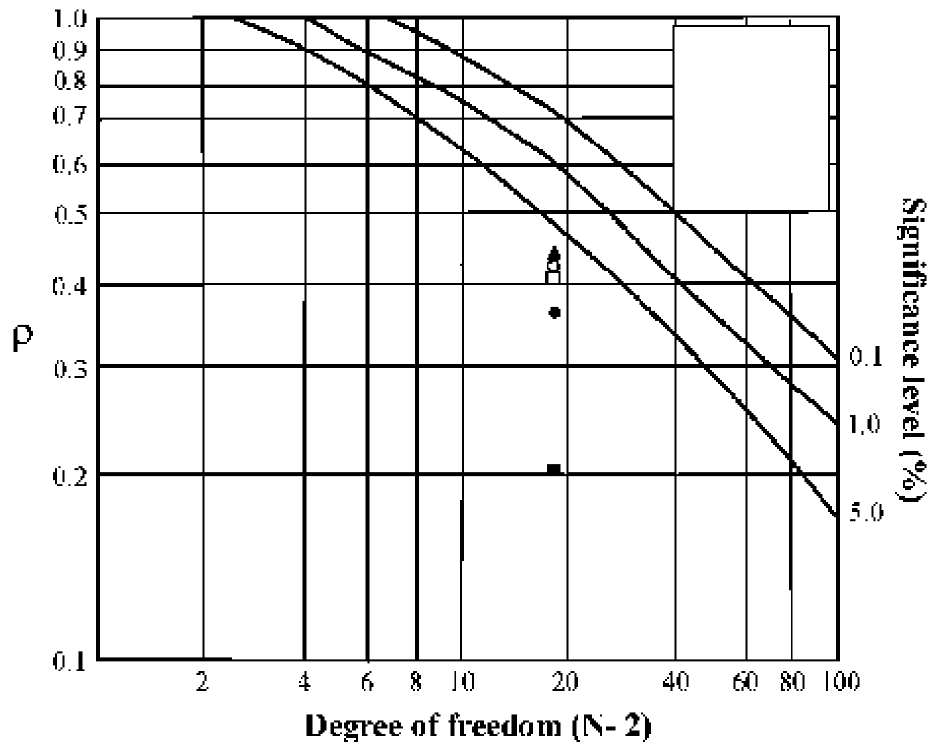


Figure 4. Spearman's Rank Correlation significance graph (Sen and Mamtani, 2006)

H_0 : the means of data provided by contractors and consultants are equal

H_1 : the means of data provided by contractors and consultants are not equal

3.4.4 Coefficient of Variation

The coefficient of variation (CV) measures of the dispersion of data points in a data set around its mean. When the coefficient of variation is computed, it represents the ratio of the standard deviation to the mean. It is a useful statistic tool for comparing the degree of variation among data sets, regardless the nature of the sets (Abdi, 2010). In this study, it was used to identify the reliability degree of the data collected from the survey.

$$\text{CV} = \frac{S}{M} \tag{7}$$

Where;

S = The standard deviation of a data set.

S = The mean of a data set.

3.4.5 Kendall's Coefficient of Concordance

Kendall's coefficient of concordance (W) is utilized to measure the agreement degree among the numerous groups of respondents regarding rankings of variables included in a data set. Its value ranges from 0 to 1 where zero indicates no agreement and 1 designates a perfect concordance (Kendall, 1939). Furthermore, Kendall's coefficient of concordance can be used to test a validity of a hypothesis. In this study, the following hypotheses were tested using Kendall's coefficient of concordance.

- $\boldsymbol{H_0}: there\ is\ no\ convincing\ evidence\ of\ agreement$
- $\mathbf{H_1}: there\ is\ a\ convincing\ evidence\ of\ agreement$

- Chi-square distribution was involved in testing the null hypothesis with a confidence level of 95%. The following formula illustrates the formula of Kendall's coefficient of concordance. Equation 9 represents the formula of t statistics that were compared against the critical Chi square value to verify the validity of the null hypothesis.

$$W = \frac{12S}{m^3(n^3 - n)} \qquad (8)$$

Where;

W = Kendall's coefficient of concordance.

S = The standard deviation.

m = Count of respondents.

n = count of variables.

$$t = \frac{12S}{m^2(n^2 - 1)} \qquad (9)$$

Where;

t = t statistic

S = The standard deviation.

m = Count of respondents.

n = count of variables.

3.4.6 Terrell's Transformation Teqnique

Terrell's transformation technique could be utilized to convert ordinal data into indices. In this study, Terrell's transformation index was employed to identify the critical variables based on levels of influence. The score above 65% determines criticality of a certain variable (Toh et al., 2012). The equation of Terrell's transformation is presented followingly;

$$TS = \frac{(ARS - LPRS)}{PRSR} * 100$$

Where;

TS = The transformed score

ARC = The actual raw score

LPRS = The lowest possible raw score

PRSR = Possible raw score range

CHAPTER FOUR

RESULTS DISCUSSION

4.1 Introduction

A hard copy of the questionnaire developed for this study was delivered in the last quarter of 2019 to 50 randomly selected construction contractors and 25 consulting offices in Riyadh, Saudi Arabia. A total of 32 construction contractors and 15 consulting offices agreed to participate. An electronic Arabic version of the questionnaire was also developed to obtain reliable data and was offered to all those who requested it. To ensure effective data collection, questionnaire completion was accomplished in an interview style. Participants completed the questionnaire in the presence of the researcher. Table 4 includes the number of complete and valid responses received. All of the respondents were from Grade 1 organizations, reflecting the reliability of the results. This chapter represents an analysis of the data collected from the survey process. The first and second sections of this chapter present an analysis of the data obtained from the contractors and consultants, respectively. The third section presents a comparison analysis of the responses of the two groups.

Table 4. Participation Rate

	Contractors	**Consultants (A/E)**
Approached	50	25
Participated	32	15
Response Rate	64%	60%

4.2 Organizational Change in Contracting firms

4.2.1 Characteristics of the Respondents

As shown in Figure 5, the respondents were well educated, with bachelor's degrees in civil engineering, finance, architectural engineering, and business management. Moreover, 31% and 9% of them held master's and doctoral degrees, respectively. The majority of the participants (81%) had more than ten years of experience in the construction industry. Figure 7 presents the distribution of the respondents' years of experience in the construction industry. The participants occupied different top management positions in their respective organizations. Approximately 44% were operations mangers, 6% executive managers, 6% general managers, and 6% finance managers. Figure 8 illustrates the distribution of the respondents according to their job titles. The majority of the participants (66%) had been with their current employers for more than consecutive 10 years. Figure 9 shows the distribution of respondents according to the number of years they had worked with their current employer. The majority of the participants (81%) had experienced more than two organizational changes during their employment (see Figure 10). The majority (90%) had also participated in more than two organizational changes in their careers. Figure 11 indicates the number of times respondents participated in organizational changes throughout their careers. Obtaining the required data from such highly educated and experienced experts in the construction industry indicates its excellent credibility and reliability.

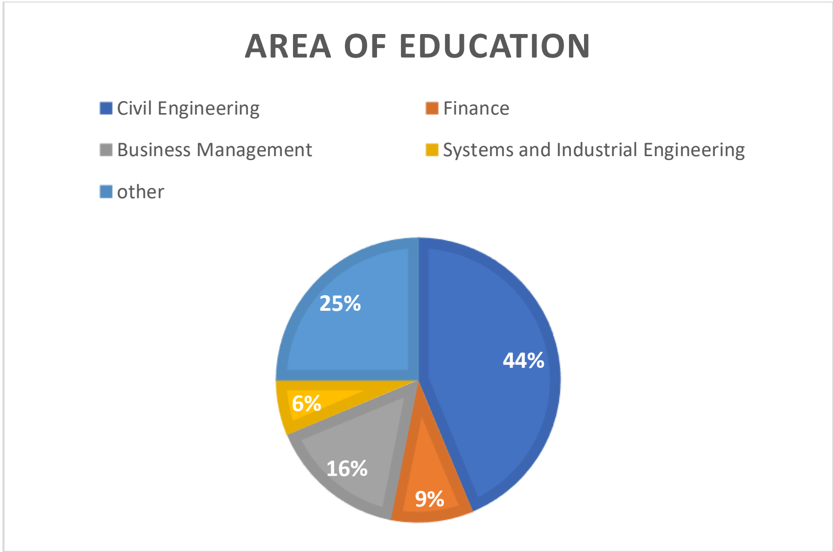


Figure 5. The educational distribution of participants from contracting firms

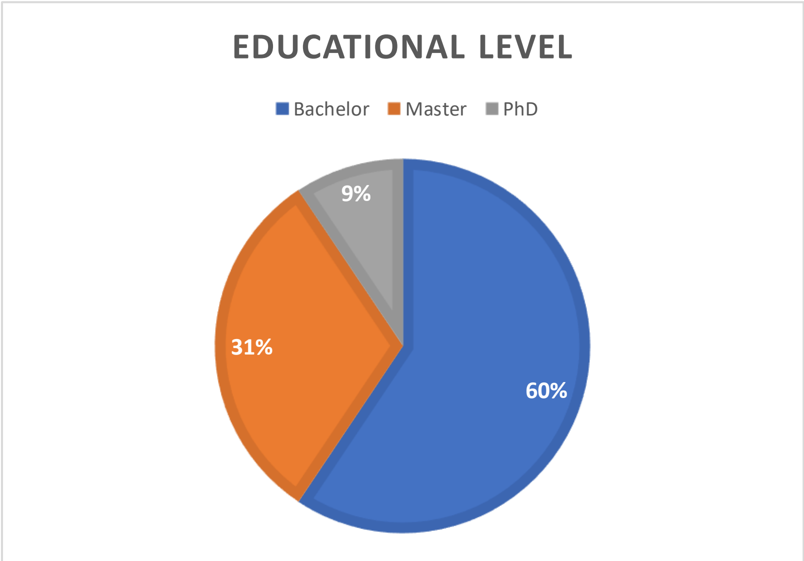


Figure 6. The educational distribution of participants from contracting firms

Figure 7. The relative distribution of contracting firms' respondents according to their job title

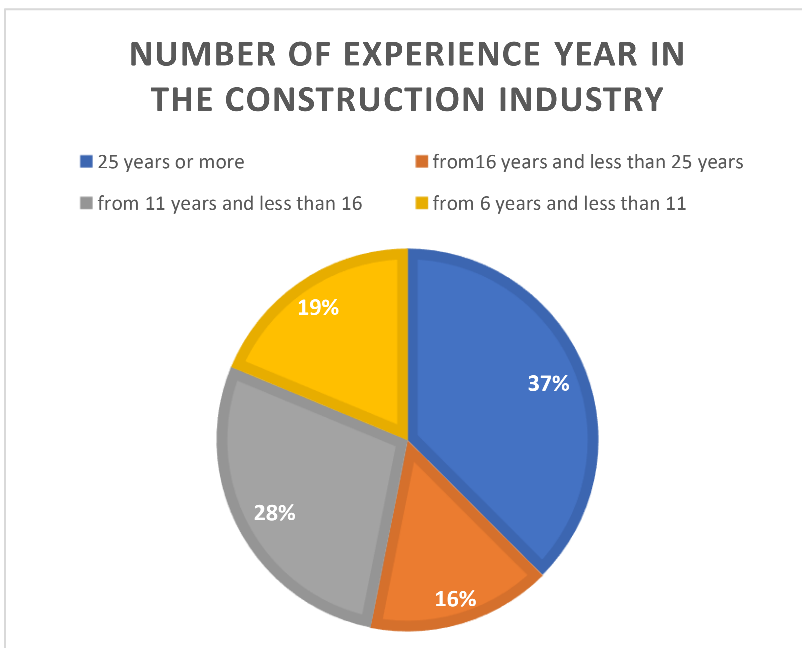


Figure 8. The experience distribution of the participants from contracting firms

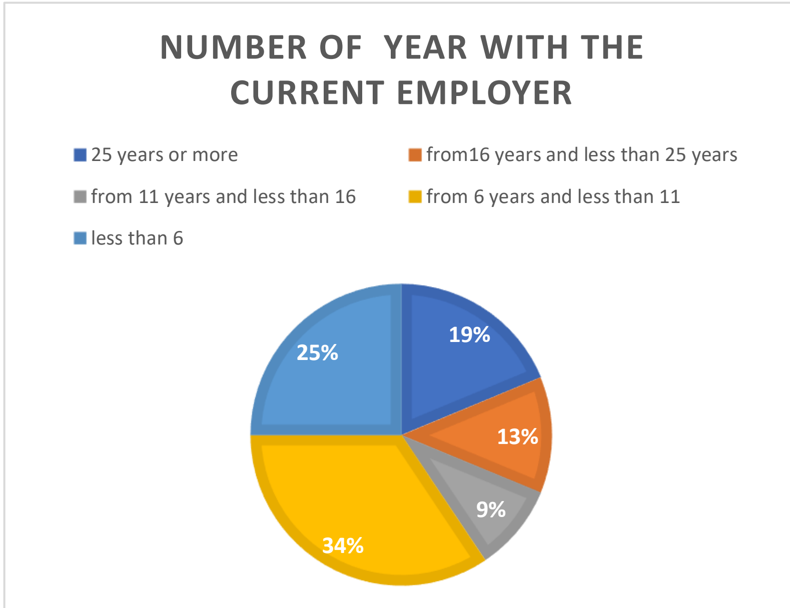


Figure 9. The relative distribution of contracting firms' respondents according to number of years with current employer

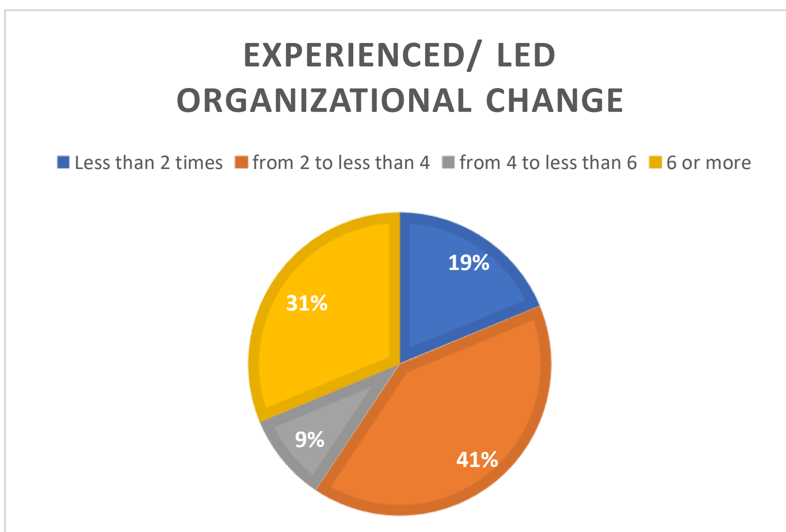


Figure 10. The relative distribution of contracting firms' respondents according to number of times experiencing a change

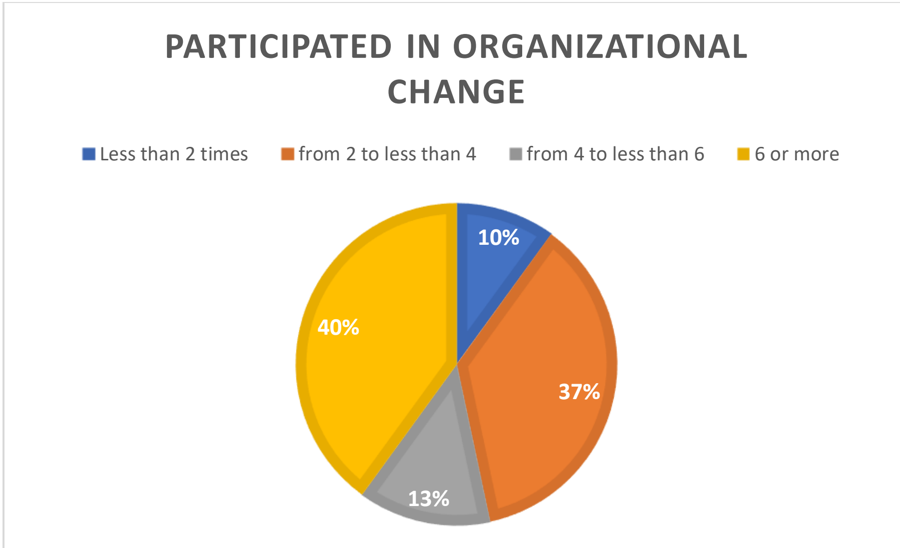


Figure 11. The relative distribution of contracting firms' respondents according to number of times participating in a change

4.2.2 Characteristics of the Organizations

The analysis showed that nearly half the individuals responding to the questionnaire worked for firms with annual revenues of SR 180M or more (15 in total, or 47%). Figure 12 shows the relative distribution of contracting firms according to their average annual revenue. In terms of the organizations' sizes (i.e., manpower counts), most fell into one of two categories, more than 4,000 employees or 1,000 to 2,000 employees (12 and 11, respectively). Figure 13 shows the relative distribution of contracting firms according to their manpower count. The types of projects were grouped into the following three categories: building construction, infrastructure construction, or industrial construction. The numbers of buildings and infrastructure construction projects were roughly equal, 24 and 22, respectively, while there were significantly fewer industrial projects (14 in total). Figure 14 shows the relative distribution of the different project types in the targeted sample. For the organizations' ages (in years), a significant portion were 30 years old or older, 21 out of 32 or two-thirds of the sample. Figure 15 shows the relative distribution of contracting firms according to their ages. All organizations' main offices were in Riyadh, except for two that were located in Dammam.

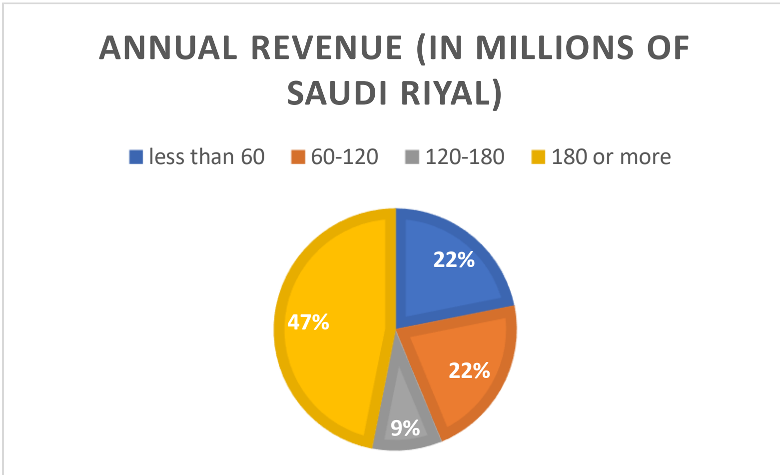


Figure 12. The relative distribution of contracting firms according to their revenue

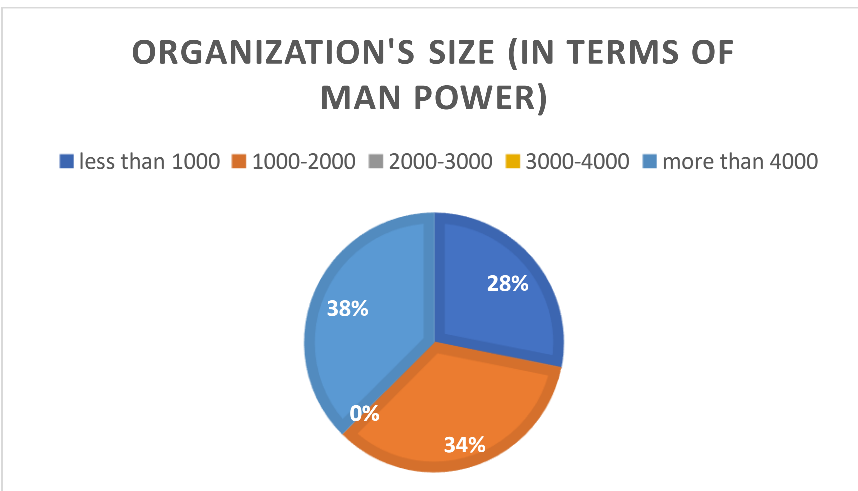


Figure 13. The relative distribution of contracting firms according to the manpower size

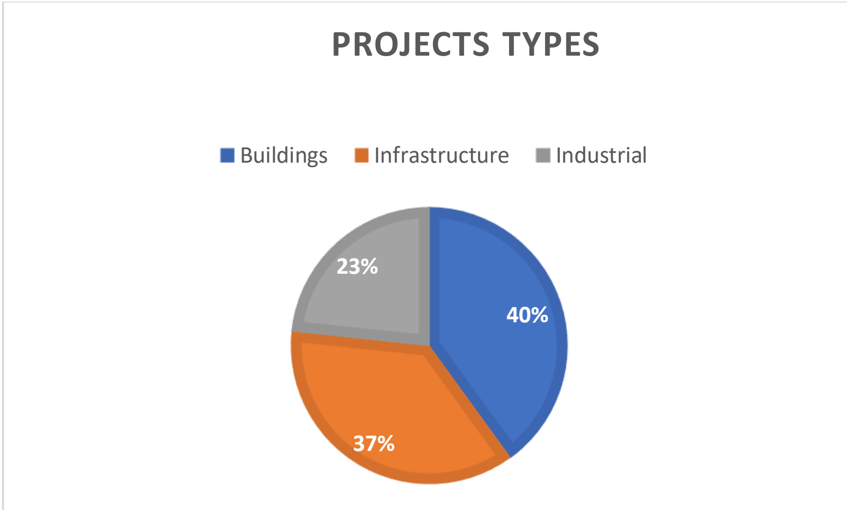


Figure 14. The relative distribution of the different project types held by the targeted sample of contractors

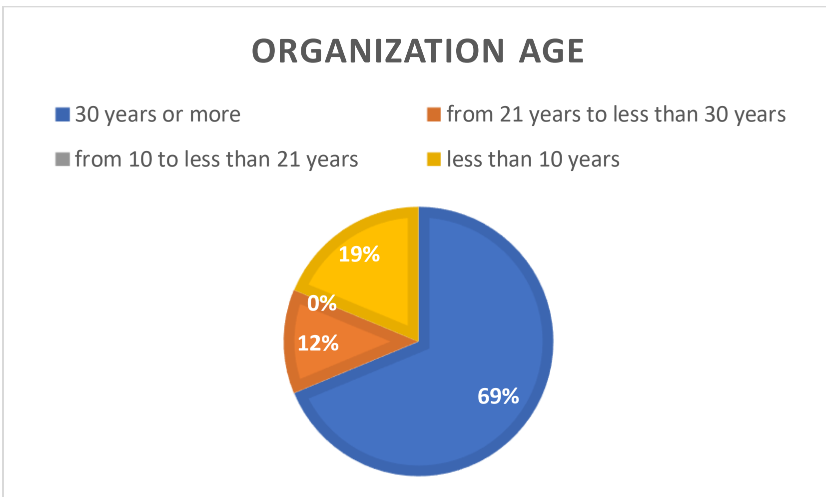


Figure 15. The relative distribution of contracting firms according to their age

4.2.3 Characteristics of Changes

Data analysis showed that 52% of contracting firms implement their organizational changes gradually. A respondent, acting as executive director, implied that if the situation demanding organizational change is not urgent or critical, gradual implementation is the optimum method in obtaining an effective change in long term. 35% of the individuals selected the transitional method, from the old state to the new state, as most preferable method of implementing the proposed change. This might be rationalized by either that the change is urgent or to eliminate any potential resistance from employees. Only 13% of the respondents have chosen transformational change as an application method. Those who selected transformational change went through severe economic crises in which, as a reaction, they have laid off a large number of employees, changed their tendering procedures and shifted from their traditional projects types. System's components; technology, people, structure and tasks, were analyzed using frequency. The results showed that "technology" has less probability to be involved in an organizational change as it has obtained 19%. Figure 16 shows the components distribution in organizational changes. As potential justifying reason, contractors are concerned to issues directly related to projects such as tendering process, recourses productivity in addition to communication between in-site staff and office employees. Since the technology is not a major part of those issue, this could explain the reason underlying the low selection rate of "technology".

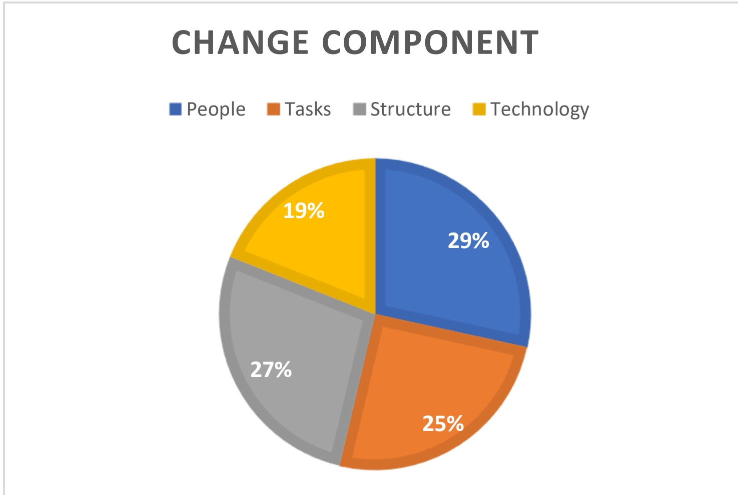


Figure 16. components distribution in organizational changes (contractors)

4.2.4 Driving Forces for Organizational Changes

The level of impact of each factor driving contractors to perform organizational changes was measured using the Relative Importance Index (RII) and Terrel's transformation index. Driving forces were ranked within each group as either external or internal. Toh el al. (2012) indicated that variables in Terrell's index of above 65% should be considered critical.

4.2.4.1 External Forces

The results indicate that all external driving factors caused organizational changes, but with differing levels of impact. There were three critical external forces driving contractors to make organizational changes: increased competition, new laws and regulations, and advancements in technology. The Terrell's indices for each were 79.69%, 78.91%, and 71.09%, respectively. The RII confirmed the Terrel's index results, finding the same external driving forces for organizational change. Tables 5 and 6 present the computation procedure for obtaining the Terrell's transformation and RII values, respectively. Increased competition was critical and ranked as the top driving force for contractors making organizational changes. This can be attributed to the sharp decrease in the number of construction projects initiated in Saudi Arabia in the last five years. According to one respondent, the types of construction projects have become less varied. Heavy industrial engineering projects are increasing in response to Vision 2030, while building construction is becoming less attractive. The coefficient of variation was 20%, reflecting that the respondents significantly agreed with the ranking of the increased competition variable.

New laws and regulations represented the second critical force driving contractors to make organizational changes. Its related coefficient of variation (18%) reflected a high degree of agreement among the individuals surveyed. One respondent explained that once the government establishes new laws or modifies the existing code, it is mandatory for an organization to apply the newly developed regulation in order to avoid any potential penalties. Another respondent working for a Grade 1 company mentioned that for mega-projects, contracting companies usually request loans from banks to finance the work during its lifecycle. In the last few years, the sharp decrease in the number of projects initiated has reduced the overall financial liquidity of contractors; the banks have temporarily paused granting loans. However, for specific types of projects (usually heavy engineering construction projects), the banks may lend to the contracting firm after conducting their own feasibility study of the proposed project. The interviewee concluded that this shift by banks from granting loans easily to limiting lending has significantly altered the project types and modified the composition of company departments, mostly in the technical and tendering areas.

Advancements in technology was the third-ranked critical force driving contractors to make changes to their organizations. This could be related to how technology is changing, driving contractors to evolve to accommodate these shifts. For example, in the last decade, BIM has been increasingly integrated into the construction industry in Saudi Arabia. A considerable number of recent mega- and high-budget public projects have been designed using BIM-based computer applications. Moreover, BIM technology provides effective coordination plans for stakeholders in the project, replacing the traditional method. Also, smartphones now facilitate the communication process on project sites, reducing overhead. However, the associated coefficient of variation was high (31%), indicating that advancements in technology were less important for a considerable number of respondents.

Labor market issues were not considered critical and were ranked fourth. One respondent commented that the obligatory Saudization of organizations' employees negatively impacted his company's financial and technical performance. He explained that his company was looking forward to empowering Saudi skill attainment and eager to integrate workers into their current business system, but a significant portion of his Saudi employees demanded high monthly wages (usually triple that of non-Saudi workers) and their performance and technical knowledge were poor. Moreover, if given a better work opportunity outside the company, Saudi workers tended to leave without notice. The situation dramatically hindered the internal functioning of his company and consumed substantial financial resources and time.

Both social and cultural issues were not considered critical and ranked relatively low, with high coefficients of variation (37% for both). According to one respondent, cultural and social issues were only of minimal consideration to the department of business development. He stated that as an example, the integration of females had not changed at all. Table 7 shows the external driving forces for change as ranked by contracting firms. One respondent emphasized the impact of global and local political conditions on contracting companies, commenting that the:

> Political state of a certain country directly affects the construction industry. Saudi Arabia has a stable political state. However, since … nearby countries are having wars or revolutions resulting in [an] unsafe work environment, a minor portion of the contracting firms working

> in the construction industry of Saudi Arabia have been negatively impacted. Undertaking projects in nearby countries includes high risk, which eventually [increases] the total cost … resulting in a fewer number of projects.

He also explained that 90% of the top management of contracting firms did not have sufficient knowledge of and procedures for managing organizational changes, resulting in less efficient change implementation that if done better could save substantial resources.

Geographical conditions were mentioned by one respondent as an important external force. He explained that since organizational changes were continuously taking place, his company began to consider issues related to geography more carefully. Issues such as the expected increase in residents in certain areas, potential commercial growth, and local construction laws have become important points of focus in their business development department. Such issues could result in tremendous shifts in the projects undertaken in the future.

Table 5. Terrell's indices computation of external forces for contractors

External Forces	Raw Score	Lowest Possible Score	Score Range	TTI (%)	Decision
Advancement of the technology	123	32	128	71.09	Critical
New Laws and regulations	133	32	128	78.91	Critical
Domestic market maturation	103	32	128	55.47	Not Critical
Increased competition	134	32	128	79.69	Critical
Labor market issues	114	32	128	64.06	Not Critical
Changed customers' needs	111	32	128	61.72	Not Critical
Social issues	91	32	128	50.00	Not Critical
Cultural issues	105	32	128	46.09	Not Critical
Business Expansion	96	32	128	57.03	Not Critical

Table 6. External driving forces for organizational changes (contractors)

External Forces	Level of Impact					Scores mean	Standard deviation	RII
	5	4	3	2	1			
Advancement of the technology	9	14	5	3	1	3.84	1.05	0.78
New Laws and regulations	11	16	4	1	0	4.16	0.77	0.79
Domestic market maturation	5	10	7	7	3	3.22	1.24	0.60
Increased competition	12	16	2	2	0	4.19	0.82	0.81
Labor market issues	9	9	9	1	4	3.56	1.29	0.69
Changed customers' needs	5	11	11	4	1	3.47	1.02	0.68
Social issues	1	12	9	6	4	3.00	1.11	0.57
Cultural issues	0	9	14	4	5	3.32	1.02	0.64
Business Expansion	2	15	7	6	2	3.28	1.05	0.67

Table 7. Ranks of External driving forces (contractors)

Force	Contractors Rank	Coefficient of Variation
Advancement of the technology	**3**	0.27
Cultural issues	**7**	0.36
New Laws and regulations	**2**	0.18
Changed customers' needs	**5**	0.29
Business Expansion	**6**	0.32
Increased competition	**1**	0.20
Domestic market maturation	**8**	0.38
Labor market issues	**4**	0.36
Social issues	**9**	0.37

4.2.4.2 Internal Driving Forces

With regards to internal forces, only two were considered critical: organizational growth and unexpected economic crises. These had Terrell's indices of 74.22% and 65.53%, respectively. Table 8 presents the computation procedure used to obtain the Terrell transformation values. Organizational growth was ranked first and most critical. When a firm's budget or employee count increases, the process of coordinating resources becomes more complicated. Hence, new departments are essential and must be developed quickly to facilitate the communication process throughout the firm and optimize the use of existing resources. The coefficient of variation was 18%; thus, respondents agreed that organizational growth was of high importance. Goal succession was also evaluated as critical and ranked second on the list of internal forces. New goals are essential since they motivate employees. However, setting new goals, targets, and objectives often requires changing the current work system of a firm to facilitate goal achievement.

The three lowest-ranked factors were changes in administrative behavior, employee resistance, and mergers and acquisitions. All had very high coefficients of variation, around 65%, implying significant disagreement among the respondents. One respondent stated that contracting firms inside Saudi Arabia are protected by the authorities against groups strikes; hence, he evaluated the effect of group resistance to be very low. Moreover, when his organization initiates a change, it is mandatory for everyone to obey regardless of whether or not they are satisfied. Anyone who obstructs the change implementation process is replaced. The respondent commented: "We have in Saudi Arabia [a] large number of unemployed engineers who are willing to start work immediately." Table 9 lists the details of the evaluations provided by respondents, and Table 11 shows the force rankings in groups. Regarding changes in administrative behavior, one respondent who had 25 years of experience in HR management stated that a considerable number of private contracting companies are family businesses. Some are classified as Grade 1 or 2 organizations. In firms owned by a single family, it can be difficult to manage the business internally. He explained that conflicts appear suddenly and periodically, such as when selling company assets, there are deaths in the family, and money is borrowed from banks. Furthermore, top management (i.e., the family) may have no professional career experience, which significantly affects the overall decision-making process.

Table 8. Terrell's indices computation of internal forces for contractors

Internal Forces	Raw Score	Lowest Possible Score	Score Range	TTI (%)	Decision
Unexpected crisis (unexpected loss, instant decline in profits)	112	32	128	**62.50**	**Not Critical**
Employees resistance (for example: group strikes)	72	32	128	**31.25**	**Not Critical**
Merging and acquisition issues	72	32	128	**31.25**	**Not Critical**
Changed administrative behavior	82	32	128	**39.06**	**Not Critical**
Goal Succession	116	32	128	**65.63**	**Critical**
Organizational Growth	127	32	128	**74.22**	**Critical**

Table 9. Internal driving forces for organizational changes (contractors)

Internal Forces	Level of Impact					Scores mean	Standard deviation	RII
	5	4	3	2	1			
Unexpected Economic crisis	6	16	4	4	2	3.63	1.13	0.69
Employees resistance (for example: group strikes)	1	5	6	9	11	2.25	1.19	0.45
Merging and acquisition issues	2	6	4	9	8	2.25	1.44	0.44
Changed administrative behavior	3	10	1	9	6	2.56	1.56	0.51
Goal Succession	3	16	8	4	1	3.50	0.95	0.73
Organizational Growth	7	18	6	1	0	3.97	0.74	0.79

Table 10. Ranks of internal driving forces (contractors)

Force	Contractors Rank	Coefficient of Variation
Organization Growth	**1**	0.19
Unexpected economic crisis	**3**	0.31
Goal Succession	**2**	0.27
Changed administrative behavior	**4**	0.61
Employees resistance (for example: group strikes)	**5**	0.53
Merging and acquisition issues	**6**	0.64

Table 11. Forces groups rank (contractors)

Contractors	Average RII	Rank
External Forces	0.701388889	**1**
Internal Forces	0.605208333	**2**

4.2.5 Process of Organizational Change

The results indicate that in the event of an organizational change, contractors apply a structured system that consists of change plan preparation, creation, content development, and implementation

Table 12. Frequency of steps applied in managing changes inside contracting firms

Change Management Process	Frequency	(%)
Change Plan Preparation		
Change plan prepared by internal committee formed by top management	30	93.75
Change plan prepared by External hired team such as consulting offices	8	25.00
Change Plan Creation		
Defining goals and vision of the proposed change	28	87.50
Involving senior leaders in the process	27	84.375
Identifying the resources prior to planning the change	26	81.25
Defining the roles and responsibility of the individuals	26	81.25
Doing risk assessment	19	59.375
Identifying areas of resistance to the change within the firm	13	40.625
Doing change-readiness assessment on employees' level	14	43.75
Doing change-readiness assessment on organization level	13	40.625
Change Plan Content		
Identifying the responsibility of each activity	19	59.375
Setting major milestones	18	56.25
Including baseline for cost tracking	18	56.25
Identifying the start and end dates of the activities	17	53.125
Identifying the duration of each activity	15	46.875
Listing process activities	14	43.75
Change Plan Implementation		
Empowering teamwork	24	75.00
Engaging stakeholders early in change planning	17	53.125
Monitoring and tracking the change progress	17	53.125
Identifying the people and groups that the change will impact on	16	50.00
Conveying motivation for the change	14	43.75
Providing training and teaching to stakeholders	13	40.625
Reinforcing change implementation through procedures, systems and policies	11	34.375
Including communication channels for questions and feedback	10	31.25
Change plan prepared by both internal team & external consultant	6	18.75
Using new leadership style/ method	6	18.75
Providing support by addressing concerns and fears among the employee	5	15.625

4.2.4.1 Change plan preparation

The top management of the majority of contractors (93.75%) formed internal committees to prepare their organizational change plans. These contractors had high confidence in their employees' ability to prepare desirable plans of this type. Also, a considerable number of respondents expressed that hiring external teams to analyze and prepare change plans can be costly. Very few (about 19%) procured the services of external consultants to support their internal committees in their preparation of change plans. Those who did believed that augmenting their internal committees with external consultants added value and eliminated bias. Only two contractors depended on external consultants to prepare their change plans.

4.2.4.2 Change Plan Creation

The majority of the contractors (87.5%) indicated that organizational change teams defined the goals and vision of proposed changes, after consultation with senior leaders. Since defining the goals and vision of a change sets the baseline for that change, it was not surprising that all contractors reported taking this step. The vast majority, 84.375%, engaged senior leaders in the implementation process. Respondents reported that organizational changes were justified and imitated by top management, usually represented by either the executive director or general director. This may be why most respondents engaged senior leaders. Of the total, 81.25% reported that financial and human resources were identified prior to planning the change. However, most respondents told the researcher that resources were only roughly estimated, with no exact details or alternative scenarios for risky situations. This reflects the minimal effort often expended by contracting firms when planning changes. Also, 81.25% of respondents defined the responsibilities of the workers and staff in relation to the change. According to one respondent with more than 25 years of experience, assigning responsibilities to the individuals involved in any process is critical.

Otherwise, the rate of conflicts significantly increases, hindering progress and eventually resulting in increased expenses.

Nineteen individuals (59.375%) stated that they did risk assessments. However, the majority of who did implied that they were only basic assessments. No detailed feasibility studies, sensitivity analyses, or exploration of multiple scenarios were conducted. In most cases, risks were identified through verbal conversations or negotiations among top management and change supervisors (who were usually department managers). An average of 42% stated that they did assess the change readiness of the organization and employees and identified areas of resistance within the firm. This poor rate of assessment reflects the extent to which organizational change management is weak. One respondent attributed this to the fact that contracting firms were more concerned about problems or matters related to construction projects, so they spent most of their managerial and technical effort on the project side of the business.

4.2.4.3 Change Plan Content

After setting milestones, the details of the change plan must be identified. In terms of plan content, a major portion of respondents (more than 90%) stated that they usually did not develop documents or on-paper change plans. However, activities related to cost and payments were documented in order to allow for tracking and monitoring. Regarding the content of change plans, around 60% of contracting companies linked activities to the individuals responsible. Assigning duties to specific individuals is essential, and this low percentage reflects the minimal effort invested in the planning phase. Of the total, 43.75% developed lists or agenda items for process activities, 46.87% roughly estimated activity duration in absolute values, and only 53.13% said they identified activity start and end dates. They did tend to discuss issues verbally in informal discussions and at physical meetings, but only at the change initiation stage. Approximately 56.25% of the total number of participants reported setting major milestones or establishing documents reflecting a detailed baseline computed based on calculations and forecasts for tracking purposes. This was expected, since contracting firms tend to focus more on issues related to construction projects, such as change orders, claims, and disputes.

Thus, the contractors interviewed did not have specific procedures for planning changes. One respondent from a firm classified among the top 20 contracting firms in Saudi Arabia reported that since the construction industry is project-based, issues related to the organization garner minimal attention and are significantly less frequently addressed than are those related to actual construction projects. In part, his statement explains the poor performance of these contractors in planning for organizational change.

4.2.4.4 Change Plan Implementation

Of the total interviewed, 85% of contractors involved senior leaders when implementing organizational changes and 100% of the private organization indicated that senior leaders managed and tracked process progress. The majority of the firms indicated that each department manager was considered a change agent/supervisor and lower-level workers were their responsibility. The duty of the change agent is to ensure that the change plan is fulfilled and applied according to the instructions of top management (in most cases, executive directors). Then, change agents report directly to top management in frequent meetings. Approximately 60% of the contractors provided neither training, instructional sessions, or communication channels for top management and employees. This was expected because the contractors did not seem concerned about the organizational side of their operations and focused on the project side. Yet 75% of the respondents stated that they empowered teamwork among their employees. Five individuals commented that teamwork is emphasized but in contracting firms it was more theoretically applied. In actual situations, every worker sought their own personal benefit, except for a very few.

In most firms, communication across departments was neglected. Only two respondents out of the 32 interviewed insisted on the importance of interdepartmental communication and emphasized how it facilitated the process of information exchange, highly optimizing the progress of change. Of the total, 53.125% engaged all stakeholders in the planning phase of the change process. Also, 53.125% monitored and tracked the change process through a specified formal follow-up procedure. Only 50% stated that people or groups impacted by the change were identified in the early stages. A low 43.75% of firms conveyed the motivation behind organizational changes to employees, reflecting a lack of awareness of the importance of employees by top management. Furthermore, 18.75% stated that they employed new leadership techniques or altered their existing methods of management.

To conclude, as changes are being executed, top management tracks the cost and time performance not based on formal or pre-defined procedures, but rather by checking on milestones according to a general baseline. Commonly, implementation processes employed by contracting firms take the form of frequent physical reporting by change supervisors (mostly department managers) to top management regarding the flow of the process and including any recent updates.

4.2.6 Factors of Effective Change Management

Terrell's transformation technique was used to determine the most critical factors. Out of 17, only five were not considered critical, less than 65% on the Terrell's index. These included: (1) individuals' readiness for change, (2) the extent to which employees were involved in the change, (3) communication among employees, (4) the availability of the change agent/supervisor, and (5) teaching and training employees prior to change implementation. The Terrell's index values for those factors were 61.72%, 59.38%, 64.06%, 63.28%, and 64.06%, respectively. Out of the five non-critical factors, four were related to employees. According to a considerable number of the respondents, changes were implemented whether or not employees were satisfied. This may explain the relatively low level of importance given to employee-related factors. Moreover, firms are protected by the authorities from any labor movements or strikes by employees.

Table 13 presents the critical factors obtained from the Terrell's transformation index. Factor rankings were based on the RII values. The top three factors in descending order were top management's support during the change implementation process, development of a realistic change implementation schedule, and proper selection of the project in which the organizational change process will be initiated. Top management's support during the change implementation process was ranked first and considered most critical. Employees are the core of any organization. In one interview, the respondent indicated that addressing employees' fears and concerns had been top management's focus for the last five years because the overall organization's production had been significantly enhanced once they began to focus on employees. Communication between top management and employees was ranked fourth, supporting this statement. Moreover, the associated coefficient of variation of the first factor was 17%, indicting a high level of agreement among the respondents and reflecting the significance of the factor.

Developing a realistic change implementation schedule was second on the list, implying that a planning phase prior to implementation is essential. As a rule, establishing unrealistic implementation schedules can result in either underuse or overuse of available resources, which eventually hinders change implementation in multiple ways. By nature, the construction industry is project-based. For instance, modification of the contract type usually followed by a contracting firm should be based on the project itself. Moreover, each project's staff has their own capabilities and procedures. It is essential to examine each project in detail before implementing a change to it. Thus, the proper selection of the project in which the organizational change process will be initiated was ranked third.

The characteristics directly related to employees such as their readiness to change, communication among employees, and the extent of their involvement in changes were all ranked low, indicating that contractors neglected personnel issues. Table 16 shows the ranking of change management factors as evaluated by respondents from contracting firms. The first three factors had coefficients of variation of 17%, 22%, and 23%, indicating that respondents substantially agreed about these factors. The factors were grouped into four categories: employees, communication, change agents, and planning and scheduling. The communication group was ranked first. This is likely because while implementing changes, instructions came from top management or team leaders (as was shown in the previous section). Communicating across departments is a key determinant of successful change implementation. One respondent commented on how communication is a critical factor ensuring an effective change implementation process. When an organization goes through a major change, it is important to connect company departments to one another to ensure that they are aligned; this is accomplished by providing effective communication channels. Doing so facilitates updates being delivered in a timely fashion across all departments, as well as expertise exchange and information synchronization. Most companies focused on connecting management with lower-level employees, unintentionally neglecting to connect different departments in the organization.

One interviewee mentioned financing issues such as loans from banks and financial guarantee statements as matters greatly affecting their company's system, mostly in the project management department. Since the construction industry is project-based, it is clear why the planning and scheduling group ranked second. Change agents were considered fairly important and were ranked third. One respondent commented that providing an unbiased committee or team for developing, running, and tracking the change process was essential. A balanced change implementation process is more likely to be effective because it facilitates a friendly work environment in which employees are mentally and physically motivated to initiate change. Moreover, unbiased teams will inspire trust among employees, which is one of the top factors ensuring effective workforce production. Hiring an external team of consultants is the best solution to ensuring neutrality in the change implementation process. Table 16 illustrates the groups of critical factors and their rankings, along with their mean RII scores.

Table 13. Terrell's indices computation of change management factors for contractors

Change Management Factors	**Raw Score**	**Lowest Possible Score**	**Score Range**	**TTI (%)**	**Decision**
Individual’s readiness to change.	111	32	128	**61.72**	**Not Critical**
Individual’s personal experience.	116	32	128	**65.63**	**Critical**
Employees commitment to change.	121	32	128	**69.53**	**Critical**
The extent to which employees are involved in the change process.	108	32	128	**59.38**	**Not Critical**
Leadership techniques.	118	32	128	**67.19**	**Critical**
Communication among the employees.	114	32	128	**64.06**	**Not Critical**
communication between management and employees.	129	32	128	**75.78**	**Critical**
Top management support during the change implementation process	138	32	128	**82.81**	**Critical**
The extent to which a change agent/ supervisor is participating in the change process.	120	32	128	**68.75**	**Critical**
The capability of a change agent/ supervisor.	130	32	128	**76.56**	**Critical**
The availability of a change agent/ supervisor.	113	32	128	**63.28**	**Not Critical**
Tracking the change process performance periodically.	125	32	128	**72.66**	**Critical**

Change Management Factors	Raw Score	Lowest Possible Score	Score Range	TTI (%)	Decision
Training and teaching the employees before starting the change implementation.	114	32	128	**64.06**	**Not Critical**
Defining change vision clearly before starting the change implementation.	130	32	128	**76.56**	**Critical**
Developing a realistic change implementation schedule.	133	32	128	**78.91**	**Critical**
Proper selection of a project in which the organizational change process is going to be initiated.	133	32	128	**78.91**	**Critical**
Forecasting challenges that may occur during the change implementation process.	116	32	128	**65.63**	**Critical**

Table 14. Change management factors for contractors

Change Management Factors	Level of Impact					Scores mean	Standard deviation	RII
	5	4	3	2	1			
Individual’s readiness to change.	6	15	2	6	3	3.47	1.27	0.69
Individual’s personal experience.	3	18	7	4	0	3.63	0.83	0.73
Employees commitment to change.	7	16	4	5	0	3.78	0.97	0.76
The extent to which employees are involved in the change process.	4	13	7	7	1	3.38	1.07	0.68
Leadership techniques.	5	18	5	2	2	3.69	1.03	0.74
Communication among the employees.	3	19	4	5	1	3.56	0.98	0.71
communication between management and employees.	6	22	3	1	0	4.03	0.65	0.81
Top management support during the change implementation process	15	12	5	0	0	4.31	0.74	0.86
The extent to which a change agent/ supervisor is participating in the change process.	3	22	4	2	1	3.75	0.84	0.75
The capability of a change agent/ supervisor.	9	18	4	0	1	4.06	0.84	0.81
The availability of a change agent/ supervisor.	5	13	8	6	0	3.53	0.98	0.71
Tracking the change process performance periodically.	10	13	6	2	1	3.91	1.03	0.78
Training and teaching the employees before starting the change implementation.	5	16	4	6	1	3.56	1.08	0.71
Having a clear definition of the change before starting the change implementation.	12	12	6	2	0	4.06	0.91	0..81
Developing a realistic change implementation schedule.	14	12	3	3	0	4.16	0.95	0.83
Proper selection of a project in which the organizational change process is going to be initiated.	11	16	4	1	0	4.16	0.77	0.83
Forecasting challenges that may occur during the change implementation process.	8	10	9	4	1	3.63	1.10	0.73

Table 15. Ranks of change management (contractors)

	Factors	Contractors Rank	Coefficient of Variation
Employees	Individual's readiness to change.	**12**	0.37
	Individual's personal experience.	**9**	0.23
	Employees commitment to change.	**6**	0.26
	The extent to which employees are involved in the change process.	**13**	0.32
Communication	Leadership techniques.	**8**	0.15
	Top management support during the change implementation process	**1**	0.17
	Communication among the employees.	**10**	0.28
	communication between management and employees.	**4**	0.16
Change Agent	The capability of a change agent/ supervisor.	**3**	0.21
	The extent to which a change agent/ supervisor is participating in the change process.	**7**	0.22
	The availability of a change agent/ supervisor.	**11**	0.28
Planning and Scheduling	Proper selection of a project in which the organizational change process is going to be initiated.	**2**	0.16
	Training and teaching the employees before starting the change implementation.	**10**	0.30
	Having a clear definition of change vision before starting the change implementation.	**3**	0.22
	Developing a realistic change implementation schedule.	**2**	0.23
	Forecasting challenges that may occur during the change implementation process.	**9**	0.30
	Tracking the change process performance periodically.	**5**	0.26

Table 16. Critical factors groups ranks by contractors

	contractors	Rank
Communication	3.910	**1**
Planning and Scheduling	3.898	**2**
Change Agent	3.781	**3**
Employees	3.563	**4**

4.3 Organizational Change in Consulting offices (A/E)

4.3.1 Characteristics of the Respondents

The sample of consulting firm respondents was well educated, with 66% (10 in total) having degrees in architectural engineering. The others mostly specialized in construction engineering and management or civil engineering (see Figure 20). Approximately 47% of the respondents held master's degrees, and 7% had doctoral degrees. The majority of the respondents held the title Operations Manager, contributing nearly half the total responses, while four respondents held the title of Executive Manager. Figure 17 illustrates the distribution of consulting respondents according to their job titles. In terms of years of experience in the construction industry, a significant portion had more than 11, approximately 80% of the respondents. Figure 18 represents the distribution of respondents according to their number of years of experience in the construction industry. In terms of years with their current employer, a significant number had worked at their present firm from six to 11 years (seven individuals, or 47%). The others were uniformly distributed among the categories. Figure 19 shows the distribution of the respondents according to their number of years working with their current employer.

Seven respondents stated that they have experienced and led more than six organizational changes in their career, while others indicated either two or less than four times. Figure 22 represents the distribution of the respondents according to the number of times they experienced organizational change. Only five indicated that they had participated in more than six organizational changes in their careers. Figure 23 represents the frequency of respondents participating in organizational change. Again, the data were collected from very experienced and well-educated individuals, indicating the reliability of the results obtained.

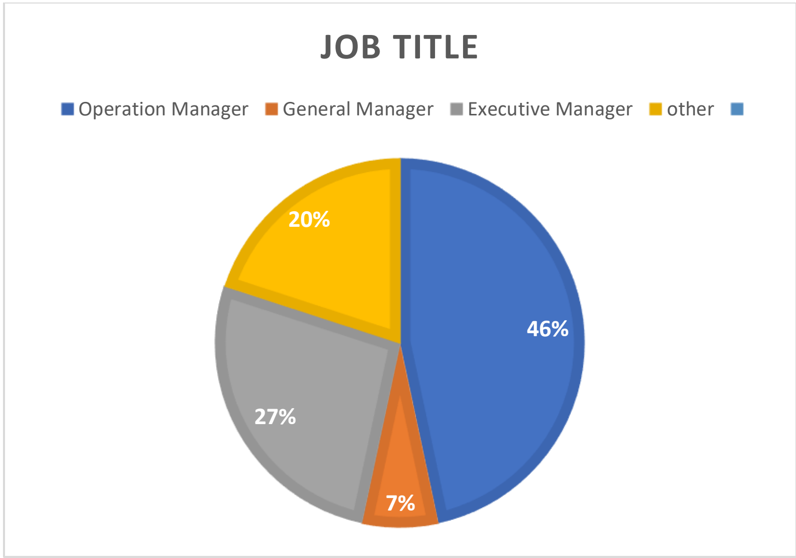


Figure 17. Job title distribution of respondents from consulting firms'

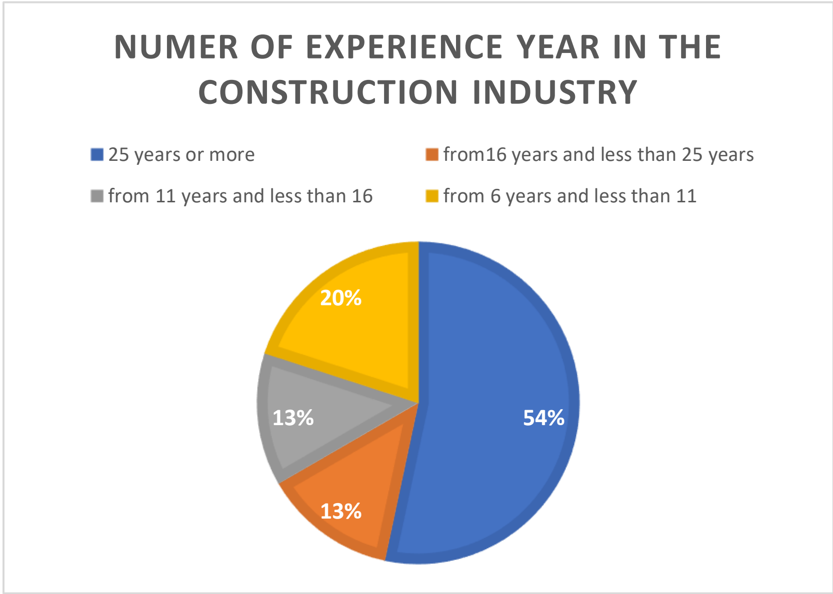


Figure 18. The relative distribution of consulting firms' respondents according to number of years of experience in the construction industry

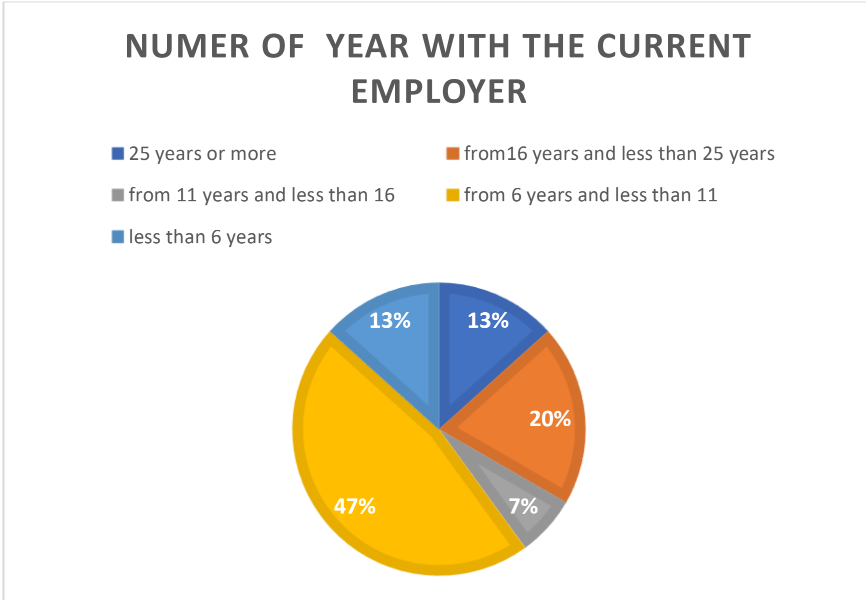


Figure 19. The relative distribution of consulting firms' respondents according to number of years with current employer

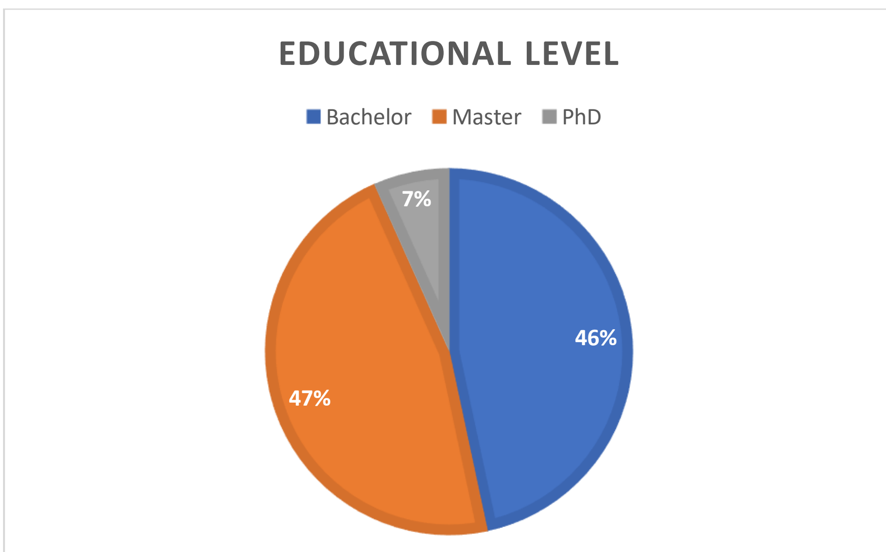


Figure 20. Educational level distribution of respondents from consulting firms'

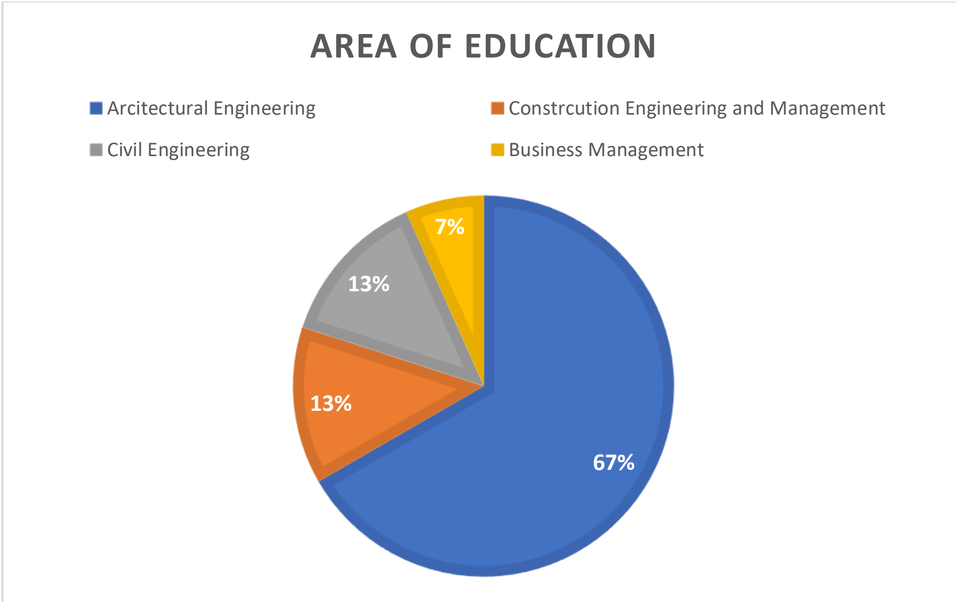


Figure 21. Education area distribution of respondents from consulting firms’

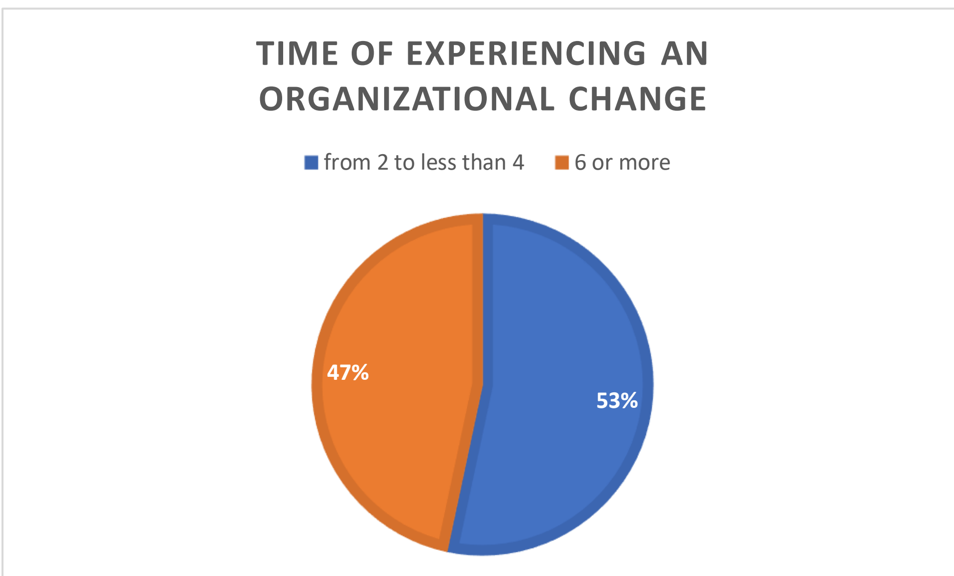


Figure 22. The relative distribution of consulting firms’ respondents according to number of times experiencing a change

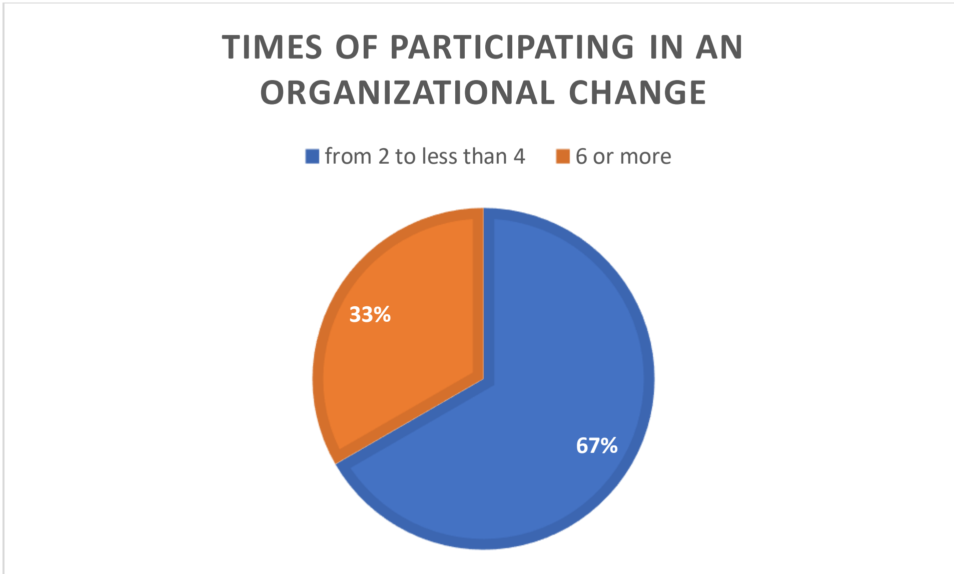


Figure 23. The relative distribution of consulting firms' respondents according to number of times participating in a change

4.3.2 Characteristics of the Organizations

This research analyzed data from six firms with annual revenues of SR 50M or more and six firms with revenues between SR 10M and 20M. Figure 24 shows the relative distribution of consulting offices according to their average annual revenue. In terms of the organizations' sizes (i.e., manpower counts), offices with between 100 and 200 employees constituted the major portion (six in total), while only three offices had more than 400 people. Figure 25 shows the relative distribution of contracting firms according to their manpower counts. The types of projects taken on by these consulting offices were categorized into the following groups: building construction, infrastructure construction, and industrial construction. Building and infrastructure construction projects were roughly equal in number, 13 and 14, respectively; industrial projects were far fewer. Figure 26 shows the relative distribution of the project types taken on by the target sample. For the consulting firms' ages (in years), a significant portion had operated for 30 or more years, eight out of the 15 or approximately 50%. Figure 27 shows the relative distribution of contracting firms according to age. All 15 consulting organizations had their main offices in Riyadh.

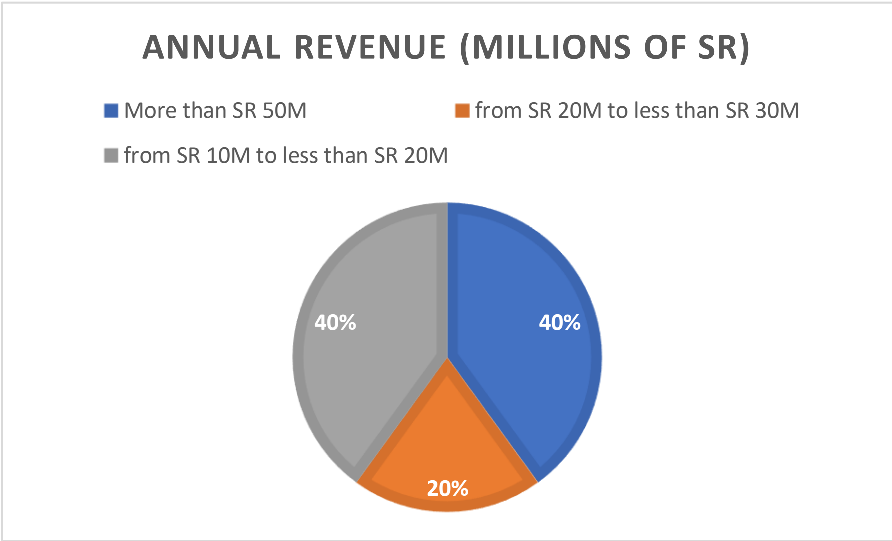


Figure 24. The relative distribution of consulting firms (A/E) firms according to the annual revenue.

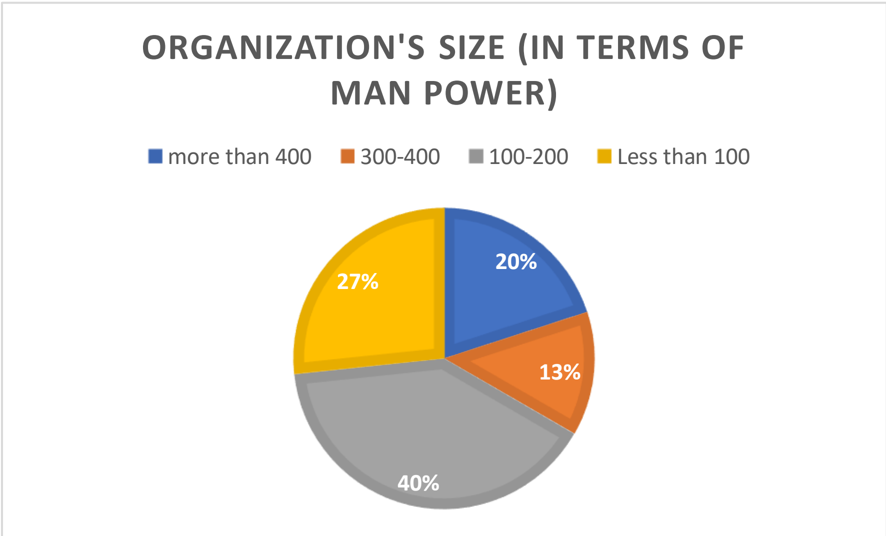


Figure 25. The relative distribution of consulting firms (A/E) according to the manpower size

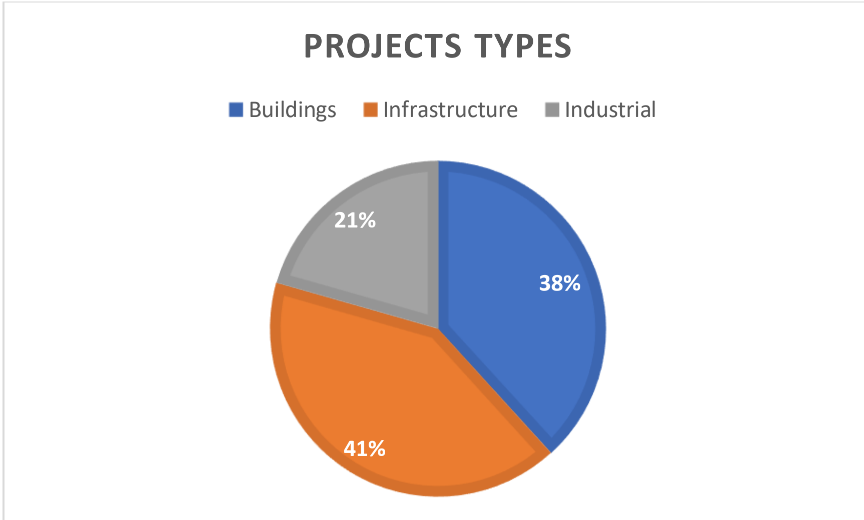


Figure 26. The relative distribution of the different project types held by the targeted sample of consultants

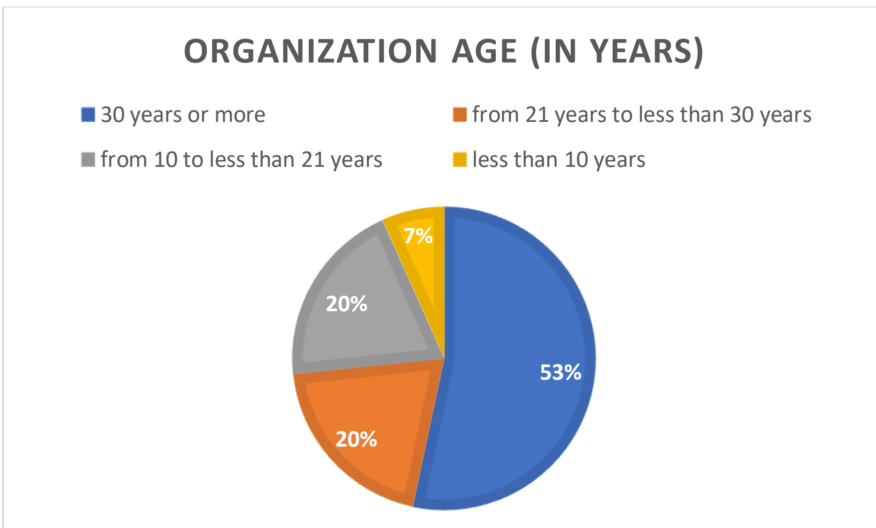


Figure 27. The relative distribution of consulting firms according to their age

4.3.3 Characteristics of organizational changes

A total of 73% of the consulting offices implemented organizational changes at a gradual pace, while the others implemented changes transitionally. This could be because either the change was not urgent, leading to the selection of developmental change, or any potential resistance from employees would immediately be eliminated, thus prompting transitional change. The system's components (i.e., technology, people, structure, and tasks) were also analyzed for frequency of use, indicating that all were of equal focus for consultants engaging in the organizational change process. Figure 23 shows the component distribution for organizational change. This could be explained by the nature of the consultants' work. They used technology comprehensively to conduct design analyses, deliver on tasks, and communicate to integrate various project disciplines, and they all had a similar structure or work model/flow.

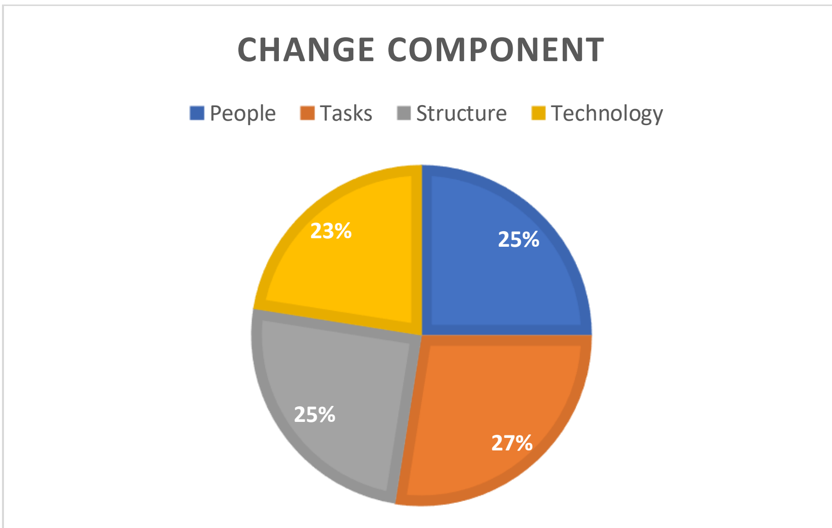


Figure 28. The components distribution in organizational changes (consultants)

4.3.4 Driving Forces Analysis Results

The level of impact of each factor on those performing organizational changes was measured using the RII and Terrel's transformation index. Driving forces were ranked within each of two groups: external and internal. Toh el al. (2012) indicated that variables in the Terrell's index above 65% should be considered critical.

4.3.4.1 External Forces

The results show that all external forces had an impact, but at different levels. These included advancements in technology, new laws and regulations, and changes in customers' needs. The associated Terrell's transformation values for those forces were 76.67%, 70%, and 70%, respectively, indicating that all three of those forces were critical. The RII confirmed the Terrel's index. The results indicated the same external driving forces for organizational change. Tables 17 and 18 present the computation procedure used to obtain the Terrell's transformation values and the RII, respectively. Advancements in technology was ranked first and considered the most critical. Consultants were mainly concerned about the design phase of construction projects, which involves using computer-aided programs to prepare design documents. In the last decade, the integration of BIM-based applications has increased significantly. Moreover, a considerable number of the consulting offices surveyed provided supervision services. Interviewees discussed the benefits of using scheduling software such as Primavera and Microsoft Projects in coordinating the various site activities. This may be why this factor was ranked first. However, the related coefficient of variation was 25%, reflecting that this force was not that important to a few offices.

New laws and regulations and changed customer needs were ranked second, with coefficients of variation of 30% and 18%, respectively. Changed customer needs was found to have a greater impact than new laws and regulations. One respondent explained that as a consulting office, their number of employees was few and quite constant compared to contracting offices. Thus, the need to implement any new law or rule could be made mandatory but still have a minimal impact if it was applied to the existing system. This might explain the high coefficient of variation related to the new laws and regulations. Changes in customer needs was associated with a coefficient of variance of 18%, indicating considerable agreement among the consultants. This can be attributed to the fact that most consulting offices work with owners/clients. Thus, consultants must always analyze trends in owner needs in order to survive in the market.

Social and cultural issues were ranked last on the list. Since most consulting work is confined to design and management activities, it can be assumed that society and the surrounding environment would have only a minor impact. A couple of the respondents focused on the economic situation in the country as an external driving force. One argued that the country's economic state, in addition to the purchasing power of the end user, were among the most significant driving forces obligating firms to continuously develop and study change plans as a part of their business development. Table 19 illustrates the ranking of external forces by the consulting offices queried. One interviewee explained:

> the unstable economic state of … nearby countries has affected us dramatically as a consulting office. Prior to 2011, we used to have more than 350 employees working actively inside our office. Currently, we have only 115 employees, [and] generally are less productive than 10 years ago. Also, we used to provide design services but in the present we only offer project management services.

He continued by stating that governmental support to the construction industry was vital to keeping projects running. Any country's economic cycle consists primarily of four components: the government, banks, enterprisers, and end users. All four are interconnected. Any modifications to one would affect the other three. To ensure a healthy and well-developed construction industry, good financial support from the government is key. This result is end users having strong purchasing power, which eventually increases the number of projects initiated.

Table 17. Terrell's indices computation of external forces for consultants

External Forces	Raw Score	Lowest Possible Score	Score Range	TTI (%)	Decision
Advancement of the technology	61	15	60	**76.67**	**Critical**
New Laws and regulations	57	15	60	**70.00**	**Critical**
Domestic market maturation	48	15	60	**55.00**	**Not Critical**
Increased competition	52	15	60	**61.67**	**Not Critical**
Labor market issues	48	15	60	**55.00**	**Not Critical**
Changed customers' needs	57	15	60	**70.00**	**Critical**
Social issues	46	15	60	**51.67**	**Not Critical**
Cultural issues	43	15	60	**46.67**	**Not Critical**
Business Expansion	53	15	60	**63.33**	**Not Critical**

Table 18. External forces for consultants

External Forces	Level of Impact					Scores mean	Standard deviation	RII
	5	4	3	2	1			
Advancement of the technology	6	6	1	2	0	4.07	1.03	0.81
New Laws and regulations	5	5	2	3	0	3.80	1.15	0.76
Domestic market maturation	0	5	8	2	0	3.20	0.68	0.64
Increased competition	1	8	3	3	0	3.47	0.92	0.69
Labor market issues	0	8	2	5	0	3.20	0.94	0.64
Changed customers' needs	1	11	2	1	0	3.80	0.68	0.76
Social issues	1	4	5	5	0	3.07	0.96	0.61
Cultural issues	2	2	4	6	1	2.87	1.19	0.57
Business Expansion	2	8	1	4	0	3.53	1.06	0.71

Table 19. Ranks of external driving forces (consultants)

Force	Consultants Rank	Coefficient of Variation
Advancement of the technology	**1**	0.25
New laws and regulations	**2**	0.30
Changed customers' needs	**2**	0.18
Business Expansion	**3**	0.30
Increased competition	**4**	0.26
Domestic market maturation	**5**	0.21
Labor market issues	**5**	0.29
Social issues	**6**	0.31
Cultural issues	**7**	0.41

4.3.4.2 Internal Forces

The results of the analysis showed that only two internal forces were considered critical: goal succession and organizational growth. The corresponding Terrell's indices were 75% and 73.33%, respectively. Goal succession was ranked first and considered the most critical. New goals are vital because they motivate employees to achieve their best. However, establishing a new vision usually requires altering the current working system. The coefficient of variation related to this factor was 16%, implying a strong agreement among consultants.

Organizational growth was ranked second on the list. Several respondents stated that as a firm's budget and employee count increased, opening new departments was vital to facilitating communication throughout the firm and optimizing the use of existing resources. The coefficient of variation was 18%. Thus, it can be concluded that respondents significantly agreed about the force of organizational growth being of high importance. The lowest ranked factor was issues related to mergers and acquisitions. The very high coefficient of variation, 71%, implies a significant amount of disagreement among the respondents. More than five interviewees reported that in the consulting field, it was rare to have mergers among two companies or offices. Table 21 represents the ranking of internal forces by consulting offices; Table 23 shows the ranking of force groups.

Table 20. Terrell's indices computation of internal forces for consultants

Internal Forces	Raw Score	Lowest Possible Score	Score Range	TTI (%)	Decision
Unexpected economic crisis	45	15	60	**50.00**	**Not Critical**
Employees resistance (for example: group strikes)	34	15	60	**31.67**	**Not Critical**
Merging and acquisition issues	32	15	60	**28.33**	**Not Critical**

Internal Forces	Raw Score	Lowest Possible Score	Score Range	TTI (%)	Decision
Changed administrative behavior	38	15	60	**38.33**	**Not Critical**
Goal Succession	60	15	60	**75.00**	**Critical**
Organization Growth	59	15	60	**73.33**	**Critical**

Table 21 Internal driving forces rank by consulting offices

Force	Consultants Rank	Coefficient of Variation
Organization Growth	**2**	0.18
Unexpected crisis (unexpected loss, instant decline in profits)	**3**	0.38
Goal Succession	**1**	0.16
Changed administrative behavior	**4**	0.36
Employees resistance (for example: group strikes)	**5**	0.51
Merging and acquisition issues	**6**	0.71

Table 22. The assessment details of internal forces by consulting firms respondents

Internal Forces	Level of Impact					Scores mean	Standard deviation	RII
	5	4	3	2	1			
Unexpected economic crisis	2	3	3	7	0	3.00	1.13	0.60
Employees resistance	0	3	3	4	5	2.27	1.16	0.45
Merging and acquisition issues	1	2	3	3	6	2.13	1.51	0.43
Changed administrative behavior	0	1	8	5	1	2.53	0.92	051
Goal Succession	3	9	3	0	0	4.00	0.65	0.80
Organizational Growth	2	11	1	1	0	3.93	0.70	0.79

Table 23. Forces groups rank by consulting offices (A/E)

Consultants	Average RII	Rank
External Forces	0.688888889	**1**
Internal Forces	0.595555556	**2**

4.3.5 Process of Organizational Change

The results indicate that consulting offices follow a systematic approach of the following sequence; change plan preparation, change plan, content, change plan creation, and change plan implementation

Table 24. Frequency of steps applied in managing changes inside consulting firms.

Change Management Process	Frequency	(%)
Change Plan Preparation		
Change plan prepared by internal committee formed by top management	14	93.33
Change plan prepared by External hired team such as consulting offices	2	13.33
Change Plan Creation		
Defining goals and vision of the proposed change	14	93.33
Involving senior leaders in the process	10	66.67
Identifying the resources prior to planning the change	10	66.67
Defining the roles and responsibility of the individuals	10	66.67
Doing risk assessment	9	60
Identifying areas of resistance to the change within the firm	5	33.33
Doing change-readiness assessment on employees' level	7	46.67
Doing change-readiness assessment on organization level	7	46.67
Change Plan Content		
Identifying the responsibility of each activity	12	80.00
Setting major milestones	12	80.00
Including baseline for cost tracking	11	73.33
Identifying the start and end dates of the activities	10	66.67
Identifying the duration of each activity	9	60.00
Listing process activities	9	60.00
Change Plan Implementation		
Empowering teamwork	11	73.33
Engaging stakeholders early in change planning	8	53.33
Monitoring and tracking the change progress	9	60.00
Identifying the people and groups that the change will impact on	12	80.00
Conveying motivation for the change	10	66.67
Providing training and teaching to stakeholders	10	66.67
Reinforcing change implementation through procedures, systems and policies	9	60.00
Including communication channels for questions and feedback	9	60.00
Change plan prepared by both internal team & external consultant	1	6.67
Using new leadership style/ method	10	66.67
Providing support by addressing concerns and fears among the employee	4	26.67

4.3.5.1 Change Plan Preparation

The vast majority of top management in consulting offices (93.33%) formed internal teams or committees to prepare organizational change plans. It seems that these consulting offices were confident about their internal capabilities. However, one consulting office procured the services of an external consultant to support their internal committee in preparing a desired change plan. Supplementing internally-formed plans with external consultants adds value and eliminates bias. Only two consultants (13.33%) depended on external consultants to prepare their change plans.

4.3.5.2 Change Plan Creation

The majority of the consultants (93.33%) indicated that organizational change teams defined the goals and visions of proposed changes. Such teams were headed up by top management, usually the executive director. As was expected, all reported taking the step of defining the goals of and vision for changes to set guidelines to which all must adhere. Of the total, 66.66% of the consultants engaged senior leadership in the implementation process. It was clear from the interviews that organizational changes were often justified and initiated by top management, but the rest of the process was led by supervisors appointed by top management. This might explain why only two-thirds of respondents engaged senior leadership. Also, 66.67% of respondents reported that financial and human resources were identified prior to planning a change.

They considered employees' mental perceptions significant but obtained them only through verbal indication in meetings and when carrying out day-to-day tasks. The same proportion, 66.67%, defined the general responsibilities of the workers and staff. This low qualitative rate can be attributed to the fact that all individuals working in consulting offices have distinct tasks and responsibilities. Hence, it is not necessary to redefine their roles during a change. Only the roles of change agents/supervisors need to be defined. Nine individuals (60%) did risk assessments, but in contrast to the contractors, detailed feasibility studies and sensitivity analyses were also conducted and presented by the change team to top management. Approximately 46.67% indicated that they assessed the change readiness of the organization and employees. This variation among consultants may be because consulting offices often experience organizational change.

4.3.5.3 Change Plan Content

When preparing a change plan, after milestones are set, the details must be identified. In terms of plan content, a significant portion of interviewees (more than 71%) stated that they usually developed systematic documents or papers for the whole change process. These included making lists of process activities, linking activities to individuals, identifying start times and durations of activities, setting major milestones, and establishing a baseline. Around 80% of the contracting companies linked activities to the responsible individuals. Assigning activities to distinct individuals is essential and reflects good management. Of the total, 60% developed lists or agendas for process activities, 60% estimated activities duration as absolute values, and 66.67% said they identified activity start and end dates. Approximately 80% reported setting major milestones or establishing and documenting detailed baselines based on complicated calculations and forecasts (for tracking purposes). The high frequency of those two steps indicates the good degree of tracking and monitoring in the process, implying good management practices. This may be because most consultants' regular work is delivered in the form of documents.

4.3.5.4 Change Plan Implementation

Approximately 67% of the leaders and change supervisors interviewed followed new leadership techniques that energized workers and created a better environment for change. Change supervisors must ensure that their employees adhere to new changes. They then report to top management who track and monitor progress. Of the total, 34% of the consultants did not engage senior leadership when implementing organizational changes. The majority of firms considered each department manager to be change agents/supervisors and any lower-level workers their responsibility. The duty of a change agent is to ensure that the change plan is fulfilled and applied according to the instructions of top management. Then, the change supervisors report directly to top management in previously-scheduled meetings. Most consultants (67%) provided training and education sessions to employees prior to initiating a change. This high percentage can be attributed to the fact that employees are a core part of a consulting office. Hence, it is necessary to focus on them when making organizational changes.

A substantial portion of respondents (73.33%) indicated that they encouraged teamwork among their employees. From the interviews, it can be inferred that teamwork among consultants is essential to keeping the work cycle running fluidly. Furthermore, 60% of consultants provided specialized communication channels between top management and employees, and 53.33% engaged stakeholders in the planning phase of the change process. Since changes in consulting firms are usually about technology use, engaging stakeholders may not be necessary for every change. A total of 60% monitored and tracked the change process according to a specified and formal follow-up procedure, and 80% stated that those impacted by the change were identified prior to the change being made. As stated above, individual workers are an essential part of any consulting office, so it is reasonable to consider them carefully. However, only 66.67% reported that they conveyed the motivation for any organizational changes, reflecting a lack of awareness of the importance of employees among top management.

4.3.6 Factors of Effective Change Management

After conducting a Terrell's analysis, only two factors failed to be classified as critical: the extent to which employees were involved in the change process and forecasting challenges that might appear while implementing the change. The details of the RII ranking and Terrell's transformation index are shown in Tables 27 and 25, respectively. Periodic tracking of the progress of the change process was the top factor and considered the most critical; the consultants were focused on the path of the process for delivering the change goals. This may be because budgets in consulting offices are often limited. Also, since most of the work of consultants occurs in an office setting, workers tend to be more organized. The coefficient of variation was 11%, indicating strong agreement among the respondents and underscoring the great importance of the factor.

Top management's support during change implementation, the abilities of the change agent/supervisor, and development of a realistic change implementation schedule were tied for second in the ranking. Their coefficients of variation were 10%, 13%, and 21%, respectively. However, since top management support during change implementation had the lowest coefficient of variation (10%), it had the advantage over the other factors. As a rule, employees are key components of a consulting office, so their mental and physical wellbeing are vital to ensuring an effective production cycle. One respondent stated:

> Within the last year, we … implemented one simple step that enhanced the outcome of any process significantly, empowering group discussions on any issue involving decisionmaking. Group discussions make employees feel they have their own touch, which will strengthen their loyalty to the company. Hence, the employees will feel emotionally attached to [the] work and will consider the organization … their second home and their co-workers … their second family. Eventually, the ultimate production of the company will increase and the commitment to any work activity or task [and the company] will be more stable.

The abilities of the change agent/supervisor also had a low coefficient of variation (13%), indicating the importance of this factor to consulting offices and reflecting that activities in such offices are organized and supervised by a team of individuals. Generally, all of the factors ranked high and all scores had minor differences among them, implying the significance of each. This overall agreement on rankings points to consultants' work being organized and effective. Table 26 illustrates the ranking of critical factors by consultants.

Table 25. Terrell's indices computation of change management factors for consultants

Change Management Factors	Raw Score	Lowest Possible Score	Score Range	TTI (%)	Decision
Individual's readiness to change.	54	15	60	**65.00**	**Critcal**
Individual's personal experience.	54	15	60	**65.00**	**Critcal**
Employees commitment to change.	57	15	60	**70.00**	**Critcal**
The extent to which employees are involved in the change process.	51	15	60	**60.00**	**Not Critical**
Top management support during the change implementation process	63	15	60	**80.00**	**Critical**
Leadership techniques.	62	15	60	**78.33**	**Critical**
Communication among the employees.	57	15	60	**70.00**	**Critical**
Communication between management and employees.	59	15	60	**73.33**	**Critical**
The extent to which a change agent/ supervisor is participating in the change process.	59	15	60	**73.33**	**Critical**
The capability of a change agent/ supervisor.	63	15	60	**80.00**	**Critical**
The availability of a change agent/ supervisor.	57	15	60	**70.00**	**Critical**
Tracking the change process performance periodically.	64	15	60	**81.67**	**Critical**
Training and teaching the employees before starting the change implementation.	60	15	60	**75.00**	**Critical**
Defining change vision clearly before starting the change implementation.	62	15	60	**78.33**	**Critical**
Developing a realistic change implementation schedule.	63	15	60	**80.00**	**Critical**
Proper selection of a project in which the organizational change process is going to be initiated.	60	15	60	**75.00**	**Critical**
Forecasting challenges that may occur during the change implementation process.	53	15	60	**63.33**	**Not Critical**

Table 25. The rank of change management critical factors evaluated by the consulting firms respondents

	Factors	Consultants Rank	Coefficient of Variance
Employees	Individual's readiness to change.	**7**	0.27
	Individual's personal experience.	**7**	0.18
	Employees commitment to change.	**6**	0.18
	The extent to which employees are involved in the change process.	**9**	0.24
Communication	Leadership techniques.	**3**	0.28
	Top management support during the change implementation process	**2**	0.10
	Communication among the employees.	**6**	0.28
	communication between management and employees.	**5**	0.24
Change Agent	The capability of a change agent/ supervisor.	**2**	0.13
	The extent to which a change agent/ supervisor is participating in the change process.	**5**	0.18
	The availability of a change agent/ supervisor.	**6**	0.15
Planning	Proper selection of a project in which the organizational change process is going to be initiated.	**4**	0.18
	Training and teaching the employees before starting the change implementation.	**4**	0.19
	Defining change vision clearly before starting the change implementation.	**3**	0.18
	Developing a realistic change implementation schedule.	**2**	0.21
	Forecasting challenges that may occur during the change implementation process.	**8**	0.18
	Tracking the change process performance periodically.	**1**	0.11

Table 26. The assessment details of change management factors by consulting firms respondents

Change Management Factors	Level of Impact					Scores mean	Standard deviation	RII
	5	4	3	2	1			
Individual's readiness to change.	2	8	2	3	0	3.60	0.986	0.72
Individual's personal experience.	0	10	4	1	0	3.60	0.632	0.72
Employees commitment to change.	1	11	2	1	0	3.80	0.676	0.76
The extent to which employees are involved in the change process.	0	9	3	3	0	3.40	0.828	0.68
Top management support during the change implementation process	3	12	0	0	0	4.20	0.414	0.84
Leadership techniques.	4	9	2	0	0	4.13	0.640	0.83
Communication among the employees.	4	7	1	3	0	3.80	1.082	0.76

Change Management Factors	Level of Impact					Scores mean	Standard deviation	RII
	5	4	3	2	1			
Communication between management and employees.	4	8	1	2	0	3.93	0.961	0.79
The extent to which a change agent/ supervisor is participating in the change process.	2	11	1	1	0	3.93	0.704	0.79
The capability of a change agent/ supervisor.	4	10	1	0	0	4.20	0.561	0.84
The availability of a change agent/ supervisor.	1	10	4	0	0	3.80	0.561	0.76
Tracking the change process performance periodically.	4	11	0	0	0	4.27	0.458	0.85
Training and teaching the employees before starting the change implementation.	3	10	1	1	0	4.00	0.756	0.8
Having a clear change definition before starting the change implementation.	4	10	0	1	0	4.13	0.743	0.83
Developing a realistic change implementation schedule.	6	7	1	1	0	4.20	0.862	0.84
Proper selection of a project in which the organizational change process is going to be initiated.	3	9	3	0	0	4.00	0.655	0.80
Forecasting challenges that may occur during the change implementation process.	0	9	5	1	0	3.53	0.640	0.71

4.4 Comparison Between the Perspectives of Contracting firms and Consulting Offices

This section compares the results of the analyses of consultants' and contractors' responses. To test the hypotheses, three analysis tools were used: a Welch's t-test, Spearman's rank correlation, and Kendell's coefficient of concordance. Side-by-side pie charts were developed to compare the methodologies followed when managing organizational changes.

4.4.1 Organizational Changes Characteristics Comparison

Organizational changes in most consulting offices (73%) and approximately half of contractor firms (53%) were implemented gradually at a developmental pace. Transitional changes occurred in 27% of consulting offices and 35% of contracting firms. No transformational changes were found in the consulting offices, and only 13% of contractors had faced such a challenge. Changes in consulting offices involved the four components of the system: people, technology, tasks, and structure; a uniformly equal frequency was found for all. However, for contractors, the technology component was less a focus than were the other three. It obtained a frequency of 19%, while the other components were uniformly distributed.

4.4.2 Driving Forces Comparison

Fifteen driving forces of organizational change were grouped into two categories, external and internal. The most critical forces were identified via Terrell's transformation technique. The RII (see Equation 3) was utilized to rank the forces. Kendall's coefficient of concordance, Spearman's rank correlation, and the coefficient of variation were used to measure the significance of difference between the two groups' points of view. This section compares the results associated with these driving forces, as evaluated by 32 contractors and 15 consultants. Each group's ranked scores were tabulated. For external forces, advancements in technology was ranked first by consultants, with a coefficient of variation of 27%; increased competition was ranked first by contractors, with a coefficient of variation of 20%. Both coefficients were acceptable, implying strong agreement within each group. New laws and legislation was ranked second by both consultants and contractors. However, the coefficient of variation for contractors was 18%, which is significantly more advantageous over the consultants' 30%. This could be attributed to the competitive nature of the contractor market. In addition, there are substantially fewer employees in consulting offices, sharply reducing the risk associated with this element.

Changes in customers' needs was ranked second by consultants and sixth by contractors. Given that the coefficient of variation associated with the consultants was low, it can be concluded that it is important for consulting office but less so for contractors. This could be related to the fact that consultants' work is more tailored to clients' needs and employees are directly exposed to their instructions. Moreover, according to the Terrell's transformed value, changes in customers' needs was found to be critical and have significantly more influence than other forces. Generally, social and cultural forces ranked low and were among the five lowest factors for both contractors and consultants.

To assess the degree of agreement between contractors and consultants regardless of the grouping, a Spearman's rank correlation was applied (see Equation 6); the computed value was 0.74, indicating fair agreement between contractors and consultants (+1 = full agreement and -1 = full disagreement). To test the null hypothesis that there is no significant difference between contractors and consultants, a significance graph of the Spearman's correlation was used at a confidence level of 95% (see Figure 29). With 13 degrees of freedom (i.e., the number of variables minus two) and a value 0.74, the two datasets intersected above the 99% line, confirming the validity of the null hypothesis. Table 28 shows the Spearman's rank correlation index computation. Refer to Table 28 for a detailed comparison of the driving forces as ranked by the contracting firms and consulting offices; external forces were ranked first and internal forces second by both. Kendall's coefficient of concordance test was applied to examine the level of agreement among the evaluators. The results showed that there was agreement regarding the impact of internal forces and disagreement over external forces. Table 31 illustrates the parameters used in applying the Kendall's coefficient test.

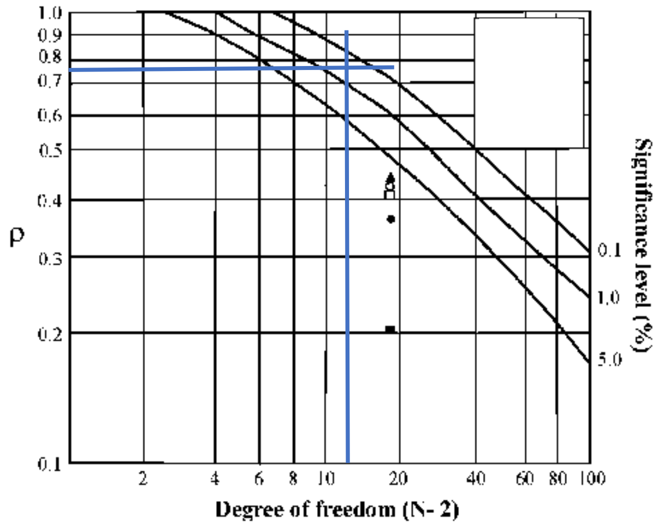


Figure 29. Area below 95% line indicates invalid null hypothesis while above indicate validity.

Table 27. Spearman's Rank Correlation Computation of driving forces

Force	Consultants Rank	Contractors Rank	*d*	d^2
Advancement of the technology	**1**	**4**	3	9
Goal Succession	**2**	**7**	5	25
Organization Growth	**3**	**3**	0	0
New Laws and regulations	**4**	**2**	-2	4
Changed customers’ needs	**4**	**8**	4	16
Business Expansion	**5**	**9**	4	16
Increased competition	**6**	**1**	-5	25
Domestic market maturation	**7**	**10**	3	9
Labor market issues	**7**	**6**	-1	1
Social issues	**8**	**11**	3	9
Unexpected crisis (unexpected loss, instant decline in profits)	**9**	**5**	-4	16
Cultural issues	**10**	**12**	2	4
Changed administrative behavior	**11**	**13**	2	4
Employees resistance (for example: group strikes)	**12**	**14**	2	4
Merging and acquisition issues	**13**	**15**	2	4
			$\sum d^2$	**146**
			ρ	0.739285714

Table 29. Overall driving forces comparison between contractors and consultants

	Force	Consultants Rank	Coefficient of Variation	Contractors Rank	Coefficient of Variation
External forces	Advancement of the technology	**1**	0.25	**3**	0.27
	Cultural issues	**7**	0.41	**7**	0.27
	New Laws and regulations	**2**	0.30	**2**	0.18
	Changed customers' needs	**2**	0.18	**5**	0.29
	Business Expansion	**3**	0.30	**6**	0.32
	Increased competition	**4**	0.26	**1**	0.20
	Domestic market maturation	**5**	0.21	**8**	0.38
	Labor market issues	**5**	0.29	**4**	0.36
	Social issues	**6**	0.31	**9**	0.37
Internal forces	Organization Growth	**2**	0.18	**1**	0.19
	Unexpected crisis (unexpected loss, instant decline in profits)	**3**	0.38	**3**	0.31
	Goal Succession	**1**	0.16	**2**	0.36
	Changed administrative behavior	**4**	0.36	**4**	0.61
	Employees resistance (for example: group strikes)	**5**	0.51	**5**	0.53
	Merging and acquisition issues	**6**	0.71	**6**	0.64

Table 30. Forces categories rank by both contractors and consultants

Contractors	Average RII	Rank	Consultants	Average RII	Rank
External Forces	0.701388889	**1**	External Forces	0.688888889	**1**
Internal Forces	0.605208333	**2**	Internal Forces	0.595555556	**2**

Table 31. Parameters used in Kendall's Coefficient test for driving forces

	W	t statistic	$\chi 2$	degree of freedom	p-value
External forces	0.020	10.110	15.510	8	0.340
Internal forces	0.160	46.830	11.071	5	0.000

4.4.3 Comparison of Followed Methodologies

Twenty-seven management steps were categorized into four groups and modified to be appropriate in Saudi Arabia. In the questionnaire, respondents were asked to select all of the steps they followed to implement organizational change. After application of a frequency analysis, a fair number of differences were found between contractors and consultants. Contractors implemented change by focusing on outcomes more than the process, while the reverse was true for consultants. The contractors' management style tended to be top-down, with the process of initiating change starting with top management and not taking employees' feedback into consideration. Conversely, consultants gave greater attention to lower-level employees. Employees' readiness to change and acceptance or resistance to the particular change were considered important, while for contractors this was irrelevant. However, teamwork was vital in both points of view but applied more practically in consulting firms.

Change plans were prepared by internal committees formed by top management in both the contractor and consulting firms. In rare cases, an external consultant or team was hired for a certain purpose, such as providing a neutral evaluation of a change plan or convincing stakeholders. In terms of change implementation documents, the consultants were more organized, identifying start and end dates for the change process and who was responsible for particular activities. Most of the consultants were aware of leadership techniques for implementing change, while the contractors were not. Most consultants forecasted groups or individuals the change would impact, while for contractors this was not a point of concern. Providing effective communication channels for feedback while implementing change was a frequent focus in consulting offices. This can be attributed to the fact that most consultants work in an office setting.

In certain ways, the process of organizational change in the contracting firms was similar. In both, change was initiated and justified by top management. Change plans in most of the contracting and consulting organizations were prepared by internal committees formed by top management. Teamwork's positive impacts on change management and communication were emphasized by both the consulting offices and contracting firms. Moreover, the model for implementing organizational change was common across both groups; top management instructed change supervisors who in most case were department managers, who in turn instructed their employees. Then, frequent meetings were held between top management and change supervisors to track and monitor progress and detect any deviation from the cost baseline.

Conversely, various differences were also revealed from this analysis. First, consultants developed documents reflecting the entire organizational change process, while most contractors did not. Second, more than 70% of consultants provided training and education sessions prior to change implementation and established effective communication channels. Finally, consultants applied new leadership techniques to facilitate change implementation. The extent to which employees were mentally and physically ready for the change was considered by the top management of the consulting offices. In terms of contractors, employees were significantly less the point of focus. Figures 30 to 56 qualitatively illustrate the steps applied by contractors and consultants.

Figure 31. Frequency of preparing change plan by an internal team (consultants VS contractors)

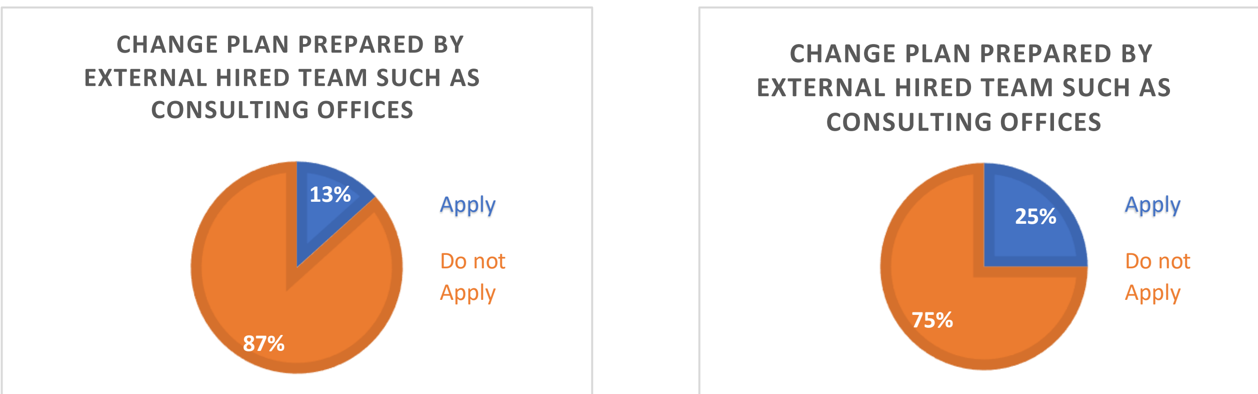


Figure 32. Frequency of preparing the change plan by external hired team (consultants VS contractors)

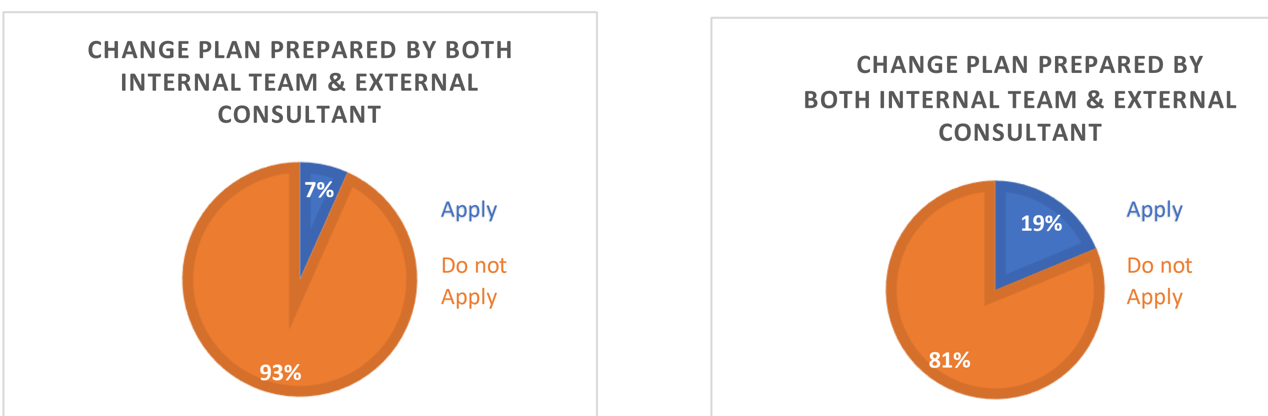


Figure 33. Frequency of preparing the change plan by both internal team external hired team (consultants VS contractors)

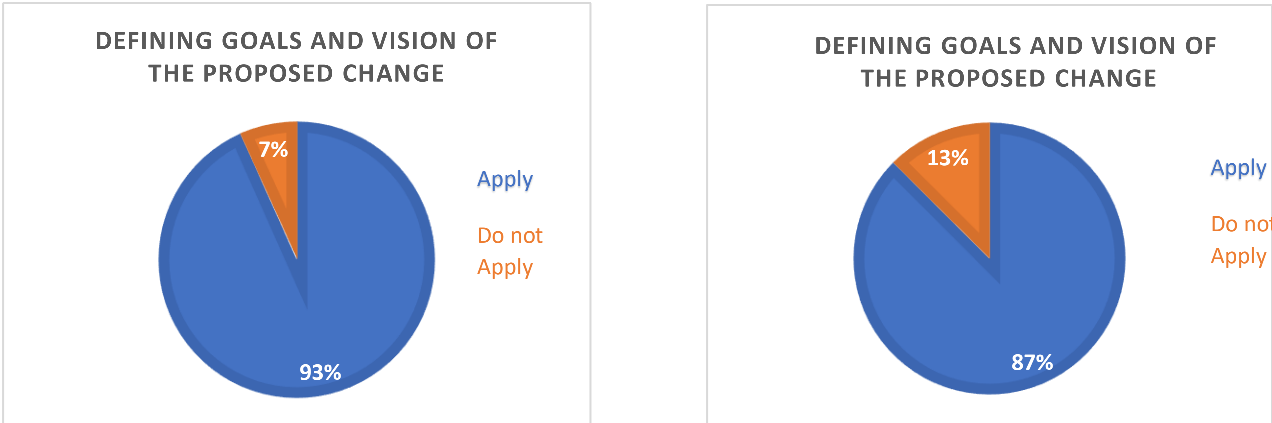


Figure 34. Frequency of defining goals and vision of the proposed change (consultants VS contractors)

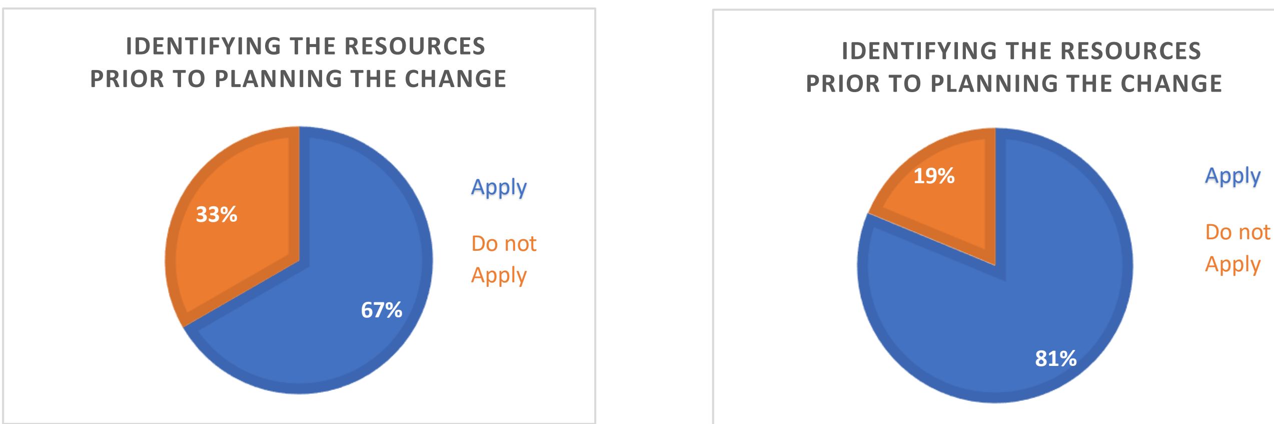


Figure 35. Frequency of identifying the resources prior to planning the change (consultants VS contractors)

Figure 36. Frequency of identifying areas of resistance to the change within the firm (consultants VS contractors)

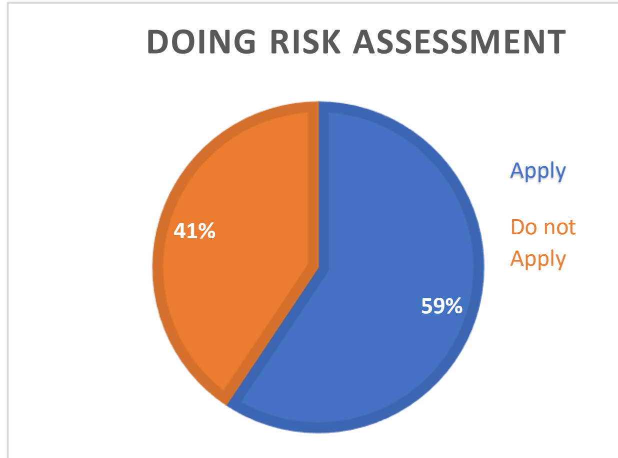
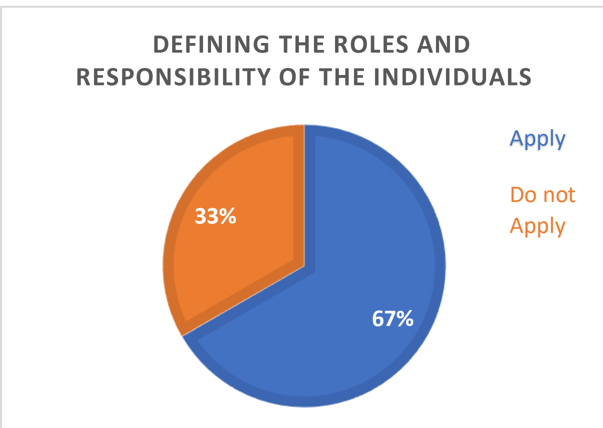


Figure 36. Frequency of doing risk assessment (consultants VS contractors)



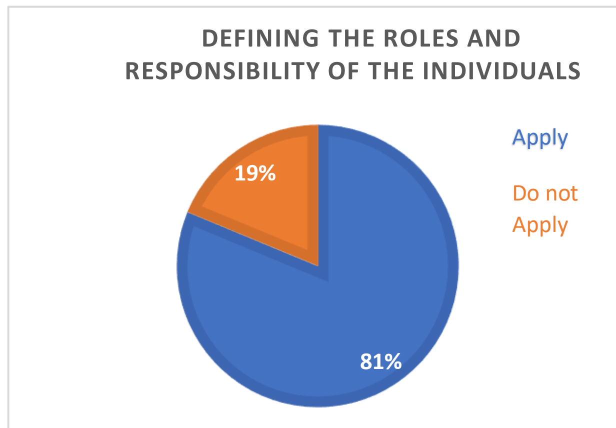
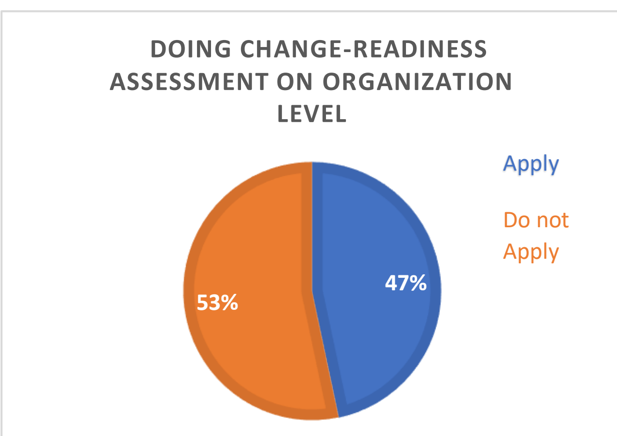


Figure 37. Relative frequency of defining the roles and responsibilities of the individuals (consultants VS contractors)



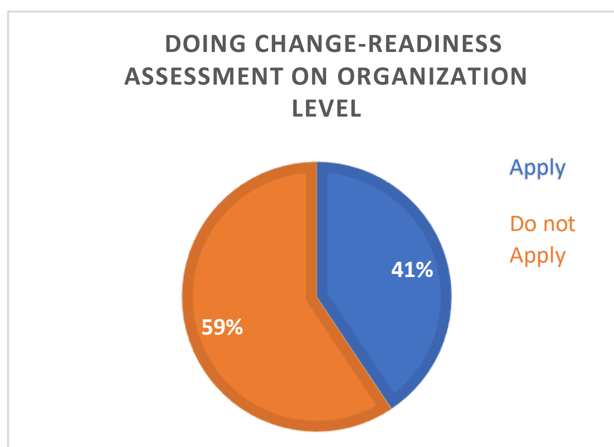
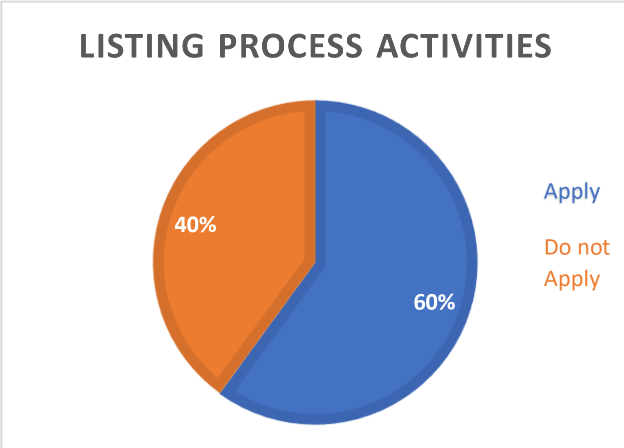


Figure 37. Relative frequency of doing change-readiness assessment on organization’s level (consultants VS contractors)



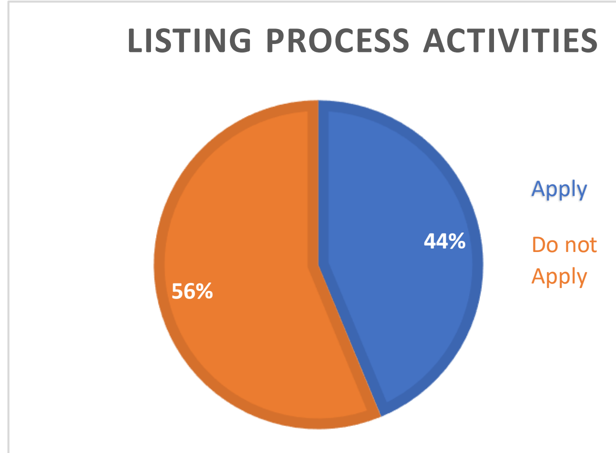
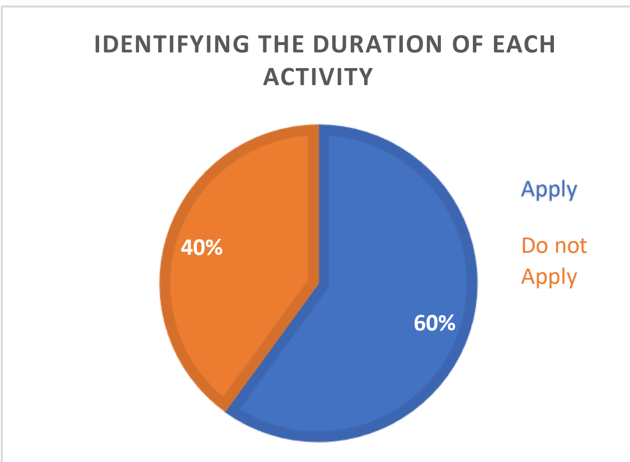


Figure 39. Relative frequency of listing process activities (consultants VS contractors)



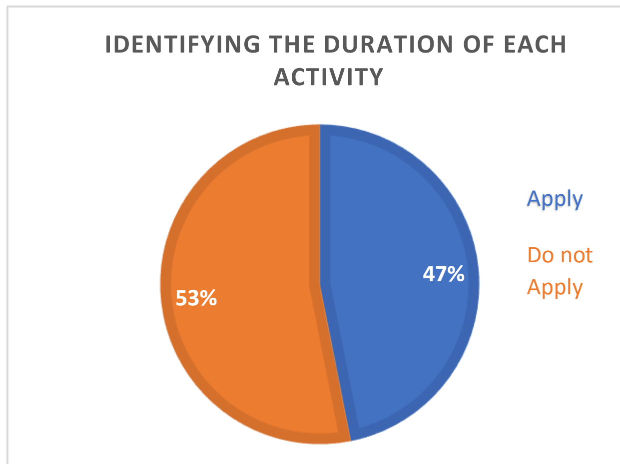
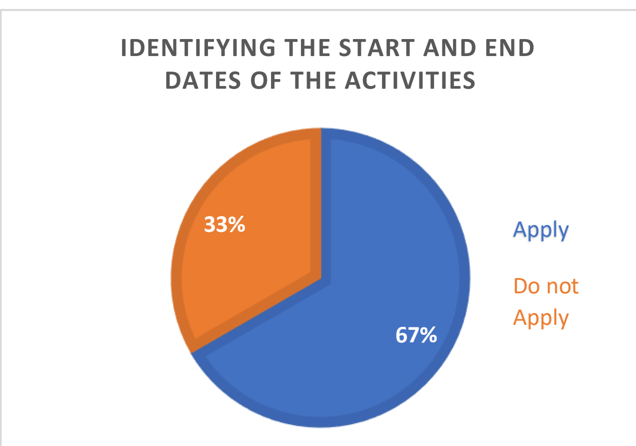


Figure 40. Relative frequency of identifying the duration of each activity (consultants VS contractors)



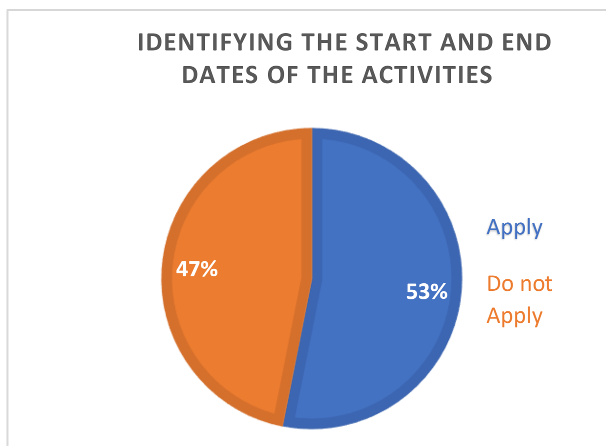


Figure 41. Relative frequency of identifying the start and end dates of each activity (consultants VS contractors)

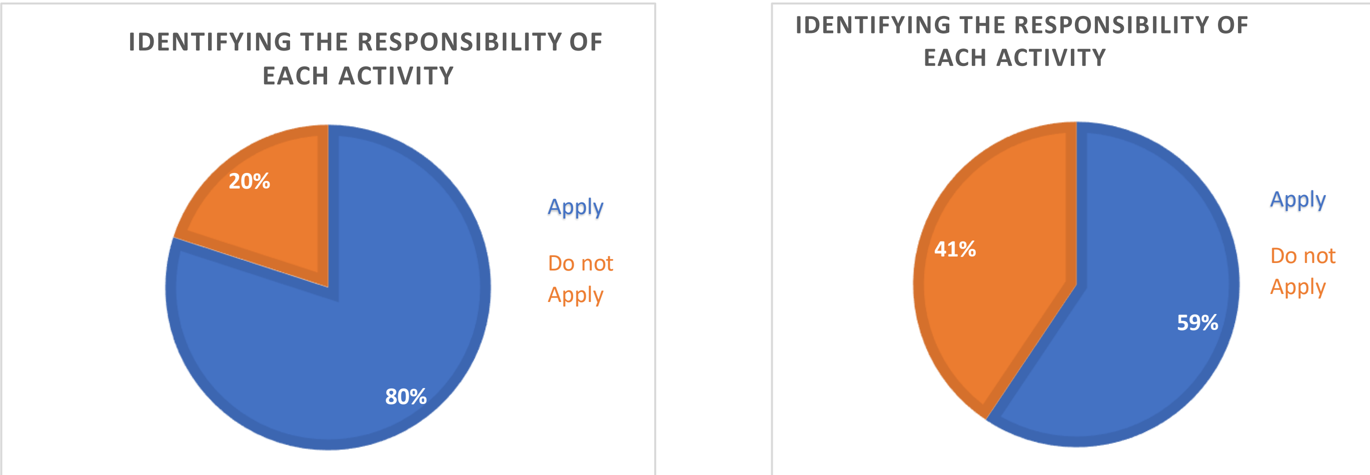


Figure 42. Relative frequency of identifying the responsibility of each activity (consultants VS contractors)

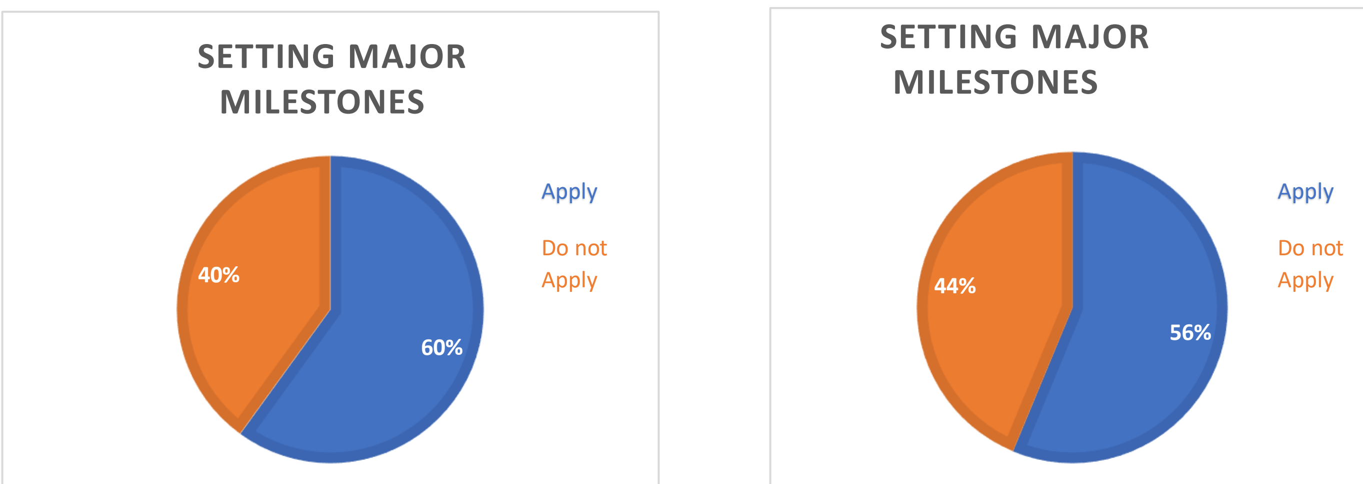


Figure 38. Relative frequency of setting major milestones (consultants VS contractors)

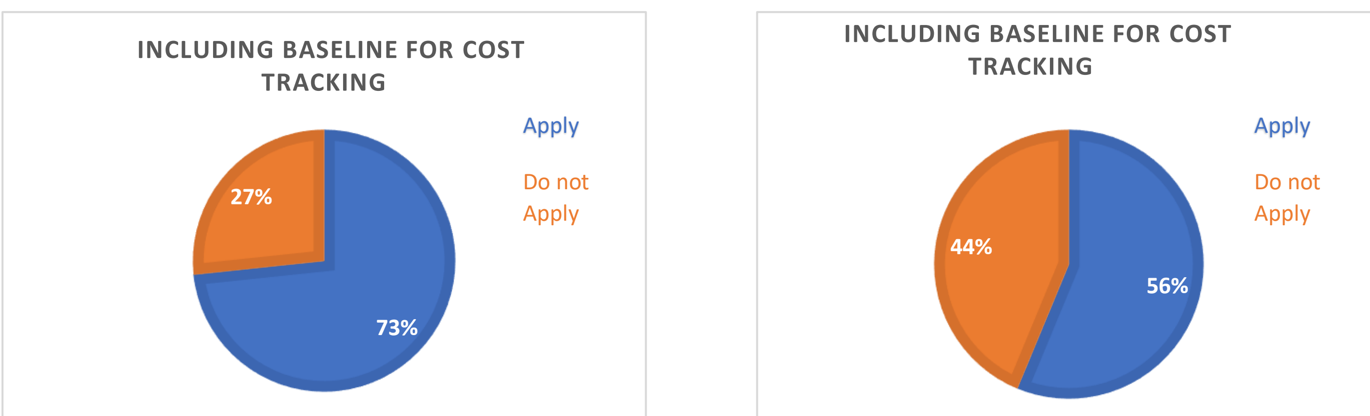
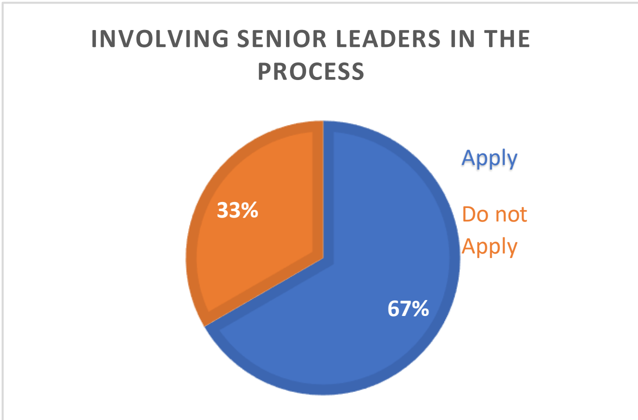


Figure 39. Relative frequency of including baseline for cost tracking (consultants VS contractors)



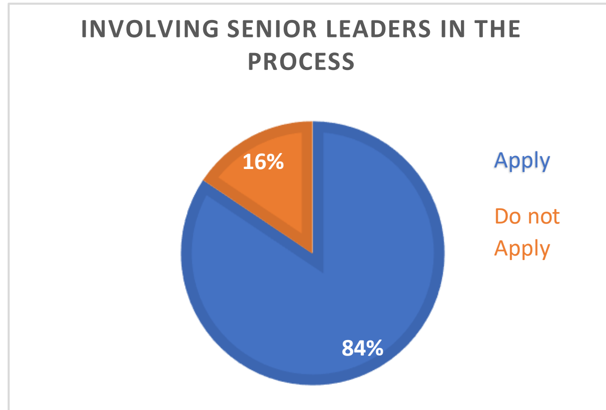
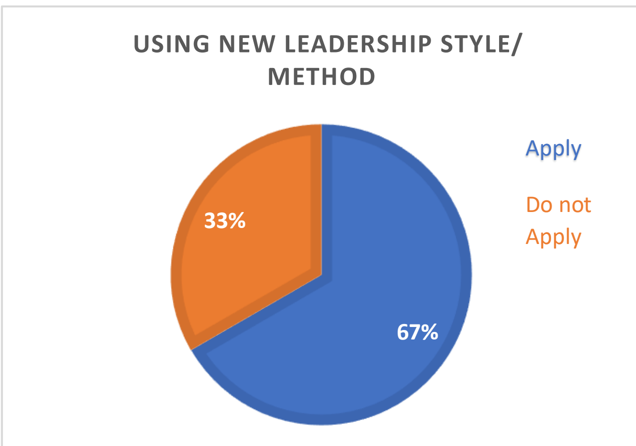


Figure 40. Relative frequency of involving senior leaders in the process (consultants VS contractors)



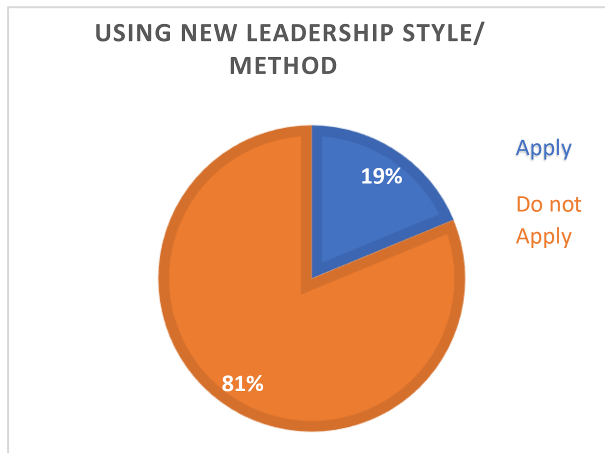
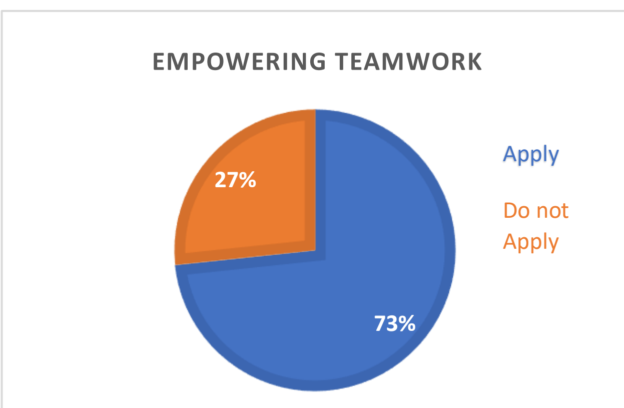


Figure 41. Relative frequency of using new leadership style/ method (consultants VS contractors)



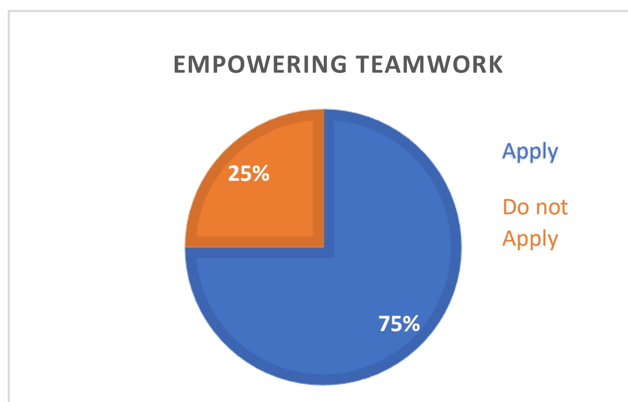


Figure 42. Relative frequency of empowering teamwork (consultants VS contractors)

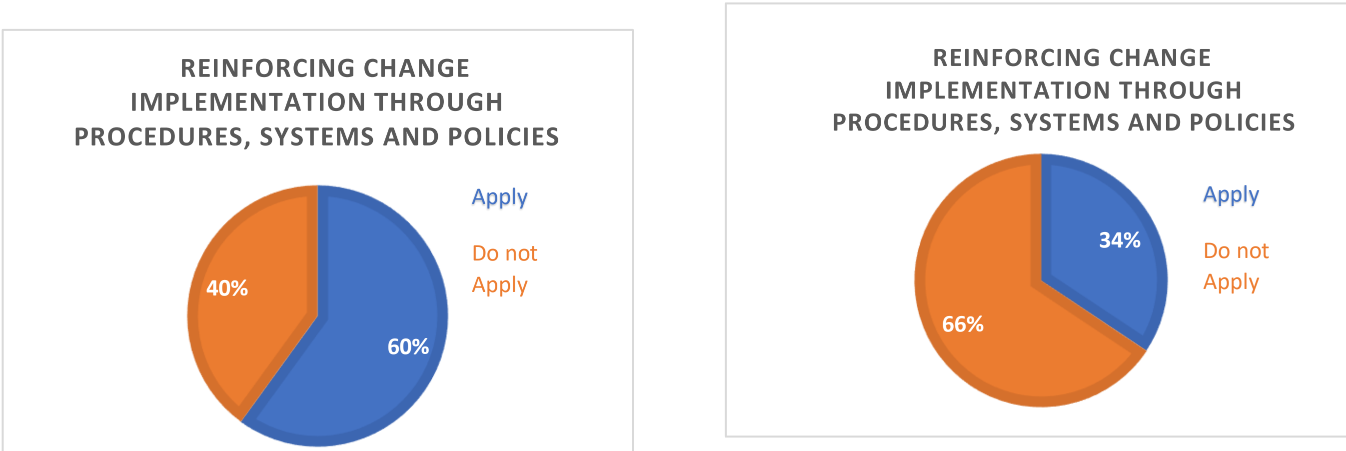


Figure 48. Relative frequency of reinforcing change implementation through new procedures, systems and policies (consultants VS contractors)

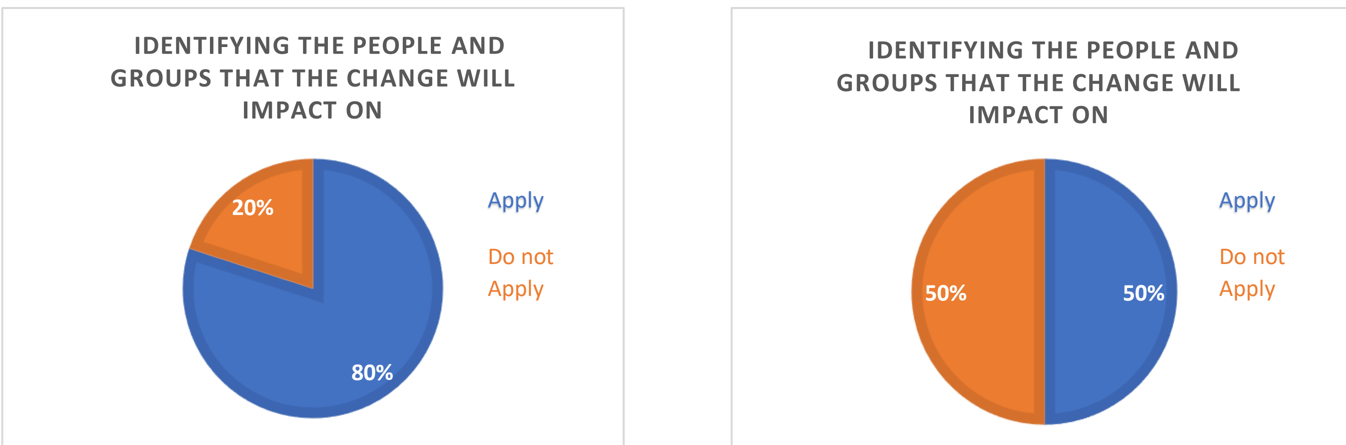


Figure 43. Relative frequency of identifying people and groups that the change will impact on (consultants VS contractors)

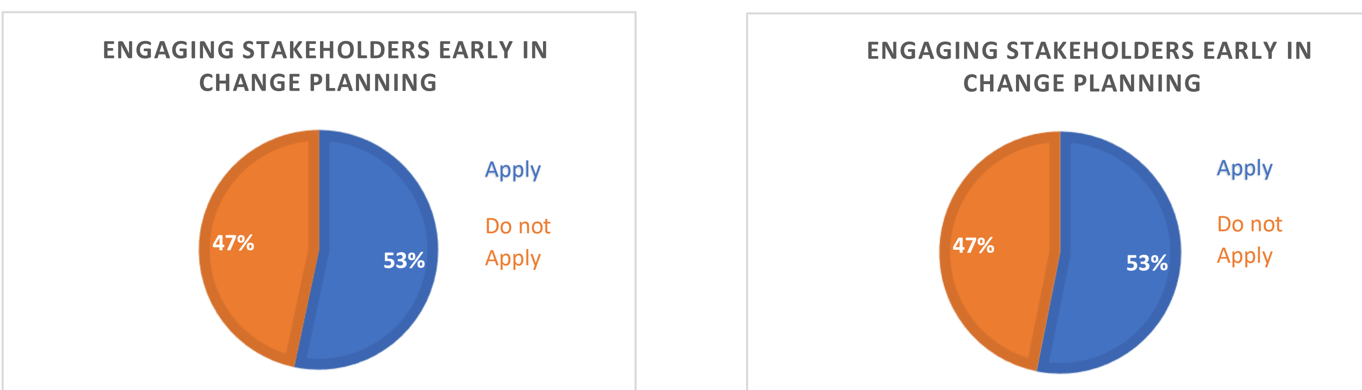


Figure 50. Relative frequency of engaging stakeholders early in change planning (consultants vs contractors)

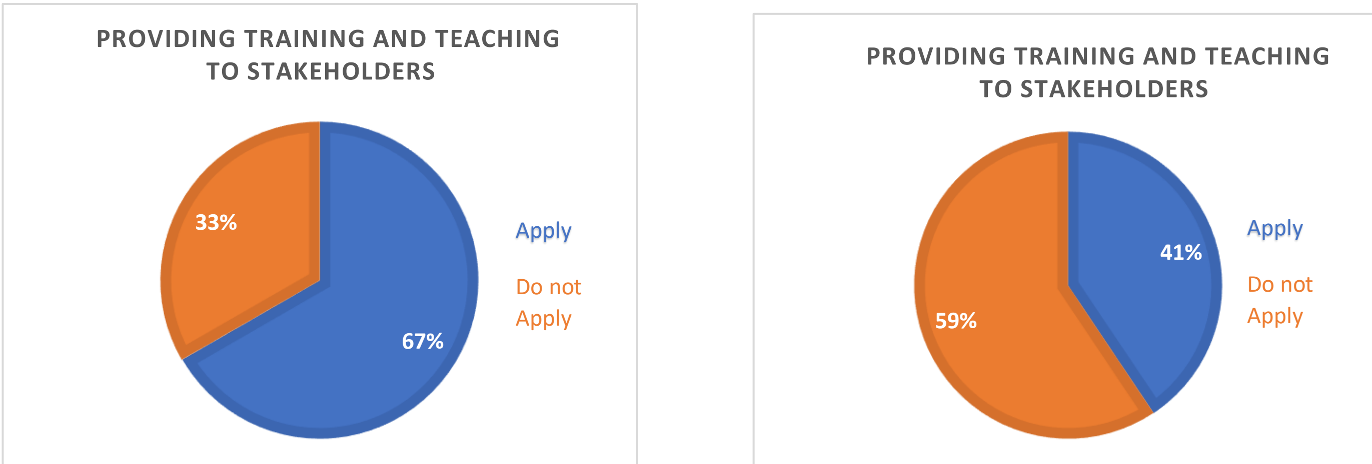


Figure 51. Relative Frequency of providing training and teaching to stakeholders (consultants VS contractors)

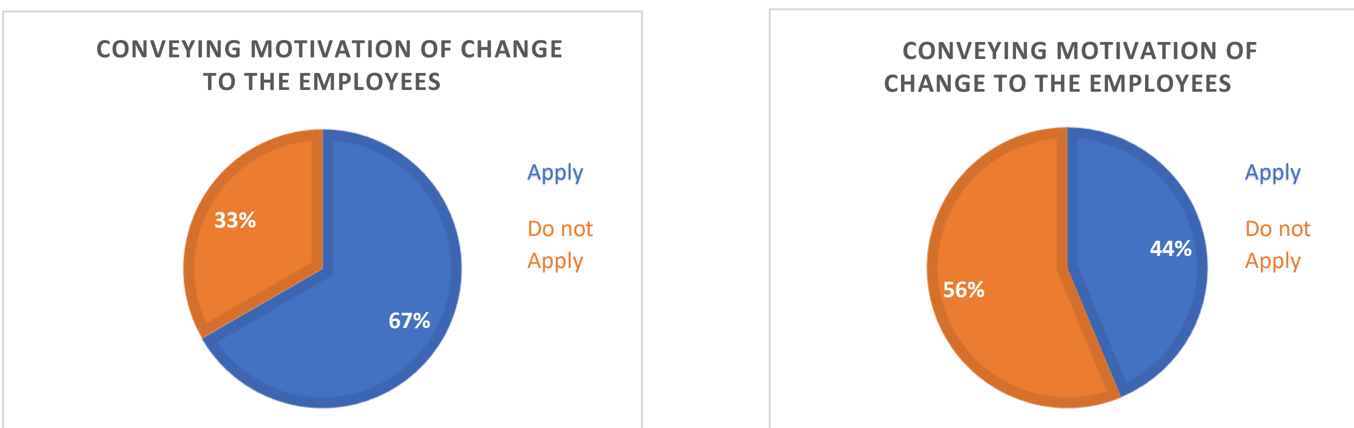


Figure 52. Relative Frequency of conveying motivation of change to the employees (consultants VS contractors)

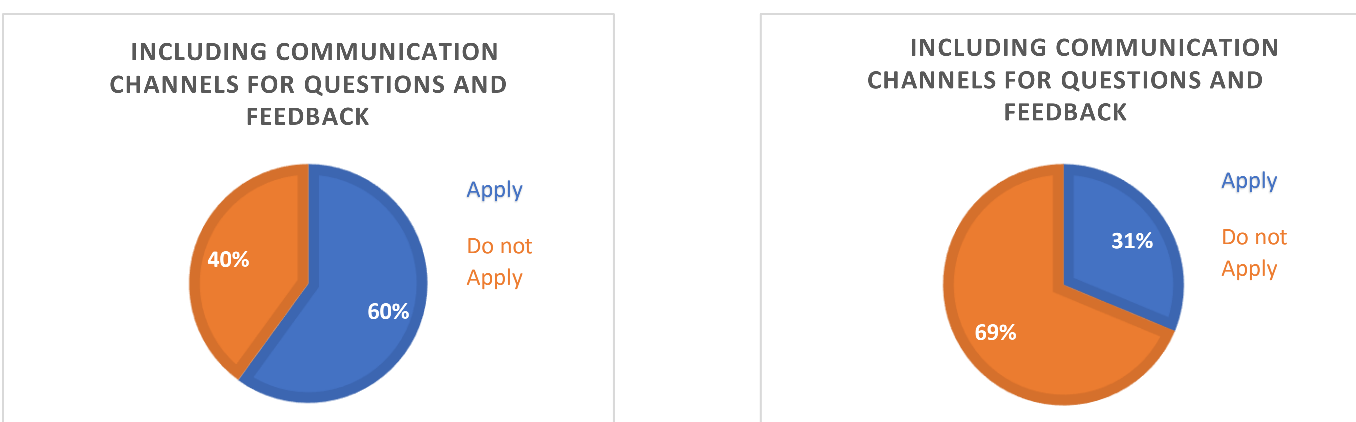
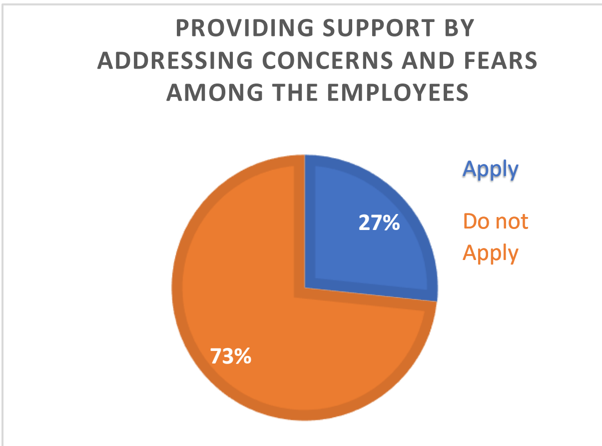


Figure 53. Relative Frequency of inclusing communication channels for questions and feedback (consultants VS contractors)



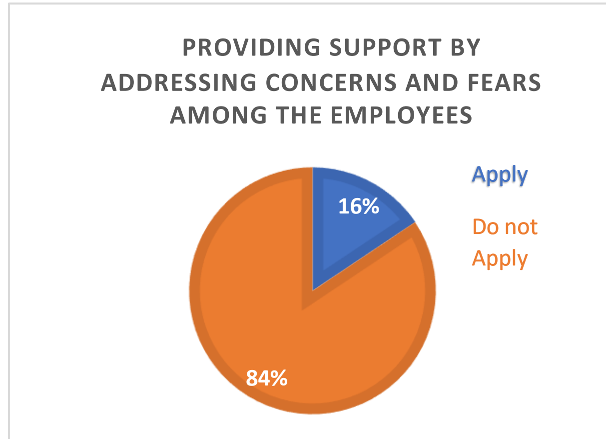
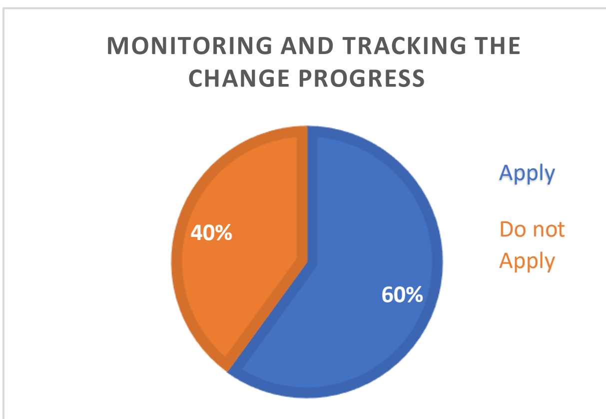


Figure 45. Relative Frequency of providing support by adressing concerns and fears among the employees (consultants VS contractors)



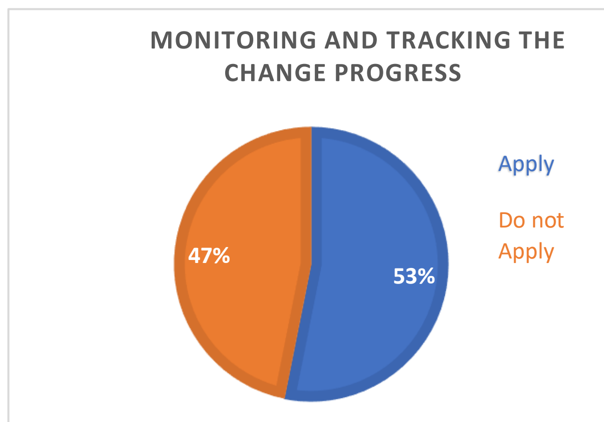
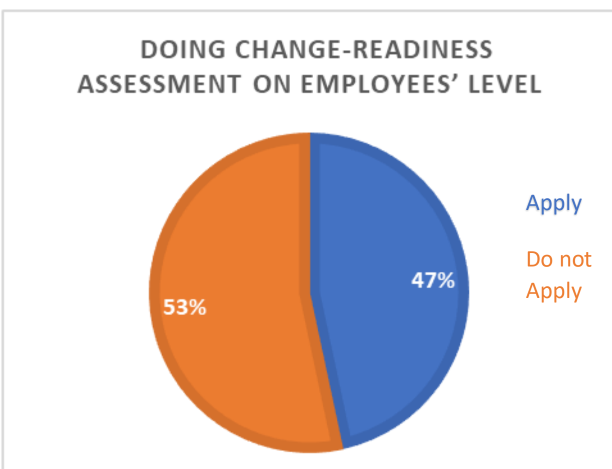


Figure 44. Relative Frequency monitoring and tracking the change progress (consultants VS contractors)



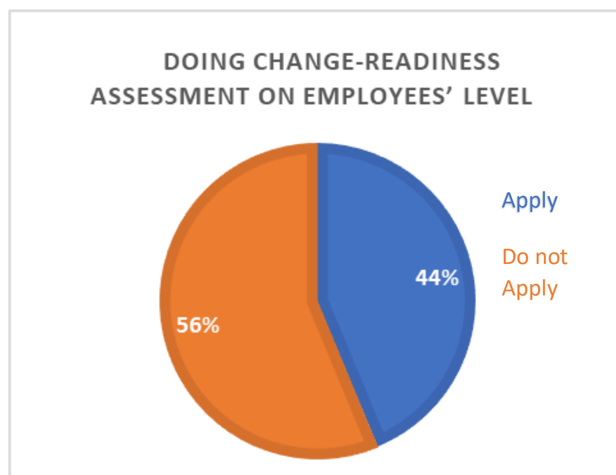


Figure 56. Relative Frequency of doing change-readinessv assessment on employees's level(consultants VS contractors)

4.4.4 Change Management Critical Factors Comparison

4.4.4.1 Spearman's Rank Correlation Analysis

A Spearman's rank correlation was applied (see Equation 6) to measure the level of agreement between the contractors and consultants. A Spearman's value of +1 indicates full agreement between the two groups being analyzed, while a value of -1 indicates full disagreement. To apply the Spearman's rank correlation in the present research, the critical factors were ranked from both the contractors' and consultants' points of view. The value computed was 0.79, reflecting strong agreement between the contractors and consultants. Table 32 demonstrates the procedure followed to obtain the Spearman's rank correlation value. To test the null hypothesis that there were no significant differences between the contractors and consultants, a significance chart of the Spearman's rank correlation was developed (see Figure 57). The results show that the null hypothesis was true and there was no significant difference between the two groups.

Table 32. Spearman's Rank Correlation computation of critical factors

Force	Consultants Rank	Contractors Rank	d	d^2
Tracking the change process performance periodically.	**1**	**5**	4	16
Top management support during the change implementation process	**2**	**1**	-1	1
The capability of a change agent/ supervisor.	**2**	**3**	1	1
Developing a realistic change implementation schedule.	**2**	**2**	0	0
Leadership techniques.	**3**	**8**	5	25
Defining change vision clearly before starting the change implementation.	**3**	**3**	0	0
Training and teaching the employees before starting the change implementation.	**4**	**10**	6	36

Force	Consultants Rank	Contractors Rank	d	d^2
Proper selection of a project in which the organizational change process is going to be initiated.	**4**	**2**	-2	4
communication between management and employees.	**5**	**4**	-1	1
The extent to which a change agent/ supervisor is participating in the change process.	**5**	**7**	2	4
Employees commitment to change.	**6**	**6**	0	0
Communication among the employees.	**6**	**10**	4	16
The availability of a change agent/ supervisor.	**6**	**11**	5	25
Individual's readiness to change.	**7**	**12**	5	25
Individual's personal experience.	**7**	**9**	2	4
Forecasting challenges that may occur during the change implementation process.	**8**	**9**	1	1
The extent to which employees are involved in the change process.	**9**	**13**	4	16
			$\sum d^2$	**175**
			ρ	0.78554

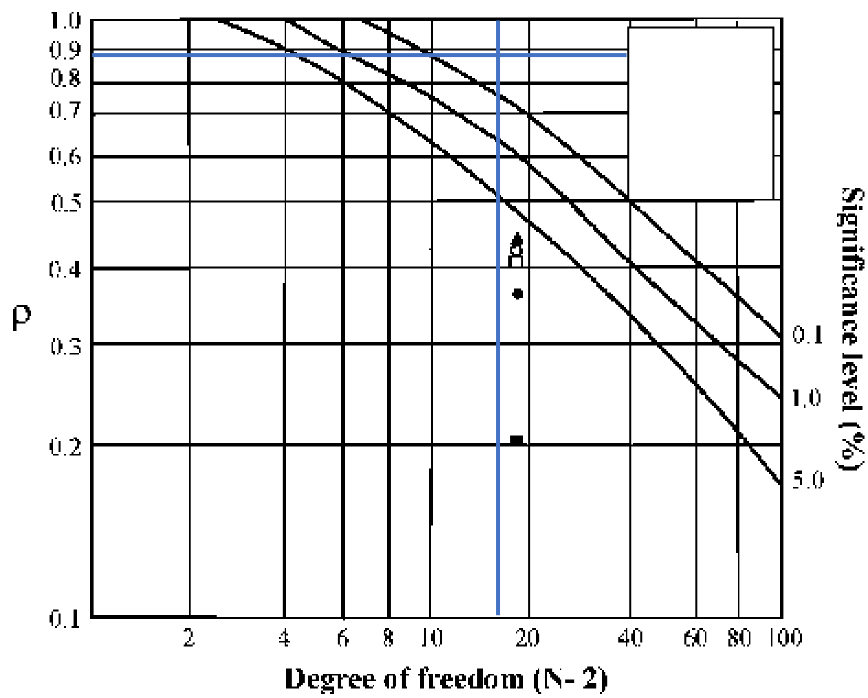


Figure 46. Area below 95% line indicates invalid null hypothesis while above indicate validity. Since both lines intersect above line 99.99%, the null hypothesis is true

4.4.4.2 Welch’s t-test, Kendall’s Coefficient and Terrell’s transformation index Analyses

Seventeen critical factors were grouped into four categories: planning, employees, communication, and change agents. Each category was assigned a score representing the average of all factors’ scores included in that category. Table 33 lists the scores for each category, with one score provided by contractors and the other by consultants. All groups were ranked the same by both the contractors and consultants. In descending order, these were: communication, planning and scheduling, change agents, and employees. Communication and planning and scheduling had nearly identical scores, indicating that those groups were substantially more significant than the other two.

A Welch’s t-test was conducted on the group level to test the significance of the groups’ means. A two-tailed test was applied at a confidence level of 95%. The results showed that the null hypothesis was true (i.e., the means of the tested groups were not equal). There was considerable difference between the means of the employees and planning and scheduling groups. The null hypothesis for the communication and change agent groups was false; no significant difference in the means was found. In sum, according to the Welch’s t-test, contractors and consultants disagreed about the importance of employees and planning and scheduling. The test could not determine which group contributed to the difference. However, the methodologies and critical factors analyses showed that consulting offices focused more on characteristics related to employees and planning issues. Hence, it can be concluded that the disagreement over employees and planning and scheduling resulted from the consultants’ evaluations. Table 34 shows the variance in each group. Tables 35 through 38 illustrate the results of the Welch's t-test of the critical factors groups.

The Kendall's coefficient of concordance was applied to verify the results obtained by the Welch's t-test. The results were identical to those obtained by the Welch's t-test; there was significant disagreement between contractors and consultants regarding the importance of employees and planning and scheduling. Table 39 illustrates the parameters used to conduct the Kendall's coefficient of concordance test. The consultants agreed about the importance of personal characteristics directly related to employees and planning and documenting the change implementation process, feeling that a focus on both increased the probability of an effective change management process; contractors did not pay attention to such matters. However, consultants and contractors agreed on the importance of communication in managing organizational change.

The Terrell's transformation value was employed to identify critical change management factors. For contracting firms, five of the 17 factors were determined not to be critical: individuals' change readiness, the extent to which employees were involved in the change process, communication among employees, availability of change agents, and training and education for employees prior to change implementation. In contrast, for consulting offices, only two of those factors were identified as not critical: the extent to which employees are involved in the change process and forecasting challenges that may appear during change implementation. Thus, contracting firms focused less on employees; the entire group of factors associated with employees was not critical, while for the consultants it was. This implies that the management style in contracting firms is top-down, and there are no distinct procedures or policies for managing organizational change.

Table 33. change management factors group scores

Factors Affecting Change Management				
	contractors	Rank	consultants	Rank
Employees	3.563	**4**	3.600	**4**
Communication	3.910	**1**	4.022	**1**
Change Agent	3.781	**3**	3.978	**3**
Planning and Scheduling	3.898	**2**	4.017	**2**

Table 34. Variances and standard deviation computation of critical factors groups

	contractors	**variance**	**standard deviation**	**consultants**	**variance**	**standard deviation**
Employees	3.4688	0.0239	0.1547	3.6000	0.0200	0.1414
	3.6250			3.6000		
	3.7813			3.8000		
	3.3750			3.4000		
Communication	3.6875	0.0393	0.1982	4.2000	0.0253	0.1590
	3.5625			4.1333		
	4.0313			3.8000		
	4.3125			3.9333		
Change Agent	3.7500	0.0475	0.2180	3.9333	0.0277	0.1663
	4.0625			4.2000		
	3.5313			3.8000		
Planning	3.9063	0.0578	0.2403	4.2667	0.0573	0.2393
	3.5625			4.0000		
	4.0625			4.1333		
	4.1563			4.2000		
	4.1563			4.0000		
	3.6250			3.5333		

Table 28 Welch's t-test results of Employees group between contractors and consultants

Employees		
statistic t		-0.8111
degree of freedom		29.8707
p-value		0.4239
		No Agreement
Confidence Interval	Interval	0.0933
	Lower Lim	-0.1303
	Upper Lim	0.0563

Table 29. Welch's t-test results of planning group between contractors and consultants

Planning and Scheduling		
statistic t		-1.4804
degree of freedom		27.5800
p-value		**0.1503**
		No Agreement
Confidence Interval	Interval	0.1538
	Lower Lim	-0.2648
	Upper Lim	0.0428

Table 30. Welch's t-test results of communication group between contractors and consultants

Communication		
statistic t		-2.2048
degree of freedom		33.7384
p-value		**0.0345**
		Agreement
Confidence Interval	Interval	0.1098
	Lower Lim	-0.2288
	Upper Lim	-0.0092

Table 38. Welch's t-test results of change agent group between contractors and consultants

Change Agent		
statistic t		-3.4144
degree of freedom		35.2955
p-value		**0.0016**
		Agreement
Confidence Interval	Interval	0.1171
	Lower Lim	-0.3141
	Upper Lim	-0.0799

Table 39. Parameters used in Kendall's Coefficient test for critical factors of change management

	W	**t statistic**	**χ2**	**degree of freedom**	**p-value**
Employees	0.017	3.302	6.604	3	0.085
Commination	0.044	8.272	7.815	3	0.000
Change Agent	0.06	8.574	5.991	2	0.000
Planning	0.016	4.652	6.038	5	0.298

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter summarizes the research study in term of the methodology and findings from the analysis. The chapter also includes the conclusions drawn and lists recommendations for contracting and consulting firms. Suggestions for future research are also outlined below.

5.2 Summary of the Study

An organizational change is a modification to an existing system within an organization. Any system primarily consists of four interconnected components: people, technology, tasks, and structure. Changing a certain component affects the other three. Therefore, having an efficient change management process is essential to obtaining the desired outcome. The main objective of the present work was to comprehensively examine three major topics related to change management and identify critical drivers initiating change, current processes of managing change in Saudi Arabia, and essential aspects of effective change management. These topics were evaluated from the perspectives of contracting firms and consulting offices. A structured questionnaire was developed to facilitate achievement of these objectives. A total of 32 contractors and 15 consultants participated in the survey, offering their answers in the presence of the researcher to ensure reliable data.

5.3 Summary of the Findings

This section briefly presents the findings of this research.

5.3.1 Major Findings

- External factors including increased competition, new laws and regulations, and advancements in technology and the internal factors of organizational growth and goal succession were the most critical factors driving contractors to make organizational changes.
- The external factors of advancements in technology, new laws and regulations, and changing customer needs and internal factors of goal succession and organizational growth were the most critical factors driving consultants to make organizational changes.
- Both contractors and consultants followed systematic approaches when implementing organizational change. In contracting firms, the organizational change process was primarily initiated and justified by top management and the framework for the change process was prepared by an internal team. Most contractors neither developed full documentation for the change processes nor applied distinct methodologies when managing changes. Implementation consisted of the following sequence. Top management instructed change supervisors who were usually departments managers; they, in turn, instructed the employees impacted.
- In consulting offices, organizational change was also initiated and justified by top management and the change plan prepared by an internal team. Most consulting offices developed full documentation for the change process and followed distinct procedures when managing the change. Prior to implementing the change, most consulting offices provided training sessions and established effective communication channels between top management and lower-level employees. The implementation process consisted of the following flow sequence. Top management instructed change supervisors who were the leaders of worker units; they, in turn, instruct the employees impacted.

- Top management's support during the change implementation process, development of a realistic change implementation schedule, proper selection of the project to initiate the change, abilities of the change agent/supervisor, and a clear definition of the change before implementation were the most critical factors contributing to effective change management in construction firms.
- Leadership techniques and a clear definition of the change before implementation were the most critical factors contributing to effective change management in consulting firms. Periodically tracking the change process, top management's support during the change implementation process, abilities of the change agent/supervisor, and development of a realistic change implementation schedule were ranked second.

- The four components of change (i.e., people, technology, tasks, and structure) were all points of concern for consulting offices. Technology was less of a focus in contracting firms.
- In both consulting firms and contracting offices, change implementation plans were most often prepared by internal teams formed by top management.
- A gradual implementation of organizational changes was preferred by more than 60% of both contractors and consultants. No consulting offices transitionally implemented changes, while 13% of contractors did.
- The majority of both contractors and consultants preferred to implement organizational changes gradually.
- Transitional change was not popular among consulting offices or contractors.

5.3.2 Minor Findings

Several outcomes of this research will be of importance to the reader. Following is a list of the minor findings of this study.

- The four components of change (i.e., people, technology, tasks, and structure) were all points of concern for consulting offices. Technology was less of a focus in contracting firms.
- A considerable number of individuals working in top management in contracting firms were not familiar with the topic of organizational change management.
- Mergers and acquisitions in the construction industry in Saudi Arabia are rare.
- About 30% of respondents believed that to deliver organizational changes successfully, it was essential to establish an unbiased team to supervise and manage the change implementation process.

5.4 Conclusion

Contractors and consultants in Saudi Arabia must regularly engage in organizational change in response to both external and internal drivers. They follow a systematic approach to managing such change. Change management affects the people touched by organizational change. Whether an organization is fixing a problem or taking advantage of a new opportunity, a company must ensure that the whole team embraces top management's new direction and adopts and properly learns to use the new system and process. The contractors queried for the present research considered increased competition to be the most powerful external driver of change, while for the consultants it was advancements in technology. New laws and regulations was ranked second for both. In terms of internal drivers, organizational growth was the most critical for contractors, while for consultants it was goal succession.

Contracting firms and consulting offices generally had similar organizational change processes. In both, changes were initiated and justified by top management, change plans were formed internally, and frequent meetings were held between top management and change supervisors to track progress. However, most consulting offices developed full documentation for the entirety of the change process and provided training sessions prior to implementation, while contractors did not. Regarding the factors necessary for effective change management, top management's support during the implementation process was critical and ranked first by contractors and second by consultants. Periodic tracking of the change process ranked as the top factor for consultants.

5.5 Recommendations

5.5.1 For Contractors

- Consider the characteristics of their employees, such as their mental and emotional issues, readiness to change, and work experience, as they are the core of any organization.
- Ensure effective communication channels, such as a unified electronic portal or coordination team to facilitate communication across departments and enhance synchronization among employees of different disciplines.
- Follow new leadership techniques when implementing organizational changes and treat employees properly, as they are the core of any organization.
- Invest more time in planning their change management process, since 80% of process costs are incurred during the planning phase.
- If there is none, establish a department for business development, as this would be significantly beneficial in the long term as a means of efficiently responding to market changes.
- Develop a documentation system for the entire organizational change process, as this would reduce internal conflicts, ensure better coordination, promote a friendlier work environment, and optimize time performance.

- Form an unbiased team to develop and supervise the change management process. This will promote trust and honesty among employees.
- Integrate trends in communications technology, such as virtual meetings via computers; this will significantly reduce cost and time as compared to traditional methods.

5.5.2 For Consultants (A/E)

- Hire specialized business analysts to enhance current feasibility analysis systems in the development unit/department.
- Establish a unit specializing in feasibility studies and tendering issues.
- Ensure that employees are satisfied and comfortable; this will positively contribute to the outcome of any process.
- Hire technical engineers with different disciplines, since the rate of industrial and heavy engineering projects is increasing significantly in Saudi Arabia.
- Ensure effective communication channels such as a unified electronic portal or coordination team to facilitate cross-department exchanges and enhance synchronization of employees of different disciplines
- If training and teaching sessions are essential for an organizational change, provide them at no cost to ensure the maximum rate of participation.

5.6 Recommendations for Future Research

- Further studies could be conducted to reveal relationships among variables in which new hidden variables groups could be obtained using confirmatory factors analysis.
- Frequency could be integrated with the relative importance analysis used in ranking the forces driving organizational change.

- Employees' perspectives on the change management process could be addressed in a separate study.
- Researchers could further examine the impact of the project-based nature of the construction industry on the organizational change process in contracting firms.
- Studies could be conducted on different construction disciplines other than building construction across the industrial and heavy engineering areas.
- Researchers could conduct studies of different regions other than the central region of Saudi Arabia to extend these findings across the nation.
- A study could include contractors and consultants of Grades 2, 3, and 4.

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Appendix A

Research Questionnaire for Consulting Firms

Introduction

We are doing a research at King Fahd University of Petroleum and Minerals. The research is going to study the field of "***Organizational Change in the Construction Industry of Saudi Arabia***". Briefly, Organizational change is changing the current working performance-system of the firm or changing part of it. Any change in; the technology used, people staff, services to be delivered or firms; restructure, is considered to be organizational change. Generally, when the current state of a firm is facing difficulties in achieving the firm's goals, a change on the organization level may be required to avoid any undesired consequences. Also, the change might be raised as a response to external forces, such as local competition. Addressing the need for a change is crucial to develop an implementation plan. Furthermore, managing the change process is important to deliver a successful change.

Section (1): Respondent Profile

This section seeks information related to the respondent. kindly select the appropriate answer by placing (√) in the box next to your answer.

1. **Job Title:**
   - ☐ Executive Manager
   - ☐ Operation Manager
   - ☐ General Manager
   - ☐ Other, kindly specify __________.

2. **Number years of experience in Construction industry:**
   - ☐ Less than 5 years
   - ☐ From 6 to 10 years
   - ☐ From 11 to 15 years
   - ☐ More than 15 years

3. **Number of years with the current employer:**
   - ☐ Less than 5 years
   - ☐ From 6 to 10 years
   - ☐ From 11 to 15 years
   - ☐ More than 15 years

4. **Educational Level:**
   - ☐ Bachelor
   - ☐ Master
   - ☐ PhD
   - ☐ Other, kindly specify ________.

5. **Area of education:**
   - ☐ Civil
   - ☐ Architecture
   - ☐ Mechanical
   - ☐ Electrical
   - ☐ Other, kindly specify ________.

6. Experienced organizational change over your life career:

- ☐ Less than 2 times
- ☐ 2 to less than 4 times
- ☐ 4 to less than 6 times
- ☐ 6 or more times

7. Participation in an organization change management over your life career:

- ☐ Less than 2 times
- ☐ 2 to less than 4 times
- ☐ 4 to less than 6 times
- ☐ 6 or more times

Section (2): Organization Profile

This section contains questions seeking information related to your current employer's organization. Please select the appropriate answer by placing (√) in the box next to your answer.

1. **Annual revenue (in millions of SR):**
   - ☐ Less than 10
   - ☐ From 10 to less than 20
   - ☐ From 20 to less than 30
   - ☐ From 30 to less than 240
   - ☐ 40 or more

2. **Your organization's size is (in terms of man power):**
   - ☐ Less than 100 employees
   - ☐ From 100 employees and less than 200 employees
   - ☐ From 200 employees and less than 300 employees
   - ☐ From 300 employees and less than 400 employees
   - ☐ 400 employees or more

3. **Type of projects [you may select more than one answer]:**
   - ☐ buildings
   - ☐ Infrastructure, heavy work, dams
   - ☐ Industrial
   - ☐ Other, kindly specify ___________.

4. **Organization Age:**
   - ☐ Less than 10 years
   - ☐ From 11 to 20 years
   - ☐ From 21 to 30 years
   - ☐ More than 30 years

5. Location of organization main office:

- ☐ Dammam
- ☐ Khobar
- ☐ Jubail
- ☐ Dhahran
- ☐ Other, kindly specify _____________.

Section (3): Driving Forces to Organizational Change

The following is a list of external and internal potential forces that may drive an organizational change in contacting firms in Saudi Arabia. Kindly, measure the impact of each force on driving organizational change by placing (√) in the scale below each driving force.

External Forces

1. ***Advancement of the technology***

Very Low	Low	Moderate	High	Very High

2. ***New Laws and regulations***

Very Low	Low	Moderate	High	Very High

3. ***Domestic market maturation***

Very Low	Low	Moderate	High	Very High

4. ***Increased competition***

Very Low	Low	Moderate	High	Very High

5. ***Labor market issues***

Very Low	Low	Moderate	High	Very High

6. Changed customers' needs

Very Low	Low	Moderate	High	Very High

7. Social issues:

Very Low	Low	Moderate	High	Very High

8. Cultural issues:

Very Low	Low	Moderate	High	Very High

9. Business expansion

Very Low	Low	Moderate	High	Very High

[Other driving forces, Please specify and evaluate]

- ________________________________

Very Low	Low	Moderate	High	Very High

➢ ________________________________

Very Low	Low	Moderate	High	Very High

➢ ________________________________

Very Low	Low	Moderate	High	Very High

➢ ________________________________

Very Low	Low	Moderate	High	Very High

Internal Forces

1. Unexpected crisis (unexpected loss, instant decline in profits)

Very Low	Low	Moderate	High	Very High

2. Employees resistance (for example: group strikes)

Very Low	Low	Moderate	High	Very High

3. Merging and acquisition issues

Very Low	Low	Moderate	High	Very High

4. Changed administrative behavior (for example: issues related to decision-making process, disputes resolving process)

Very Low	Low	Moderate	High	Very High

5. Goal Succession (the ultimate purpose is achieved)

Very Low	Low	Moderate	High	Very High

6. Growth (when number of employees or budget increases, more complex hierarchy may be needed)

Very Low	Low	Moderate	High	Very High

[Other driving forces, Please specify and evaluate]

- ➢ ______________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ______________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ______________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ______________________________________

Very Low	Low	Moderate	High	Very High

Section (4): Change Characteristics

It is believed that organizational changes are occurring at different degrees over the life of any organization. Therefore, your organization goes through timely changes. This section focuses on the characteristics associated with the change. You are kindly requested to provide the required information by placing a tic (√) in the box next to your answer.

1. **The best classification of the change implementation that took place in your organization:**
   - ☐ Development change (continuous progression of the change, old state is kept).
   - ☐ Transitional change (the organization turned from the old state into the new state with a time period between the two states)
   - ☐ Transformational change (the organization faced chaos, ups and downs. Hence, a complete change was necessary to rescue the organization).

2. **Which of the following change plan considered/ focused on [you may select more than one answer]:**
   - ☐ People (individual's roles)
   - ☐ Tasks (products and services to be delivered)
   - ☐ Structure (organization hierarchy and communication methods)
   - ☐ Technology (machines and equipment)
   - ☐ All the above (organization re-structuring)

3. **The change was performed by:**
   - ☐ Internal team
   - ☐ Hired consultant
   - ☐ Other, please specify ___________.

Section (5): Change management process

This section aims to identify the common followed methodologies of change management process in the construction industry of Saudi Arabia. Briefly, change management is a process that integrates certain techniques to achieve the proposed change. You are kindly requested to indicate the techniques that are followed in your organization to manage change processes..

- **Change-Plan Preparation**

- ☐ Change plan prepared by internal committee formed by top management
- ☐ Change plan prepared by External hired team such as consulting offices addressing
- ☐ Other, kindly specify ________________________________
- ☐ ________________________________

- **Change-Plan Creation**

- ☐ Defining goals and vision of the proposed change
- ☐ Identifying the resources prior to planning the change
- ☐ Identifying areas of resistance to the change within the firm
- ☐ Defining the roles and responsibility of the individuals
- ☐ Determining change plan milestones
- ☐ Doing change-readiness assessment on employees' level
- ☐ Doing change-readiness assessment on organization level
- ☐ Doing risk assessment
- ☐ Other, kindly specify ________________________________
- ☐ ________________________________

- **Change-Plan Content**

- ☐ Listing process activities
- ☐ Identifying the duration of each activity
- ☐ Identifying the start and end dates of the activities
- ☐ Identifying the responsibility of each activity
- ☐ Setting major milestones
- ☐ Including baseline for cost tracking
- ☐ Other, kindly specify ________________________________
- ☐ ________________________________

- **Change-Plan Implementation**

- ☐ Involving senior leaders in the process
- ☐ Using new leadership style/ method
- ☐ Empowering teamwork
- ☐ Reinforcing change implementation through procedures, systems and policies
- ☐ Identifying the people and groups that the change will impact on
- ☐ Engaging stakeholders early in change planning
- ☐ Providing training and teaching to stakeholders
- ☐ Conveying motivation for the change
- ☐ Including communication channels for questions and feedback
- ☐ Providing support by addressing concerns and fears among the employee
- ☐ Monitoring and tracking the change progress
- ☐ Other, kindly specify ________________________________
- ☐ ________________________________

Section (6): factors of effective change management

The followings are potential factors for effective change management. Kindly evaluate their impact on the effectiveness of change management by placing [✓] in the box next to each force.

1. Individual's readiness to change.

Very Low	Low	Moderate	High	Very High

2. Individual's personal experience.

Very Low	Low	Moderate	High	Very High

3. Employees commitment to change.

Very Low	Low	Moderate	High	Very High

4. The extent to which employees are involved in the change process.

Very Low	Low	Moderate	High	Very High

*5. **Communication among the employees.***

Very Low	Low	Moderate	High	Very High

*6. **Training and teaching the employees before starting the change implementation.***

Very Low	Low	Moderate	High	Very High

*7. **Leadership techniques.***

Very Low	Low	Moderate	High	Very High

*8. **communication between management and employees.***

Very Low	Low	Moderate	High	Very High

9. The extent to which a change agent/ supervisor is participating in the change process.

Very Low	Low	Moderate	High	Very High

10. The capability of a change agent/ supervisor.

Very Low	Low	Moderate	High	Very High

11. The availability of a change agent/ supervisor.

Very Low	Low	Moderate	High	Very High

12. Defining change vision clearly before starting the change implementation.

Very Low	Low	Moderate	High	Very High

13. Developing a realistic change implementation schedule.

Very Low	Low	Moderate	High	Very High

14. Tracking the change process performance periodically.

Very Low	Low	Moderate	High	Very High

15. Proper selection of a project in which the organizational change process is going to be initiated.

Very Low	Low	Moderate	High	Very High

16. Forecasting challenges that may occur during the change implementation process.

Very Low	Low	Moderate	High	Very High

17. Top management support during the change implementation process.

Very Low	Low	Moderate	High	Very High

[Others, Please specify and evaluate]

- ➢ ___________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ___________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ___________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ___________________________________

Very Low	Low	Moderate	High	Very High

Appendix B

Research Questionnaire for Contracting Firms

Introduction

We are doing a research at King Fahd University of Petroleum and Minerals. The research is going to study the field of "***Organizational Change in the Construction Industry of Saudi Arabia***". Briefly, Organizational change is changing the current working performance-system of the firm or changing part of it. Any change in; the technology used, people staff, services to be delivered or firms; restructure, is considered to be organizational change. Generally, when the current state of a firm is facing difficulties in achieving the firm's goals, a change on the organization level may be required to avoid any undesired consequences. Also, the change might be raised as a response to external forces, such as local competition. Addressing the need for a change is crucial to develop an implementation plan. Furthermore, managing the change process is important to deliver a successful change.

Section (1): Respondent Profile

This section seeks information related to the respondent. kindly select the appropriate answer by placing (√) in the box next to your answer.

1. **Job Title:**
   - ☐ Executive Manager
   - ☐ Operation Manager
   - ☐ General Manager
   - ☐ Other, kindly specify __________.

2. **Number years of experience in Construction industry:**
   - ☐ Less than 5 years
   - ☐ From 6 to 10 years
   - ☐ From 11 to 15 years
   - ☐ More than 15 years

3. **Number of years with the current employer:**
   - ☐ Less than 5 years
   - ☐ From 6 to 10 years
   - ☐ From 11 to 15 years
   - ☐ More than 15 years

4. **Educational Level:**
   - ☐ Bachelor
   - ☐ Master
   - ☐ PhD
   - ☐ Other, kindly specify ________.

5. **Area of education:**
   - ☐ Civil
   - ☐ Architecture
   - ☐ Mechanical
   - ☐ Electrical
   - ☐ Other, kindly specify ________.

6. Experienced organizational change over your life career:

- ☐ Less than 2 times
- ☐ 2 to less than 4 times
- ☐ 4 to less than 6 times
- ☐ 6 or more times

7. Participation in an organization change management over your life career:

- ☐ Less than 2 times
- ☐ 2 to less than 4 times
- ☐ 4 to less than 6 times
- ☐ 6 or more times

Section (2): Organization Profile

This section contains questions seeking information related to your current employer's organization. Please select the appropriate answer by placing (√) in the box next to your answer.

6. **Annual revenue (in millions of SR):**
   - ☐ Less than 30
   - ☐ From 30 to less than 60
   - ☐ From 60 to less than 120
   - ☐ From 120 to less than 180
   - ☐ 180 or more

7. **Your organization's size is (in terms of manpower):**
   - ☐ Less than 1000 employees
   - ☐ From 1000 employees and less than 2000 employees
   - ☐ From 2000 employees and less than 4000 employees
   - ☐ 4000 employees or more

8. **Type of projects [you may select more than one answer]:**
   - ☐ Buildings
   - ☐ Infrastructure, heavy work, dams
   - ☐ Industrial
   - ☐ Other, kindly specify ___________.

9. **Organization Age:**
   - ☐ Less than 10 years
   - ☐ From 11 to 20 years
   - ☐ From 21 to 30 years
   - ☐ More than 30 years

10. Location of organization main office:

- ☐ Dammam
- ☐ Khobar
- ☐ Jubail
- ☐ Dhahran
- ☐ Other, kindly specify _____________.

Section (3): Driving Forces to Organizational Change

The following is a list of external and internal potential forces that may drive an organizational change in contacting firms in Saudi Arabia. Kindly, measure the impact of each force on driving organizational change by placing (√) in the scale below each driving force.

External Forces

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Very Low	Low	Moderate	High	Very High

2. ***New Laws and regulations***

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3. ***Domestic market maturation***

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4. ***Increased competition***

Very Low	Low	Moderate	High	Very High

5. ***Labor market issues***

Very Low	Low	Moderate	High	Very High

6. Changed customers' needs

Very Low	Low	Moderate	High	Very High

7. Social issues:

Very Low	Low	Moderate	High	Very High

8. Cultural issues:

Very Low	Low	Moderate	High	Very High

9. Business expansion

Very Low	Low	Moderate	High	Very High

[Other driving forces, Please specify and evaluate]

- ______________________________

Very Low	Low	Moderate	High	Very High

- ______________________________

Very Low	Low	Moderate	High	Very High

- ______________________________

Very Low	Low	Moderate	High	Very High

- ______________________________

Very Low	Low	Moderate	High	Very High

Internal Forces

1. Unexpected crisis (unexpected loss, instant decline in profits)

Very Low	Low	Moderate	High	Very High

2. Employees resistance (for example: group strikes)

Very Low	Low	Moderate	High	Very High

3. Merging and acquisition issues

Very Low	Low	Moderate	High	Very High

4. Changed administrative behavior (for example: issues related to decision-making process, disputes resolving process)

Very Low	Low	Moderate	High	Very High

5. Goal Succession (the ultimate purpose is achieved)

Very Low	Low	Moderate	High	Very High

6. Growth (when number of employees or budget increases, more complex hierarchy may be needed)

Very Low	Low	Moderate	High	Very High

[Other driving forces, Please specify and evaluate]

- ________________________________

Very Low	Low	Moderate	High	Very High

- ________________________________

Very Low	Low	Moderate	High	Very High

- ________________________________

Very Low	Low	Moderate	High	Very High

- ________________________________

Very Low	Low	Moderate	High	Very High

Section (4): Change Characteristics

It is believed that organizational changes are occurring at different degrees over the life of any organization. Therefore, your organization goes through timely changes. This section focuses on the characteristics associated with the change. You are kindly requested to provide the required information by placing a tic (√) in the box next to your answer.

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   - ☐ Transitional change (the organization turned from the old state into the new state with a time period between the two states)
   - ☐ Transformational change (the organization faced chaos, ups and downs. Hence, a complete change was necessary to rescue the organization).

2. **Which of the following change plan considered/ focused on [you may select more than one answer]:**
   - ☐ People (individual's roles)
   - ☐ Tasks (products and services to be delivered)
   - ☐ Structure (organization hierarchy and communication methods)
   - ☐ Technology (machines and equipment)
   - ☐ All the above (organization re-structuring)

3. **The change was performed by:**
   - ☐ Internal team
   - ☐ Hired consultant
   - ☐ Other, please specify ___________.

Section (5): Change management process

This section aims to identify the common followed methodologies of change management process in the construction industry of Saudi Arabia. Briefly, change management is a process that integrates certain techniques to achieve the proposed change. You are kindly requested to indicate the techniques that are followed in your organization to manage change processes..

- **Change-Plan Preparation**

☐ Change plan prepared by internal committee formed by top management
☐ Change plan prepared by External hired team such as consulting offices addressing
☐ Other, kindly specify ________________________________
☐ ________________________________

- **Change-Plan Creation**

☐ Defining goals and vision of the proposed change
☐ Identifying the resources prior to planning the change
☐ Identifying areas of resistance to the change within the firm
☐ Defining the roles and responsibility of the individuals
☐ Determining change plan milestones
☐ Doing change-readiness assessment on employees' level
☐ Doing change-readiness assessment on organization level
☐ Doing risk assessment
☐ Other, kindly specify ________________________________
☐ ________________________________

- **Change-Plan Content**

☐ Listing process activities
☐ Identifying the duration of each activity
☐ Identifying the start and end dates of the activities
☐ Identifying the responsibility of each activity
☐ Setting major milestones
☐ Including baseline for cost tracking
☐ Other, kindly specify ________________________________
☐ ________________________________

- **Change-Plan Implementation**

- ☐ Involving senior leaders in the process
- ☐ Using new leadership style/ method
- ☐ Empowering teamwork
- ☐ Reinforcing change implementation through procedures, systems and policies
- ☐ Identifying the people and groups that the change will impact on
- ☐ Engaging stakeholders early in change planning
- ☐ Providing training and teaching to stakeholders
- ☐ Conveying motivation for the change
- ☐ Including communication channels for questions and feedback
- ☐ Providing support by addressing concerns and fears among the employee
- ☐ Monitoring and tracking the change progress
- ☐ Other, kindly specify _________________________________
- ☐ _________________________________

Section (6): factors of effective change management

The followings are potential factors for effective change management. Kindly evaluate their impact on the effectiveness of change management by placing [✓] in the box next to each force.

1. Individual's readiness to change.

Very Low	Low	Moderate	High	Very High

2. Individual's personal experience.

Very Low	Low	Moderate	High	Very High

3. Employees commitment to change.

Very Low	Low	Moderate	High	Very High

4. The extent to which employees are involved in the change process.

Very Low	Low	Moderate	High	Very High

5. Communication among the employees.

Very Low	Low	Moderate	High	Very High

6. Training and teaching the employees before starting the change implementation.

Very Low	Low	Moderate	High	Very High

7. Leadership techniques.

Very Low	Low	Moderate	High	Very High

8. communication between management and employees.

Very Low	Low	Moderate	High	Very High

9. The extent to which a change agent/ supervisor is participating in the change process.

Very Low	Low	Moderate	High	Very High

10. The capability of a change agent/ supervisor.

Very Low	Low	Moderate	High	Very High

11. The availability of a change agent/ supervisor.

Very Low	Low	Moderate	High	Very High

12. Defining change vision clearly before starting the change implementation.

Very Low	Low	Moderate	High	Very High

13. Developing a realistic change implementation schedule.

Very Low	Low	Moderate	High	Very High

14. Tracking the change process performance periodically.

Very Low	Low	Moderate	High	Very High

15. Proper selection of a project in which the organizational change process is going to be initiated.

Very Low	Low	Moderate	High	Very High

16. Forecasting challenges that may occur during the change implementation process.

Very Low	Low	Moderate	High	Very High

17. Top management support during the change implementation process.

Very Low	Low	Moderate	High	Very High

[Others, Please specify and evaluate]

- ➢ ________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ________________________________

Very Low	Low	Moderate	High	Very High

- ➢ ________________________________

Very Low	Low	Moderate	High	Very High

Appendix C

Research Questionnaire for Consulting Firms (Arabic Version)

مقدمة

نحن نجري بحثًا في جامعة الملك فهد للبترول والمعادن .يبحث البحث في مجال "التغيير التنظيمي في صـــناعة البناء في المملكة العربية السـعودية ."باختصــار، التغيير التنظيمي يغير نظام أداء العمل الحالي للشـركة أو يغير جزء منـه .أي تغيير في؛ التكنولوجيـا المســـتخدمـة، أو طـاقم الموظفين، أو الخـدمـات التي يتعين تقديمهـا أو الشـركات؛ إعادة الهيكلة، ويعتبر أن التغيير التنظيمي .بشـكل عام، عندما تواجه الحالة الحالية للشـركة صـعوبات في تحقيق أهداف الشـركة، فقد يلزم إجراء تغيير على مسـتوى المؤسـسـة لتجنب أي تبعات غير مرغوب فيها . أيضًـا، قد يتم رفع التغيير كرد فعل للقوى الخارجية، مثل المنافسـة المحلية .معالجة الحاجة إلى التغيير أمر بالغ الأهمية لوضع خطة تنفيذ .علاوة على ذلك، تعد إدارة عملية التغيير مهمة لتحقيق تغيير ناجح.

القسم 1: نبذة عن المستجيب

يبحث هذا القسم عن المعلومات المتعلقة بالمستجيب. يرجى تحديد الإجابة المناسبة عن طريق وضع (√) في المربع المجاور لإجابتك.

1. المسمى الوظيفي:
▢ المدير التنفيذي
▢ مدير العمليات
▢ مدير عام
▢ غير ذلك، يرجى التحديد ___________

2. عدد سنوات الخبرة في صناعة البناء والتشييد:
▢ أقل من 5 سنوات
▢ من 6 إلى 10 سنوات
▢ من 11 إلى 15 سنة
▢ أكثر من 15 سنة

3. عدد السنوات مع صاحب العمل الحالي:
▢ أقل من 5 سنوات
▢ من 6 إلى 10 سنوات
▢ من 11 إلى 15 سنة
▢ أكثر من 15 سنة

3. المستوى التعليمي:
▢ بكالوريوس
▢ ماجستير
▢ دكتوراه
▢ غير ذلك، يرجى التحديد _________

6. مجال التعليم:
▢ مدني
▢ هندسة معمارية
▢ ميكانيكي
▢ الكهرباء
▢ غير ذلك، يرجى التحديد _________

7. عدد المرات التي ساهمت/ قدت تغيير التنظيمي على مدى حياتك المهنية:
▢ أقل من مرتين
▢ من 2 إلى أقل من 4 مرات
▢ من 4 إلى أقل من 6 مرات
▢ 6 مرات أو أكثر

8. عدد المرات التي شاركت في التغيير التنظيمي على مدى حياتك المهنية:
▢ أقل من مرتين
▢ من 2 إلى أقل من 4 مرات
▢ من 4 إلى أقل من 6 مرات
▢ 6 مرات أو أكثر

القسم 2: نبذة عن الشركة الحالية

يحتوي هذا القسم على أسئلة تسعى للحصول على معلومات تتعلق بمنظمة صاحب العمل الحالي. يرجى تحديد الإجابة المناسبة عن طريق وضع (√) في المربع المجاور لإجابتك.

1. الإيرادات السنوية (بملايين الريالات):
▢أقل من 10
▢ من 10 إلى أقل من 20
▢ من 20 إلى أقل من 30
▢ من 30 إلى أقل من 40
▢40 أو أكثر

2. حجم الشركة (من حيث القوة البشرية):
▢ أقل من 100 موظف
▢ من 100 موظف وأقل من 200 موظف
▢ من 200 موظف وأقل من 300 موظف
▢ من 300 موظف وأقل من 400 موظف
▢400 موظف أو أكثر

3. نوع المشاريع [يمكنك اختيار أكثر من إجابة واحدة]:

▢ مباني
▢ بنية التحتية، المشاريع الهندسية الكبيرة، السدود
▢ صناعي
▢ غير ذلك، يرجى التحديد__________

4. عمر الشركة:
▢ أقل من 10 سنوات
▢ من 11 إلى 20 سنة
▢ من 21 إلى 30 سنة
▢ أكثر من 30 سنة

5. موقع المكتب الرئيسي للشركة:

- ▢ الدمام
- ▢ الخبر
- ▢ الجبيل
- ▢ الظهران
- ▢ أخرى ، يرجى التحديد____

القسم 3: الدوافع التي تقود إلى لاقتراح تغيير تنظيمي

فيما يلي قائمة بالدوافع المحتملة، قد تكون خارجية وداخلية، التي قد تقود إلى التغيير التنظيمي. يرجى قياس تأثير كل قوة على اقتراح تغيير تنظيمي عن طريق وضع (√) في الصندوق الموجود أسفل كل قوة دافعة.

الدوافع الخارجية

1. تقدم التكنولوجيا (من برامج ومعدات وآلات)

قليل جدا	قليل	محايد	عالي	عالي جدا

2. القوانين ولوائح العمل الجديدة من قبل الحكومة

قليل جدا	قليل	محايد	عالي	عالي جدا

3. نضوج السوق المحلي (فرصة ضئيلة لزيادة مبيعات المنتج/ الخدمة الحالية)

قليل جدا	قليل	محايد	عالي	عالي جدا

4. زيادة المنافسة

قليل جدا	قليل	محايد	عالي	عالي جدا

5. قضايا سوق العمال

قليل جدا	قليل	محايد	عالي	عالي جدا

6. تغيير احتياجات العملاء

قليل جدا	قليل	محايد	عالي	عالي جدا

7. القضايا الاجتماعية

قليل جدا	قليل	محايد	عالي	عالي جدا

8. القضايا الثقافية (منتج/ خدمة قد تعارض تقاليد المجتمع)

قليل جدا	قليل	محايد	عالي	عالي جدا

9. توسيع نطاق العمل (مستوى العرض الحالي لا يكفي مستوى الطلب)

قليل جدا	قليل	محايد	عالي	عالي جدا

[في حال وجود دافع لم يتم ذكره، لطفا اذكره و قم بتقييمه]

- ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

الدوافع الداخلية

1. أزمة غير متوقعة (خسارة غير متوقعة، انخفاض فوري في الأرباح)

قليل جدا	قليل	محايد	عالي	عالي جدا

2. مقاومة الموظفين (على سبيل المثال: الإضراب الجماعي)

قليل جدا	قليل	محايد	عالي	عالي جدا

3. حالات الاندماج والاستحواذ (مواءمة إحدى الشركتين الأخرى بعد الدمج)

قليل جدا	قليل	محايد	عالي	عالي جدا

4. تغيير السلوك الإداري (على سبيل المثال: القضايا المتعلقة بعملية صنع القرار، عملية حل النزاعات)

قليل جدا	قليل	محايد	عالي	عالي جدا

5. تحقق الرؤية الحالية (الهدف النهائي يتحقق)

قليل جدا	قليل	محايد	عالي	عالي جدا

6. النمو (عندما يزيد عدد الموظفين أو الميزانية، قد تكون هناك حاجة إلى تسلسل هرمي أكثر)

قليل جدا	قليل	محايد	عالي	عالي جدا

[في حال وجود دافع لم يتم ذكره، لطفا اذكره و قم بتقييمه]

- ➢ ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ➢ ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ➢ ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ➢ ______________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

القسم4 : شكل التغيير تنظيمي

يُعتقد أن التغييرات التنظيمية تحدث بدرجات مختلفة على مدى حياة أي منظمة. لذلك، الشركة/ المؤسسة قد تمر بتغييرات في الوقت المناسب. يركز هذا القسم على الخصائص المرتبطة بالتغيير. يرجى منك تقديم المعلومات المطلوبة عن طريق وضع علامة (√) في المربع المجاور لإجابتك.

1. أفضل وصف لآلية تطبيق التغيير الذي حدث في مؤسستك:
   ▢ تغيير تدريجي (بينما يتم تطبيق التغيير، يتم الاحتفاظ بالشكل الحالي).
   ▢ تغيير انتقالي (تحول المنظمة من الحالة القديمة إلى الحالة الجديدة مع وجود فترة زمنية فاصلة بين الشكلين)
   ▢ تغيير تحويلي (واجهت المنظمة الفوضى والتعثرات، وبالتالي، كان التغيير بشكل كلي ضروريًا لإنقاذ المنظمة).

2. خطة التغيير التنظيمي ركزت على [يمكنك اختيار أكثر من إجابة واحدة]:
   ▢ الناس (أدوار الأفراد)
   ▢ المهام (المنتجات والخدمات المراد إنتاجها)
   ▢ الهيكل (التنظيم الهرمي وأساليب الاتصال)
   ▢ التكنولوجيا (الآلات والمعدات)
   ▢ كل ما سبق (إعادة هيكلة المنظمة)

3. تم إجراء التغيير بواسطة:
   ▢فريق داخلي
   ▢التعاقد مع مستشار خارجي
   ▢غير ذلك، يرجى التحديد____________

القسم 5 :عملية إدارة التغيير

يهدف هذا القسم إلى تحديد المنهجيات الشائعة المتبعة لعملية إدارة التغيير في صناعة البناء في المملكة العربية السعودية. باختصار، إدارة التغيير هي عملية تدمج بعض الخطوات لتحقيق التغيير المقترح. يرجى منك اختيار أدناه الخطوات المتبعة في مؤسستك لإدارة عمليات التغيير.

خطوات متعلقة بإعداد خطة التغيير

- ▢ إعداد خطة التغيير يجري بواسطة فريق/لجنة داخلية
- ▢ إعداد خطة التغيير يجري بواسطة فريق خارجي، مثل المكاتب الاستشارية
- ▢غير ذلك، يرجى تحديد ____________________

خطوات متعلقة بإنشاء خطة التغيير

- ▢ تحديد الأهداف ورؤية التغيير المقترح بشكل واضح
- ▢ تحديد الموارد البشرية والمالية قبل التخطيط للتغيير
- ▢ تحديد نقاط/ أماكن المقاومة ضد التغيير داخل الشركة
- ▢ تحديد أدوار ومسؤولية الأفراد المنخرطين في عملية التغيير
- ▢ إجراء تقييم مدى جاهزية التغيير على مستوى الموظفين
- ▢ إجراء تقييم مدى جاهزية التغيير على مستوى المنظمة
- ▢ إجراء تقييم للمخاطر المترتبة على تنفيذ التغيير
- ▢ غير ذلك، يرجى التحديد ____________________

خطوات متعلقة بمحتوى خطة التغيير

- ▢ تعداد أنشطة عملية التغيير
- ▢ تحديد مدة كل نشاط
- ▢ تحديد تواريخ البدء والانتهاء للأنشطة
- ▢ تحديد مسؤولية كل نشاط
- ▢ تحديد المعالم الرئيسية لخطة تنفيذ التغيير
- ▢ إنشاء خط الأساس لتتبع ومراقبة التكاليف أثناء التنفيذ
- ▢ غير ذلك، يرجى التحديد ____________________

خطوات متعلقة بتنفيذ خطة التغيير

- ▢إشراك كبار القادة في عملية تنفيذ خطة التغيير
- ▢استخدام أسلوب قيادة جديد
- ▢تمكين العمل الجماعي
- ▢تقوية تنفيذ التغيير من خلال اتباع إجراءات وسياسات جديدة
- ▢تحديد الأشخاص والمجموعات التي سيؤثر التغيير عليها
- ▢إشراك أصحاب المصلحة في وقت مبكر في تخطيط التغيير
- ▢توفير التدريب والتعليم لأصحاب المصلحة

▢توضيح الدافع للتغيير للموظفين
▢إنشاء قنوات للاتصال بغرض طرح الأسئلة والإجابة عليها
▢تقديم الدعم عن طريق معالجة المخاوف بين الموظفين
▢رصد وتتبع التغيير المحرز
▢غير ذلك، يرجى التحديد____

القسم 6 :العوامل المؤثرة على فعالية عملية إدارة التغيير

فيما يلي عوامل محتملة لإدارة التغيير الفعالة .يرجى تقييم تأثيرها على فعالية إدارة التغيير من خلال وضع [✓] في المربع المجاور لكل قوة

1. استعداد الأفراد لفكرة لتغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

2. خبرة الفرد الشخصية السابقة

قليل جدا	قليل	محايد	عالي	عالي جدا

3. مدى التزام الموظفين بالتغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

4. مدى مشاركة الموظفين في عملية التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

5. التواصل بين الموظفين

قليل جدا	قليل	محايد	عالي	عالي جدا

6. تدريب وتعليم الموظفين قبل البدء في تنفيذ التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

7. تقنيات القيادة بشكل عام

قليل جدا	قليل	محايد	عالي	عالي جدا

8. التواصل بين الإدارة والموظفين

قليل جدا	قليل	محايد	عالي	عالي جدا

9. مدى مشاركة وكيل التغيير / المشرف في عملية التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

10. قدرة ومؤهلات وكيل التغيير / المشرف

عالي جدا	عالي	محايد	قليل	قليل جدا

11. توافر وكيل التغيير / المشرف(مدة الوقت المتاح للتواصل بشكل مباشر مع المشرف)

عالي جدا	عالي	محايد	قليل	قليل جدا

12. تحديد أهداف التغيير بوضوح قبل البدء في تنفيذ التغيير

عالي جدا	عالي	محايد	قليل	قليل جدا

13. وضع جدول زمني واقعي لتنفيذ التغيير

عالي جدا	عالي	محايد	قليل	قليل جدا

14. تتبع أداء عملية التغيير بشكل دوري

قليل جدا	قليل	محايد	عالي	عالي جدا

15. الاختيار السليم للمشروع الذي ستبدأ فيه عملية التغيير التنظيمي

قليل جدا	قليل	محايد	عالي	عالي جدا

16. التنبؤ بالتحديات التي قد تحدث أثناء عملية تنفيذ التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

17. دعم الإدارة العليا أثناء عملية تنفيذ التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

- **[في حال وجود عامل لم يتم ذكره، لطفا اذكره و قم بتقييمه]**

- ____________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ____________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ____________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

- ____________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

Appendix D

Research Questionnaire for Consulting Firms (Arabic Version)

مقدمة

نحن نجري بحثًا في جامعة الملك فهد للبترول والمعادن .يبحث البحث في مجال "التغيير التنظيمي في صـــناعة البناء في المملكة العربية السـعودية ."باختصـار، التغيير التنظيمي يغير نظام أداء العمل الحالي للشـركة أو يغير جزء منـه .أي تغيير في؛ التكنولوجيـا المســـتخدمـة، أو طـاقم الموظفين، أو الخـدمـات التي يتعين تقـديمهـا أو الشـركات؛ إعادة الهيكلة، ويعتبر أن التغيير التنظيمي .بشكل عام، عندما تواجه الحالة الحالية للشـركة صـعوبات في تحقيق أهداف الشـركة، فقد يلزم إجراء تغيير على مسـتوى المؤسـسـة لتجنب أي تبعات غير مرغوب فيها . أيضًـا، قد يتم رفع التغيير كرد فعل للقوى الخارجية، مثل المنافســة المحلية .معالجة الحاجة إلى التغيير أمر بالغ الأهمية لوضع خطة تنفيذ .علاوة على ذلك، تعد إدارة عملية التغيير مهمة لتحقيق تغيير ناجح.

القسم 1: نبذة عن المستجيب

يبحث هذا القسم عن المعلومات المتعلقة بالمستجيب. يرجى تحديد الإجابة المناسبة عن طريق وضع (√) في المربع المجاور لإجابتك.

1. المسمى الوظيفي:
▢ المدير التنفيذي
▢ مدير العمليات
▢ مدير عام
▢ غير ذلك، يرجى التحديد ____________

2. عدد سنوات الخبرة في صناعة البناء والتشييد:
▢ أقل من 5 سنوات
▢ من 6 إلى 10 سنوات
▢ من 11 إلى 15 سنة
▢ أكثر من 15 سنة

3. عدد السنوات مع صاحب العمل الحالي:
▢ أقل من 5 سنوات
▢ من 6 إلى 10 سنوات
▢ من 11 إلى 15 سنة
▢ أكثر من 15 سنة

3. المستوى التعليمي:
▢ بكالوريوس
▢ ماجستير
▢ دكتوراه
▢ غير ذلك، يرجى التحديد __________

6. مجال التعليم:
▢ مدني
▢ هندسة معمارية
▢ ميكانيكي
▢ الكهرباء
▢ غير ذلك، يرجى التحديد __________

7. عدد المرات التي ساهمت/ قدت تغيير التنظيمي على مدى حياتك المهنية:
▢ أقل من مرتين
▢ من 2 إلى أقل من 4 مرات
▢ من 4 إلى أقل من 6 مرات
▢ 6 مرات أو أكثر

8. عدد المرات التي شاركت في التغيير التنظيمي على مدى حياتك المهنية:
▢ أقل من مرتين
▢ من 2 إلى أقل من 4 مرات
▢ من 4 إلى أقل من 6 مرات
▢ 6 مرات أو أكثر

القسم 2: نبذة عن الشركة الحالية

يحتوي هذا القسم على أسئلة تسعى للحصول على معلومات تتعلق بمنظمة صاحب العمل الحالي. يرجى تحديد الإجابة المناسبة عن طريق وضع (√) في المربع المجاور لإجابتك.

1. الإيرادات السنوية (بملايين الريالات):
- ▢ أقل من 60
- ▢ من 60 إلى أقل من 120
- ▢ من 120 إلى أقل من 180
- ▢ من 180 إلى أقل من 240
- ▢ 240 أو أكثر

2. حجم الشركة (من حيث القوة البشرية):
- ▢ أقل من 100 موظف
- ▢ من 100 موظف وأقل من 200 موظف
- ▢ من 200 موظف وأقل من 300 موظف
- ▢ من 300 موظف وأقل من 400 موظف
- ▢ 400 موظف أو أكثر

3. نوع المشاريع [يمكنك اختيار أكثر من إجابة واحدة]:
- ▢ مباني
- ▢ بنية التحتية، المشاريع الهندسية الكبيرة، السدود
- ▢ صناعي
- ▢ غير ذلك، يرجى التحديد__________

4. عمر الشركة:
- ▢ أقل من 10 سنوات
- ▢ من 11 إلى 20 سنة
- ▢ من 21 إلى 30 سنة
- ▢ أكثر من 30 سنة

.5موقع المكتب الرئيسي للشركة:
- ▢ الدمام

▢ الخبر
▢ الجبيل
▢ الظهران
▢ أخرى ، يرجى التحديد____

القسم 3: الدوافع التي تقود إلى لاقتراح تغيير تنظيمي

فيما يلي قائمة بالدوافع المحتملة، قد تكون خارجية وداخلية، التي قد تقود إلى التغيير التنظيمي. يرجى قياس تأثير كل قوة على اقتراح تغيير تنظيمي عن طريق وضع (√) في الصندوق الموجود أسفل كل قوة دافعة.

الدوافع الخارجية

1. تقدم التكنولوجيا (من برامج ومعدات وآلات)

قليل جدا	قليل	محايد	عالي	عالي جدا

2. القوانين ولوائح العمل الجديدة من قبل الحكومة

قليل جدا	قليل	محايد	عالي	عالي جدا

3. نضوج السوق المحلي (فرصة ضئيلة لزيادة مبيعات المنتج/ الخدمة الحالية)

قليل جدا	قليل	محايد	عالي	عالي جدا

4. زيادة المنافسة

قليل جدا	قليل	محايد	عالي	عالي جدا

5. قضايا سوق العمال

قليل جدا	قليل	محايد	عالي	عالي جدا

6. تغيير احتياجات العملاء

قليل جدا	قليل	محايد	عالي	عالي جدا

7. القضايا الاجتماعية

قليل جدا	قليل	محايد	عالي	عالي جدا

8. القضايا الثقافية (منتج/ خدمة قد تعارض تقاليد المجتمع)

قليل جدا	قليل	محايد	عالي	عالي جدا

9. توسيع نطاق العمل (مستوى العرض الحالي لا يكفي مستوى الطلب)

قليل جدا	قليل	محايد	عالي	عالي جدا

[في حال وجود دافع لم يتم ذكره، لطفا اذكره و قم بتقييمه]

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

الدوافع الداخلية

1. أزمة غير متوقعة (خسارة غير متوقعة، انخفاض فوري في الأرباح)

قليل جدا	قليل	محايد	عالي	عالي جدا

2. مقاومة الموظفين (على سبيل المثال: الإضراب الجماعي)

قليل جدا	قليل	محايد	عالي	عالي جدا

3. حالات الاندماج والاستحواذ (مواءمة إحدى الشركتين الأخرى بعد الدمج)

قليل جدا	قليل	محايد	عالي	عالي جدا

4. تغيير السلوك الإداري (على سبيل المثال: القضايا المتعلقة بعملية صنع القرار، عملية حل النزاعات)

قليل جدا	قليل	محايد	عالي	عالي جدا

5. تحقق الرؤية الحالية (الهدف النهائي يتحقق)

قليل جدا	قليل	محايد	عالي	عالي جدا

6. النمو (عندما يزيد عدد الموظفين أو الميزانية، قد تكون هناك حاجة إلى تسلسل هرمي أكثر)

قليل جدا	قليل	محايد	عالي	عالي جدا

[في حال وجود دافع لم يتم ذكره، لطفا اذكره و قم بتقييمه]

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

➢ ________________________________

قليل جدا	قليل	محايد	عالي	عالي جدا

القسم4 : شكل التغيير تنظيمي

يُعتقد أن التغييرات التنظيمية تحدث بدرجات مختلفة على مدى حياة أي منظمة. لذلك، الشركة/ المؤسسة قد تمر بتغييرات في الوقت المناسب. يركز هذا القسم على الخصائص المرتبطة بالتغيير. يرجى منك تقديم المعلومات المطلوبة عن طريق وضع علامة (√) في المربع المجاور لإجابتك.

1. أفضل وصف لآلية تطبيق التغيير الذي حدث في مؤسستك:
▢ تغيير تدريجي (بينما يتم تطبيق التغيير، يتم الاحتفاظ بالشكل الحالي).
▢ تغيير انتقالي (تحول المنظمة من الحالة القديمة إلى الحالة الجديدة مع وجود فترة زمنية فاصلة بين الشكلين)
▢ تغيير تحويلي (واجهت المنظمة الفوضى والتعثرات، وبالتالي، كان التغيير بشكل كلي ضروريًا لإنقاذ المنظمة).

2. خطة التغيير التنظيمي ركزت على [يمكنك اختيار أكثر من إجابة واحدة]:
▢ الناس (أدوار الأفراد)
▢ المهام (المنتجات والخدمات المراد إنتاجها)
▢ الهيكل (التنظيم الهرمي وأساليب الاتصال)
▢ التكنولوجيا (الآلات والمعدات)
▢ كل ما سبق (إعادة هيكلة المنظمة)

3. تم إجراء التغيير بواسطة:
▢فريق داخلي
▢التعاقد مع مستشار خارجي
▢غير ذلك، يرجى التحديد_____________

القسم 5 :عملية إدارة التغيير

يهدف هذا القسم إلى تحديد المنهجيات الشائعة المتبعة لعملية إدارة التغيير في صناعة البناء في المملكة العربية السعودية. باختصار، إدارة التغيير هي عملية تدمج بعض الخطوات لتحقيق التغيير المقترح. يرجى منك اختيار أدناه الخطوات المتبعة في مؤسستك لإدارة عمليات التغيير.

خطوات متعلقة بإعداد خطة التغيير

☐ إعداد خطة التغيير يجري بواسطة فريق/لجنة داخلية
☐ إعداد خطة التغيير يجري بواسطة فريق خارجي، مثل المكاتب الاستشارية
☐غير ذلك، يرجى تحديد ___________________________

خطوات متعلقة بإنشاء خطة التغيير

☐ تحديد الأهداف ورؤية التغيير المقترح بشكل واضح
☐ تحديد الموارد البشرية والمالية قبل التخطيط للتغيير
☐ تحديد نقاط/ أماكن المقاومة ضد التغيير داخل الشركة
☐ تحديد أدوار ومسؤولية الأفراد المنخرطين في عملية التغيير
☐ إجراء تقييم مدى جاهزية التغيير على مستوى الموظفين
☐ إجراء تقييم مدى جاهزية التغيير على مستوى المنظمة
☐ إجراء تقييم للمخاطر المترتبة على تنفيذ التغيير
☐ غير ذلك، يرجى التحديد ___________________________

خطوات متعلقة بمحتوى خطة التغيير

☐ تعداد أنشطة عملية التغيير
☐ تحديد مدة كل نشاط
☐ تحديد تواريخ البدء والانتهاء للأنشطة
☐ تحديد مسؤولية كل نشاط
☐ تحديد المعالم الرئيسية لخطة تنفيذ التغيير
☐ إنشاء خط الأساس لتتبع ومراقبة التكاليف أثناء التنفيذ
☐ غير ذلك، يرجى التحديد ___________________________

خطوات متعلقة بتنفيذ خطة التغيير

☐إشراك كبار القادة في عملية تنفيذ خطة التغيير
☐استخدام أسلوب قيادة جديد
☐تمكين العمل الجماعي
☐تقوية تنفيذ التغيير من خلال اتباع إجراءات وسياسات جديدة
☐تحديد الأشخاص والمجموعات التي سيؤثر التغيير عليها
☐إشراك أصحاب المصلحة في وقت مبكر في تخطيط التغيير
☐توفير التدريب والتعليم لأصحاب المصلحة

▢توضيح الدافع للتغيير للموظفين
▢إنشاء قنوات للاتصال بغرض طرح الأسئلة والإجابة عليها
▢تقديم الدعم عن طريق معالجة المخاوف بين الموظفين
▢رصد وتتبع التغيير المحرز
▢غير ذلك، يرجى التحديد ___________________________________

القسم 6 :العوامل المؤثرة على فعالية عملية إدارة التغيير

فيما يلي عوامل محتملة لإدارة التغيير الفعالة .يرجى تقييم تأثيرها على فعالية إدارة التغيير من خلال وضع [✓] في المربع المجاور لكل قوة

1. استعداد الأفراد لفكرة لتغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

2. خبرة الفرد الشخصية السابقة

قليل جدا	قليل	محايد	عالي	عالي جدا

3. مدى التزام الموظفين بالتغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

4. مدى مشاركة الموظفين في عملية التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

5. التواصل بين الموظفين

قليل جدا	قليل	محايد	عالي	عالي جدا

6. تدريب وتعليم الموظفين قبل البدء في تنفيذ التغيير

عالي جدا	عالي	محايد	قليل	قليل جدا

7. تقنيات القيادة بشكل عام

عالي جدا	عالي	محايد	قليل	قليل جدا

8. التواصل بين الإدارة والموظفين

عالي جدا	عالي	محايد	قليل	قليل جدا

9. مدى مشاركة وكيل التغيير / المشرف في عملية التغيير

عالي جدا	عالي	محايد	قليل	قليل جدا

10. قدرة ومؤهلات وكيل التغيير / المشرف

قليل جدا	قليل	محايد	عالي	عالي جدا

11. توافر وكيل التغيير / المشرف(مدة الوقت المتاح للتواصل بشكل مباشر مع المشرف)

قليل جدا	قليل	محايد	عالي	عالي جدا

12. تحديد أهداف التغيير بوضوح قبل البدء في تنفيذ التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

13. وضع جدول زمني واقعي لتنفيذ التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

14. تتبع أداء عملية التغيير بشكل دوري

قليل جدا	قليل	محايد	عالي	عالي جدا

15. الاختيار السليم للمشروع الذي ستبدأ فيه عملية التغيير التنظيمي

قليل جدا	قليل	محايد	عالي	عالي جدا

16. التنبؤ بالتحديات التي قد تحدث أثناء عملية تنفيذ التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

17. دعم الإدارة العليا أثناء عملية تنفيذ التغيير

قليل جدا	قليل	محايد	عالي	عالي جدا

➢ **[في حال وجود عامل لم يتم ذكره، لطفا اذكره و قم بتقييمه]**

➢ ________________________________

عالي جدا	عالي	محايد	قليل	قليل جدا

➢ ________________________________

عالي جدا	عالي	محايد	قليل	قليل جدا

➢ ________________________________

عالي جدا	عالي	محايد	قليل	قليل جدا

➢ ________________________________

عالي جدا	عالي	محايد	قليل	قليل جدا

VITAE

Name	:	Mohannad Bassam Zaaza
Nationality	:	Syrian
Date of Birth	:	12th of July 1995
Email	:	mzaaza1@gmail.com
Address	:	Al Malaz District, Riyadh - 11421
Academic Background	:	Bachelor of Science in Civil and Environmental Engineering

Due to his excellent records of bachelor's degree, Mohannad has been awarded fully funded scholarship by Saudi government which covers his study of master's degree at King Fahad University of Petroleum and Minerals (KFUPM), the top engineering school in Middle East and North Africa. Being passionate about promoting global growth and prosperity, he selected to study civil and environmental engineering as his major study field. Mohannad has developed a robust knowledge in structure engineering concepts including reinforced concrete and steel design. Beside the manual design techniques, Mohannad works on various count of computer-aided programs such as Revit, Autodesk Robot Structural Analysis, Etabs, STAAD.pro and CSI Bridge. In his master's degree, Mohannad studied construction engineering and management. He worked on multiple projects including cost estimation, planning and scheduling, quality management, advanced usage of statistical analysis tools, equipment production estimation and value engineering. He has a solid knowledge in working on Primavera P6 Professional, C++ language and Mathematica. His research interests primarily include Building Information Modeling (BIM) implementation, organizational changes field and industrial systems optimization using computer-aided analytical tools. While his time studying at the college, Mohannad ensured to enhance his personal skills through participating in various social events and clubs while maintaining a CGPA of 3.85/4.00. He served as the president of science branch of civil engineering students club at KFUPM for two consecutive years, in which he succeeded to transform the club to be the top rate club. Among more than 5000 students, Mohannad was selected to participate in a management consulting program provided by Mckinsey and Company, the top consulting organization globally.