From the Desk of Editor…!

UAE is celebrating the year 2018 as the “Year of Zayed” and ADRJS has adopted the same by introducing it’s fourth successful edition with an article on Sheikh Zayed.

In continuation with the spirit of following the Triple Bottom approach of sustainability, the fourth edition of ADRJS has blended the sustainability issues in terms of Leadership, Quality in Education, Financial decision making and Climate Change.

Since the society is grappling with the cybercrimes and data mismanagement issues, the current edition contains articles on data mining and minimizing IT crimes.

The highlight of the fourth issues is the contributions from our students. The students from the School of Engineering have worked out a research article in collaboration with one of the faculty member which is a milestone towards motivating and encouraging the Research environment among the student fraternity.

I wish Al Dar and ADRJS continued success and congratulate the Authors in the current edition.

Regards,

Prof. (Dr). Ezz Hattab.

Editor in Chief
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Applicability of Classical Decision-Making Styles among Leaders in Modern Societies

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Abstract

This study aims to examine the difference of decision-making process of government leadership based on two dimensions which are the individual and collective perception of figures who were working with Sheikh Zayed. As this study seeks an in-depth understanding of leadership decision making strategies in the UAE, a mixed-method approach was found more appropriate. Interview will be used as the main research instrument, therefore, the research process in this respect includes evolving questions to develop interview model and procedures, then, information or data typically collected in the participant’s setting, followed by data analysis inductively building from particulars to general fields, whilst the researcher makes interpretations of the meaning of the data. The sample consisted of 41 personalities persons and stakeholders who had worked closely with Sheikh Zayed towards the formation and development of the United Arab Emirates. The purposive sampling method or convenience sampling was appropriate. The main findings of this research highlighted that Sheikh Zayed leadership was mostly transformational in all fields throughout his leadership. At the same time, Sheikh Zayed was very transactional and less participative in critical fields such as military. In fields which are very close to people beliefs and culture such as education and social support, Sheikh Zayed was very participative in his leadership.

Keywords: Leadership Style, Decision-Making, Leadership Performance.

1. Introduction

1.1 Introduce the Problem

As the global society continues to move toward a knowledge-based economy, successful political economies are required to evolve and adapt not only to contemporary markets but also to the changing wants and needs of their citizens. Successful nations are those that the citizenry feel happy and peaceful in the current status quo while engaging in their day–to-day business. Successful economies do not rely on any external, predictable, natural or traditional events, but are rather seen as outcomes of strategic and consciously made decisions arousing from leadership thinking.

Leadership decision making is the foundation and the prerequisite for any intelligent action and accomplishment. Blass and Ferris (2007) have emphasized that the current focus on technical competence is outdated and leader potentials should be assessed by an individual’s interpersonal savvy and influence ability. Leadership charisma is often considered one potential source of influence, and is believed to relate to the construct of political skill (Ferris, Treadway, Perrewe, Brouer, Douglas, and Lux, 2007). Consequently, the rapid development and changes that have occurred in the United Arab Emirates (UAE) have been attributed to the qualities and charisma of leadership decision making (Davidson, 2005).

Decision-making process on governmental stage is a very complex practice. This complexity arises from the fact that government is the largest systematized organization in any country. It is responsible of handling all aspects of societies within country borders. These aspects range over political, social, health, education and economical
domains. The wide spread of government responsibilities makes decision styles of government leaders one of the most critical issues in management research.

Most of published researches treat decision-making process as a static phenomenon. These works assumed that elements and factors which affect decision-making process have stationary relationships. Also, the collaborative impact of these relationships on how decisions are generated is based on well-defined laws. This assumption is not valid anymore after information revolution. The accelerated spread of technological solutions in recent decades turns societies into extremely dynamic entities. Perceptions, expectations and interactions of individuals within societies with the government have greatly transformed. As a result, governments have to adapt to these changes. One of the most important adaptations should be performed in decision-making process. There is an extreme need for a research effort which handles decision-making process as a dynamic phenomenon instead of a static one.

Another problematic dimension of decision-making process is due to the fact that most governments are relatively young. After the Second World War, the world witnessed the born of many countries which are based on the modern theory of governance. Most of these countries are just leaving the establishment phase and they are embarking into maturity phase. An example of such country is United Arab Emirates. It is reasonable to assume that decision making styles in establishment phase may not be suitable for the maturity phase. Leadership mentality in these two phases may differentiate. In establishment phase, leadership is advocating for rapid transformation of the society to a civilized and modern state. On the other hand, leadership in maturity phase is more concerned about sustainability and the stable incremental advancement of the country. It is evident that type of decisions, how decisions are made and who are involved in these decisions are totally different in these two phases. The literature lacks a thorough investigation regarding this issue with respect to rapidly developing countries such as UAE.

In Today’s Global competitive world, the only way nation states can become highly competitive and survive is to adapt to the needs of a rapidly changing global environment. Leaders of nation states are therefore required to be positive thinkers because they have a greater role to play in the formulation and implementation of organizational strategies (Abugre, 2014). As agents of national transformation, leaders have the ability to construct the context to which they and their followers must respond to domestic responsibilities. As a result, leader decision making contributes to the determination of the direction of initiatives, and leader knowledge and interest in global development remains a contributory factor in the implementation of success or failure of a nation (Kreitner and Kinicki, 2004). Increased involvement of top-level leaders and forward-focused middle managers may increase the success of such innovative implementation (Bate and Johnston, 2005). Higgs (2003) suggest that a need exists to identify leader behavior conducive to successful knowledge implementation and sustained change. The role of leadership is to ultimately accomplish outcomes for organizations through influencing others (Chung and Lo, 2007). Consequently, Nations are strategizing and reshaping themselves so that they can change quickly to meet the needs of their subjects. For that matter, leadership must emphasize actions that go through changes as quickly and smoothly as possible.

Many writers for example (Marriner-Tomey, 2006; Adair 2007; Marquis and Huston 2009) have acknowledged that decision making is a core leadership behavior. Thus, in the UAE today, strong leadership style and effective decision-making is seen or identified as the driving force behind its rapid development. From a modest beginning and through sound decision of its leadership, the federation of the UAE has been able to amalgamate its different elements for a critical political legitimacy. Its leadership has succeeded in safeguarding the nation’s heritage and Islamic disposition based on development and modernization. The late Sheikh Zayed has been attributed with the management qualities which have succeeded in modernizing and radically improving the living standards of the Emiratis by establishing a strong foundation of statehood from which the UAE has become a respected global actor
both politically and economically (Davidson, 2005). Davidson (2005) presents the late Sheikh Zayed as an embodiment of both charismatic and transformational leader who was able to lead the nation in challenging times. He attributes this to effective leadership decision-making as well as the personal qualities of an efficient ruler like charisma, respect, ability to act along with public approval, patrimonial networks, cultural, religious and ideological resources, and the preservation of identity.

Decision making is an essential feature of effective leadership, yet, according to (Heller 1992), the two areas have the inclination to be researched or treated separately. Nonetheless, many writers are beginning to address the separation between the two concepts in recent times (Marquis and Huston 2009; Marriner-Tomey, 2006) arguing that decision making is a core leadership and management activity. Similarly, Adair (2007) assert strongly that decision making is an essential characteristic of effective leadership, and went further to say that “any leader who aspires to excellence obviously has a vested interest in seeing that the best decisions are taken and that problems are solved in the optimum.” (P. viii). It is argued that effective leadership is the ability to make decisions confidently; therefore, indecisiveness is leadership incompetence (Muchinsky, 2007). Thus, leadership decision making indeed determines the success or failure of an organization or a nation state (Kreitner and Kinicki, 2004).

Clearly the subject matter of leadership and decision-making is very relevant, as an individual’s approach to decision making is likely to be informed by their personal leadership philosophy. Whilst the literature confirms that decision making is a critical part of effective leadership, national leadership programmes do not appear to overtly address this issue. Besides, leadership in the UAE context though has been cited as effective and successful by mouth, it has not been explicitly addressed as a core skill requiring professional development input through theoretical contribution. Hence, there are conceptual and theoretical gaps in understanding the nature of leadership and decision making in the UAE. This thesis will attempt to fill this gap. Besides, discussions on great leaders have been offered from mostly Western countries for example; Abraham Lincoln, Winston Churchill etc., have greatly contributed and transformed their respective nation states which have been studied and documented. Yet great leaders from particularly the Gulf regions have not been mentioned. This thesis will focus on aspects of the strategies adopted by the historical and current leaders of UAE in their decision making that made them great personalities in the eyes of their citizens.

Thus, the impetus for a study on leadership and decision making strategies in the UAE was borne out of the dearth and contradiction of research relating to leadership and decision making which have positively transformed a mass of desert areas into a modern and iconic nation state. To this end and in response to calls for further research in the area of leadership and decision making in the global arena, a more rigorous attempt on how and why leadership in the UAE have been touted so much is explored. This is performed through studying The UAE and its leadership from Sheikh Zayed as the architect of modern UAE to present day leadership and decision making.

1.2 Explore Importance of the Problem

This research is going to contribute to academic or theory of Leadership and decision making theory. The research model of which containing the relationship of leadership, decision making, and national wellbeing of which will be supported by UAE data will contribute to the leadership theory and also decision making. Today’s global world, many countries are wishing to experience the emergent growth in effective leadership and decision-making styles. Due to the importance of decision making in the development of organizations and nation states, Singh (2001) argues that decision making is the total task of a manager or leader. Studies supporting the importance of leadership and decision making strategies as the basis of national or organizational effectiveness is clear and unambiguous; yet, research on leadership decision making strategies of the UAE and the causes of leadership success and outcomes
is seriously absent. This knowledge gap has created a void of information to guide research and practice aimed at facilitating leadership and decision making strategies in the UAE. Hence, this research will add to the body of literature review surrounding the relationship between leadership style and decision-making and how the governance of UAE has been affected by this relationship. This knowledge will invariably lead to the effective use of leadership styles and decision-making strategies among academic enquirers and leaders or executives of other countries globally. In addition, this research would draw more insight into the individual leadership qualities and traits of the rulers of the UAE from its independence to date.

This research should have great significance to understand the leadership and decision-making of the leader who founded UAE as a country. Such understanding will open the door for more research in this subject. As a result, full grasping of the main reasons that made Sheikh Zayed a very successful leader can be used by current leadership and senior management to keep the country on the right track. Academically speaking, there is very few research efforts that was conducted by Emirates to understand Sheikh Zayed leadership. This will be one of the first to establish a research community around this important topic. Emirati researcher should have better understanding of the cultural norms and social constructs that had great impact on Sheikh Zayed decision making process. External researchers may not fully understand the high level of difficulty which Sheikh Zayed faced due to cultural reasons. Such understanding will allow us to fully appreciate Sheikh Zayed leadership. This research contributes to the literature and UAE society by highlighting all aspects of Sheikh Zayed leadership which may be neglected by outside researchers.

1.3 Research Questions of the Study

1. How does leadership style and leadership performance correlate in the UAE?
2. How does decision-making strategies associate with a good leadership?
3. How is the relationship between leadership performance and the decision-making strategies of the past?
4. How do leadership decision making styles influence the leadership performance?
5. Why there are some specific features of the decision-making strategies of leadership in the UAE?
6. Why is the relationship between leadership style and decision-making strategies in the UAE very important?
7. Why there are differences in decision making styles during the different periods in UAE history?

1.4 Objectives of the Study

The primary aim of this research is to study the difference of decision-making process of government leadership based on two dimensions. The first dimension tackles the experienced extreme dynamicity of societies in recent years. The second dimension handles the transformation of government leadership styles over different historical phases. The objectives in this research are:

1. To analyze Sheikh Zayed leadership performance with respect to his leadership style.
2. To investigate the association between decision making process and good leadership.
3. To study the relationship between leadership performance and decision making process in UAE.
4. To analyze the impact of decision making style on leadership performance.
5. To specify the main characteristics of decision-making of UAE leadership.

6. To identify the relationship between decision-making process and leadership styles in UAE.

7. To highlight the main differences of decision-making styles in UAE over different periods.

In general, the main goal is to conduct a research that provides a deep knowledge and understanding regarding decision-making process. This knowledge should be utilized to provide practical implementations of this research finding.

2. Method

This research tries to answer specific research questions where they are related to several factors and parameters. Answering these research questions will be based on three main research constructs. The first research construct will be based on leadership styles. The second construct will be based on decision-making models. Lastly, performance measurement will be utilized as well with regards to the previous mentioned constructs to answer these research questions.

2.1 Leadership Style

There are several leadership styles that were defined in the literature which can be found in any work environment (Herrmann & Felfe, 2014). Each one of these leadership styles has various aspects and characteristics. The following are the most well-known leadership styles (Holten & Brenner, 2015):

1. Laissez-faire
2. Participative
3. Transactional
4. Transformational

Utilizing each one of these leadership styles totally depend on the environment culture and operations context. Here, skillful leadership will know exactly which leadership style to be used in any situation.

Laissez-faire leadership which is the first style in leadership model is often described as a non-leadership (Furtner et al, 2013). Laissez-faire leadership refers to the absence of leadership responsibilities altogether; this is because the leader exhibits little or no leadership behaviors. Leaders may follow this style for several reasons and situation. For example, the leader may have full confidence in subordinate’s abilities to come up with the appropriate decision.

Based on participative leadership style, the leader depends on the input and participation from subordinates in decision-making process (Bortoluzzi et al, 2014). However, the final decision is the responsibility of the leader. Here, confidence of the followers will be increased because of their participation to shape leaders’ decision. At the same time, the decisions generated from participation are usually more welcomed by the followers.

Transactional leadership style which allow the leader to influence his followers’ behaviors through a logical set of exchange propositions (McCleskey, 2014). These are contingent reward, active management by exception, and passive management by exception. Contingent reward describes a set of behaviors whereby the leader sets expectations for the followers, communicates those expectations, and provides rewards to those followers who meet expectations.
Transformational leadership consists of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Dumdum et al., 2013). Idealized influence refers to the degree to which a leader’s highly moral behavior elicits admiration from followers which results in the followers identifying with and committing themselves to the leader’s cause. Inspirational motivation describes the strength of a leader’s vision, the leader’s ability to accurately communicate that vision, and the interest of the vision for the followers.

2.2 Decision Making

Literature identified a decision-making model that can be used to identify how individuals think about the environment, address information, and make decisions (Bailey & Peck, 2013). The four proposed decision-making models include:

1. Directive
2. Analytic
3. Conceptual
4. Behavior

According to directive decision making model, a person using this style is autocratic and wants more power. These people usually use few alternatives and too few resources because of their reliance on their own intuition. They do not communicate their reasoning with their followers. They have clear direction and require efficiency and results. They judge the value of information by their intuition, experience, and personal rules.

On the other hand, according to analytic decision making model, a person using this style wants more information and considers alternatives to draw better conclusions and solve the problem. These people usually use logic to accomplish a goal or solve a problem. They collect data and carefully consider every detail to determine what information is valuable.

Similarly, according to conceptual decision making model, a person using the conceptual style is creative. These people use more information and prefer thinking to acting. They focus on people and look at the range of problems broadly. They obtain information from both intuition and discussing with people.

Lastly, according to behavior decision making model, a person using this style is concerned about people. They obtain information from communication with people. They accept recommendation easily and use little information. They obtain information by listening and interacting with others and attach importance to people when in the working environment and social activities.

There are several more decision-making model’s leaders and executives can turn to regarding specific managerial issues such as subordinate performance and output that provide clear information to guide decision making within their own organizations.

2.3 Leadership and Performance

Measuring leadership performance is one of the most difficult processes as perceived in literature (Wang et al., 2014). There is a lot of criticism regarding adopted measurements of leadership performance. Several researchers criticized leadership performance measurement adopted in literature because of their elevated level of subjectivity outcomes. The bias of leadership performance measurement is almost evident in many research works (Kovjanic et al., 2013). This subjectivity of outcome is a direct result of the self-report nature of performance measurement.
conducted by leader’s followers. For instance, common effects such as social desirability and central tendency can have an enormous impact on the objectivity in the performance measurement. However, many researchers do not consider this bias as a negative characteristics of self-report measurements. In contracts, this self-report effect can be been very beneficial to measure leadership strength and weakness as perceived by followers (Soane et al, 2015). The main self-reporting measurement are:

1. Perceived leadership effectiveness
2. Perceived leadership commitment
3. Perceived leadership satisfaction

In addition, other measurement processes which are non-self-reporting can be utilized in leadership performance measurement. For example, the percentage of achievement of the goals assigned by the leadership can be an indication of his or her performance. It’s very clear that such kind of non-self-reporting performance measurement has very little of bias and it is very objective. Nevertheless, this did not protect it from criticism in literature. Many researchers believe that this type of objective performance measurement may include several external factors other than leadership style. In other words, the external environment may introduce many factors that make achieving goals very difficult for any leader. For instance, the growth of the country may be slow down because of existing conflict in the region as we seen in the early 90s in the middle east. In such situation, the leadership performance may be very high; however, the measurement will not reflect such performance due to the external factors.

The best approach to perform leadership performance measurement is to use both of self-reporting and non-self-reporting measurements. Adopting this approach will reduce the drawbacks of each one of these methods. At the same time, this will increase the understanding of leadership performance from different perspectives.

3. Results

This analysis showed a high level of correlation among subject answers which indicate that there is a great deal of agreement in general among them. This is a very positive aspect of any analysis. However, some slight disagreement can be noticed depending on the field. The main goal of the analysis is to answer research questions:

3.1 How does leadership style and leadership performance correlate in the UAE?

All subject agreed that Sheikh Zayed had very good leadership performance. They believed Sheikh Zayed was very committed leader to UAE success. Also, he changed his leadership style from field to field which made him very effective. This directly leads to the conclusion that leadership performance and leadership style are strongly correlated. Subjects answers show their believes that leadership style of Sheikh Zayed has a direct link with his performance.

3.2 How does decision-making strategies associate with a good leadership?

According to subjects, Sheikh Zayed utilized all decision-making styles to be more effective as a leader. His decisions were made based on the specific nature of the field under consideration. This made him very good leader according to the participants in the study. Their answers show a deep believe that Sheikh Zayed was very successful in choosing the best decision-making strategy for all sorts of situations.

3.3 How is the relationship between leadership performance and the decision-making strategies of the past?
On similar note, Sheikh Zayed decision making styles allowed him to achieve high leadership performance. This especially apparent with regard to leadership satisfaction. Almost all participants were very satisfied with Sheikh Zayed leadership performance due to his decision-making strategies. They also showed a general believe of Sheikh Zayed ability to choose decision-making strategy throughout past periods depending on period requirements.

3.4 How do leadership decision making styles influence the leadership performance?

The analysis showed that the leadership performance is very dependent on decision making style adopted by the leader under investigation. There is a tendency to associate how different decision making styles may alter the perception about leadership performance. Satisfaction aspect of leadership performance is the most affected by decision making style.

3.5 Why there are some specific features of the decision-making strategies of leadership in the UAE?

It is clear that most participant believe that Sheikh Zayed decision making style was most behavioral. This behavioral feature allowed Sheikh Zayed to be more concerned about people who he is leading. People of UAE are not used to modern government when Sheikh Zayed came to power. He was transformational leader who brought modern thinking and government practice to a whole nation. Hence, he adopted behavior decision-making style in most case so that he can help his people through this transformation.

3.6 Why is the relationship between leadership style and decision-making strategies in the UAE very important?

Following the previous section, UAE people had to transform their thinking and government practices so that they can benefit from their wealth. The leader who is going to lead this transformation had to be very flexible in term of leadership style and decision-making strategy. It was very apparent that Sheikh Zayed enjoyed such flexibility from participants answers.

3.7 Why there are differences in decision making styles during the different periods in UAE history?

Building new nation requires adaptive approach in leading people. All participants agree that Sheikh Zayed noticed the importance of modifying his decision-making style depending on the period and on the field. At the beginning, his decision-making style was mostly behavioral. Then, it became conceptual. Later on, it was analytical. This flexibility in decision making styles allowed Sheikh Zayed to be more effective leader as perceived by his people.

4. Discussion

The late Sheikh Zayed bin Sultan Al Nahyan was the first president of the United Arab Emirates. During his 40 years of rule, the state turned from a mere federation of seven emirates into a strong nation in which the individual has the highest per capita income in the Arab world, and the UAE is among the countries with the best infrastructure and modern social system. The death of Sheikh Zayed on November 2, 2004 was the end of one of the most important epochs witnessed in the United Arab Emirates.

In his capacity as President of the United Arab Emirates, Sheikh Zayed was able to make the UAE one of the most important international players among the modern industrial countries. He also maintained, as ruler of the UAE, the traditional role played by the father towards his family and people; Where any citizen of the state could reach him not only to discuss issues related to state policies, but also to discuss any personal issues posed to him, thereby
embodifying the image of the modern state man, who at the same time is distinguished by the qualities and values of
the tribal leader.

The discovery of huge quantities of oil in the late fifth and early sixth decades of the last century had a major impact
on the heart of the entire economic equation in the Gulf region. Since then, the era of real development of the region
began. When oil first began exporting from Abu Dhabi in 1962, a new vision of governance is needed to address
the new challenges and improve the exploitation of oil revenues. This led the Al Nahyan family to elect Sheikh
Zayed as Ruler of the Emirate of Abu Dhabi on August 6, 1966. Sheikh Zayed was able to achieve major reforms
in many fields through modernization and the development in general.

However, improving the standard of living and the distribution of oil revenues were not the only challenges faced
by the state. It was evident in 1968 that the emirates had to become a modern and stable nation within three years
and Sheikh Zayed realized the need to create a strong union to make the future state a strong and stable country at
the international level. It was then necessary to agree on a constitution, a legal system and a model of governance
at a time when the state was not involved in any of these matters and Sheikh Zayed led the efforts to establish a
union between the seven emirates with Sheikh Rashid bin Saeed Al Maktoum, with whom he signed an agreement
In 1968, and culminated in the efforts of the two great leaders in the end with the establishment of the United Arab
Emirates in 1971.

Sheikh Zayed was elected on December 2, 1971 as the first President of the UAE by a consensus of the Rulers of
the Emirates, representing the members of the Supreme Council of the Union. The Council renewed its confidence
in Sheikh Zayed every five years and he was reelected. Through his relentless pursuit of a growing state, Sheikh
Zayed has been able to distribute the proceeds of oil wealth to the sectors most in need of development, to ensure a
stable social status for all citizens of the state, and not only to the economic stability of the State.

4.1 Research Findings

This research investigated Sheikh Zayed leadership style throughout his rule of the UAE. It focused on several
significant fields which were the most important during the establishment of the country. These fields are:

1. Economic Progress
2. Infrastructure
3. Education
4. Social Support
5. Health Care
6. Agriculture
7. Military

This research was based on qualitative approach in data collection. Several individuals who were very close to
Sheikh Zayed were asked about his leadership. The theoretical basis of the investigation was founded on recognizing
these four leadership styles:

1. Laissez-faire
2. Participative
3. Transactional

4. Transformational

During the interviews with the subjects, the data collection was mainly focused on establishing the justification to describe Sheikh Zayed leadership with respect to any one of these identified styles. In addition, both of decision making models and leadership performance were investigated as well. The main findings of this research are:

- Sheikh Zayed leadership was mostly transformational in all fields throughout his leadership. This was the most recognized leadership style from the conducted interviews. Almost all subjects have their view transformed by Sheikh Zayed guidance.

- Sheikh Zayed was very transactional and less participative in critical fields such as military. It is very obvious that such field will require more structure in the leadership operation so that the unexpected negative consequence can be avoided since they are usually very catastrophic.

- The transactional leadership of Sheikh Zayed was very clear to the subjects. One can conclude that this led to an accelerated growth because of the smooth operation and clear understanding of what should be done to get the assigned rewards by Sheikh Zayed and avoid his punishment.

- In fields which are very close to people beliefs and culture such as education and social support, Sheikh Zayed was very participative in his leadership. This style is the most productive in such set-up because people culture has to be respected for the leadership decisions to be effective.

- There are some technical details were Sheikh Zayed followed laissez-faire leadership style where he was not fully involved in the operations because the subordinates were very capable of coming up with the appropriate decisions.

- In agriculture field, Sheikh Zayed was truly transformational leader in all aspect. His believe that UAE can achieve whatever its people set as their goals made him very confident that agriculture success can be achieved. He inspired the whole country to work on agriculture by owning and operating their own farms.

4.2 Research Contributions

This thesis tried to investigate Sheikh Zayed leadership style based on the perception of his subordinates who worked with him directly. Work done in this thesis has the following main contributions:

- Shed a light on one of the most important leaders in the Arab world using academic and analytical tools to have an objective research and understanding. There have been a lot of journalistic and semi-academic works that focused on Sheikh Zayed leadership. However, few focused academic researches have been done in this regard. Hence, this thesis will contribute great deal of information for interested researchers.

- Provide a wider understanding of leadership values as it perceived in middle east culture. A lot of leadership research were focused on western cultures where there is apparent differences. Since UAE culture has emerged for tribal society, there should be different understanding of leadership performance. This thesis showed how UAE society perceive leadership performance.

- UAE is a very good example of rapidly developing country. Understanding how leadership decision making process may lead to an accelerated development is very important to answer questions like how Chine had
faster development than India despite that they were almost identical in the mid-century in term of development. Researching the UAE experience should widen our understanding of the development process in general.

Keep in mind that this research can be a starting point for many researchers in UAE academic community. In the recent years, local universities in UAE started focusing on research as one of the main activities in campuses.

4.3 Future Research

The research in this thesis can be expanded in many directions. For example, one may use the same research approach to investigate other leaders such as Sheikh Rashid Al Maktoum, Sheikh Khalifa Al Nahyan, Sheikh Mohamed Al Maktoum and Sheikh Mohamed Al Nahyan. In addition, leaders outside UAE can be investigated as well using the same research approach and tools. Similarly, the number of fields can be expanded by including the impact on leadership style on fields such as media. Another good future work is to conduct a research where the change of leadership style is investigated. In other words, the research can look for instance where Sheikh Zayed leadership style has changed due to the change of circumstances. Such approach will bring us closer to understanding how a great leader such as Sheikh Zayed was perceiving his own role as a leader.

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The standards of public relations management and its challenges in spreading the culture of quality in institutions

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Abstract

The aim of the research is to highlight the directions of the Public Relations Department to seek and promote the achievement of the mission and objectives of the institution, which has become subject to the dissemination of the culture of quality in institutions. In order to face the changes sweeping the labor market and achieve the aspirations of these institutions amid these changes to improve their scientific and practical conditions. And to identify the real and actual role of the attitudes of the administrative leaders and employees of the public relations department of these institutions towards the basic concepts and principles upon which to spread the culture of quality, and the effectiveness of public relations to achieve and deliver this culture, in addition to the difficulties related to the organizational culture in institutions that faced public relations in the process of publishing Quality of the culture of quality through the perspective of the respondents, where the institutions recently conducted a study to measure the impact of strategic factors in improving the effectiveness of public relations programs in the dissemination of quality culture and standards of self-assessment of all comprehensive Performance is guided by international standards and indicators.

Keywords: Standards - Public Relations - Quality Culture – Institutions

Introduction:

Many of the various service organizations, such as industrial and others are striving to prove their existence by providing the best services they can, so that these services exceed the expectations and requirements of the customers. Providing the best is the key that these institutions reflect through the management of public relations And excellence over its competitors, because the current enterprise environment has become an environment of rapid change, the Department of Public Relations is obliged to search for everything that can achieve their strategies in various ways and methods, which helps them achieve the highest levels of performance and excellence to reach To the highest salaries of the satisfaction of customers or the public, as the customer or the public in the circle of attention and focus and focus the eyes of many other institutions competition, which try to attract in various ways and means possible.

Quality management is one of the topics that receive wide attention in various institutions, especially those related to the services sector of all types and sizes. The quality philosophy focuses on the public and how to meet its growing needs and desires. It also focuses on the need to integrate activities and functions within the organization. During the management of public relations as the most important departments dealing with the public directly, and the quality is focused on continuous improvement in all aspects of work and emphasis on the awareness of all employees in the institutions as a basis for excellence. The dissemination of the philosophy of TQM can enhance the quality of services that must meet the needs and expectations of the institution and its audience, whether at the local or regional level.

Literature Review
The importance of quality management in public sector institutions, which provide services, is still immature on a large scale. The fundamental problem is that the actual application of quality necessarily requires that the employees of the institution in general and the public relations department in particular (Hala Ismail Baghdadi) comprehensive quality.

The concept of spreading quality culture and activating it through public relations is one of the modern concepts that aim to improve and develop the profession of public relations and develop it in a sustainable manner, by responding to the requirements of the public and work to satisfy his desires. Therefore, it is difficult to provide a precise definition of quality in the field of public relations, but it is based on two basic concepts:

1) **Leadership**: means providing advanced and renewable programs and activities that meet the needs of its internal and external audiences.

2) **Franchise**: Achieving a balance between the internal public requirements and the general elements of the activities, programs and objectives of the institution, in other words, reaching an increase in the performance of the employees in the public relations department and then the institution.

Therefore, one of the most important dimensions of the dissemination of quality culture through the Department of Public Relations is the technical competence of the administrative staff and management, which is concerned with the skills and abilities and the actual performance in the management of its members, in addition to easy access to information sites and the work of activities and programs that serve the objectives of the Foundation; How to develop these programs and activities in order to reach the satisfaction of the requirements of the internal audience first and then external, that is, the service should not be limited by an obstacle, but is easy to access and be close and have all means of communication.

Thus, the dissemination of a culture of quality requires the effective effort of the public relations management system, a change in the organizational culture associated with individual behavior and the behavior of the working group so that quality becomes an integral part of the daily practice of the organization's activities (Osama Kamal Al-Abbasi) rather than as a separate program.

There is a culture within the institutions, whether clear or unclear, but it is the way in which institutional roles are reacted and reacted, but sometimes they may not be consistent with the achievement (Steve Smith) of the institutional vision The organization's mission is composed of a set of core ideas and values that are clearly articulated and expressed by leaders and managers and then shared by employees and employees of the institution:

1) Common values (important goals and interests), which constitute university behavior, and remain effective for a long time.

2) Standards of the behavior of the organizational group (acts that reward or punish them).

In the view of the researcher that the common values are not tangible and difficult to change, while the standards seem clear and easy to change. The culture of the institution will become more important in the next century. One of the key issues for long-term performance will be inappropriate behavior and resistance to change, and although we believe it is difficult to change cultures, it has a more effective impact on performance. Cultural change is complex, time-consuming and requires leadership, and that leadership needs a realistic vision of existing behaviors and values if it succeeds in making the desired change. (Francis Mahoney) and that the culture that drives and supports quality is not an instant, ready and appropriate innovation, but it must grow, mature and be supported by all, and every institution has its own culture, whether carefully studied or left unattended (Francis Mahoney) to develop on its own. Without strong support for this culture, overall quality is just a program expected to fail, so it is necessary to understand what the organizational culture of the institution, how to establish it and how to modify...
it. (Richard L. Williams) Therefore, an important aspect of quality culture is to focus on the culture of public service. The question to be asked in this context is who affects the other? Does total quality affect the organization's culture? Or does the culture of the institution affect overall quality? The reality is that, as (Mahfouz Judah) states, "The spread and application of total quality results in a radical change in culture and in the way in which institutions work. What is to be done here is to build a quality organizational culture where education and training programs in quality play a prominent role in building a culture. Quality within the institution (Mohamed Ismail Omar) in preparation for the road to the application of total quality. To achieve this we must first understand the human mechanisms that generate desired behavior. Every individual has beliefs that stem from his own personal thinking. Many organizations have established quality management to be responsible for all quality activities in them, which have long been suggested that the potential for improvement stems from the system. The emphasis on improving the system is one of the most important responsibilities of management in vision and implementation. (Edwards & William Deming) In the eighties of the twentieth century, four trends emerged to regulate quality:

1) **The first trend**: To convert some quality functions to other departments, for example, to transform the process of the process from the quality department to the process engineering department.

2) **The second trend**: to expand the quality of the scientific only to all types of activities, and from the external client only to the external and internal customer.

3) **The third trend**: the great expansion of the use of teams.

4) **Fourth trend**: Delegating decision authority to lower administrative levels.

The researcher does not see the existence of a typical organization or organization of quality in the institution, where this organization varies from one institution to another, and the same institution from time to time. The most important factors affecting the choice of organizational form:

1) The size of the organization: The larger the size of the organization, the greater the unity of quality and the diversity of its activities.

2) Senior management's view of the importance of quality: The presence of the attention of the higher management to quality activities, this means giving greater role to quality.

3) Availability of financial and human resources especially in light of the scarcity of specialists in total quality in developing countries as a whole.

4) Geographical spread of the institution, an institution with many branches or offices, may need a different organizational structure than other institutions with fewer branches. (Mahfouz Ahmed Judah)

It is clear that the criteria for spreading the culture of quality in the management of public relations depend on:

(Mousi Al-Lozi)

1. **Effectiveness**: Effectiveness depends on the effectiveness and impact of the programs and activities carried out by the Department of Public Relations and the means of communication used by the Department to activate the culture of quality and disseminate it on scientific grounds and to provide it in a suitable manner.

2. **Efficiency**: Efficiency means the provision of services that the institution seeks to provide to the public.

3. **The principle of continuity**: the provision of services and the dissemination of programs and activities through the management of public relations on the basis of the principle of continuity without interruption or interruption.

Therefore, the success of spreading the culture of quality in the management of public relations necessarily depends on the senior management's conviction first and commitment and support second to the quality culture approach in the institution. Therefore, the senior management and then the public relations management leadership should foster the dissemination of the culture of quality the right of care. More units concerned with quality management at the institution and contact with senior management as a link with other administrative levels, in order to ensure the
implementation of quality plans and programs effectively (Omar Wasfi Aqili) and work to strengthen those concepts and try to consolidate them significantly in the And it is not permissible to focus on the principle and omission of other principles because they serve as continuous links. And focus on their home audience, because they are the main focus of public relations management, and this can be by continuing to listen to them to learn more about their requirements, expectations and fulfillment. And that access to a high level of quality performance and the delivery of public relations programs and activities, is the result of the combination of efforts of management staff, so should consolidate and strengthen the principle of work of one team, especially in light of the nature of administrative work, which requires the opening of channels of communication more between the President and subordinate, Engage other administrative levels as a guarantee of more cooperation, because the philosophy of total quality means full universality and involvement of all parties without exception. (Ibrahim Khalil Basazo)

The researcher believes that the rules of quality management in the management of public relations means the development and preservation of the possibility of the enterprise of any kind and size of service and production, in order to improve the quality of service provided to the public continuously and sustainably, and meet the requirements of that public. The principle of the dissemination of the concept of culture of quality and comprehensive through the management Public relations are starting from identifying the needs of their audience and ending with assessing whether the public is satisfied with the services and products provided to them, including the continuous development of quality, productivity and efficiency and the integration of quality into the strategic planning process of management.

A form that demonstrates the culture of quality by activating the role of public relations

Spreading quality culture and managing public relations

- A new management revolution
- Comprehensive intellectual development.
- New organizational culture

Quality is applicable at the enterprise level as a whole

Different perceptions of the Department of Public Relations in spreading the culture of quality in institutions:

The difference in the definition of the concept of quality in the institution led to a difference in perceptions about the practical applications of the concept in the institutions, for example the implementation of the system (ISO) in institutions to resist the application of the system, and there are several reasons for this most important that the staff did not feel the appropriateness of this The system of the institution within the departments, departments and institutions that have obtained the certificate of conformity (ISO) did not show the ability of its employees to compete with other institutions (UNESCO) that did not receive the same certificate.
Therefore, the use of ineffective measurement techniques in the organization will lead to unrealistic results, whether the results are positive or negative. Quality needs to make decisions based on correct data and facts. If the organization uses erroneous data if the sense or guessing has a role in its collection, the decisions based on these data will lead to poor quality, in other words, a decrease in the satisfaction of the beneficiaries. Standard tests in institutions are a form of ineffective measurement techniques from a quality management perspective as "inspection" and products that result from the inspection come late and low quality (Langford P. David) and will be costly in terms of time, money and human effort.

If we want to improve the outputs of our institutional system, we must take care of the processes of learning, education, training and continuous evaluation of the performance of the employee, rather than their achievements in the tests that led to the emergence of a traditional learning culture focused on reading for tests, so employees resort to conservation and memorization without attention to cognitive levels Empathy and skill. Other ineffective measurement techniques in the organization, for example, are the traditional tools used by the manager or head of the department to observe employee behavior. The job evaluation tool for the director of the institution and staff all these tools and others lead to the wrong results, but lead to the quality of the institution.

In addition, the traditional institution assumes that it defines the needs and aspirations of the public and plans, implements and evaluates all its programs based on its predetermined assumptions which lead to outputs that do not satisfy the public because they were not based on their needs and aspirations and were not partners at any stage of the work. To explain the low motivation of employees to learn or work for education or the low public satisfaction and reluctance to attend or support the programs and activities of the institution. Therefore, the lack of attention of the institution to the problems faced by the internal public (administrators - employees and workers) or the external public (clients - the community - and other institutions) lead to a widening gap in performance between them and the public, it is worth mentioning here that the low motivation achievement (Nelsen, Dave) In the internal audience inevitably leads to low public satisfaction. This is because the institution's traditional crisis is not its inability to solve problems, but because it does not see these problems in the first place. Its lack of interest in the public and its concentration on itself is affected by the functional blindness that obscures it. See the benefits of the shift towards quality.

As for the unethical practices that aim at promoting the quality of the organization, it has an important role in hindering the transformation and success of the quality in the organization. The slogans and letters used by the management of the organization to inform its employees to prepare for the publication of quality will produce resistance to change among employees and all employees in the institution. Convictions that the quality of a new program will enter the institution, and employees in natural situations are asked to reduce their share of lessons to reduce the pressure of work and the administrative burden, how to introduce new programs require additional work....! One of the most important requirements of the success of the transformation to quality is that the organization to publish the culture of quality and its applications within the normal administrative activities and gradually because quality is not a program or piece of furniture we enter into the institution, but a culture of learning and life arise from within the institution.

The importance of education and training in the institution as an institution is based on the creativity of the human element, so the issue of professional development in the institution is the heart of the quality of its performance. Ishikawa, a Japanese quality leader, points out that 90% of the problems can be solved through training and learning (Evans, R. James) using quality techniques and other tools. The most important indicators of lack of training and learning in the institution that hinder the shift towards quality are as follows: (Suleiman Sheikh Ahmed and Naima)

1) Approval of managers and staff to training methods based on memorization, memorization and memorization.
2) The biggest effort in the administrative process on the employee and this does not correspond to the philosophy of quality, which focuses on that the employee has the largest role in the process of functionality in the sense that the employee is responsible for his functions.

3) Absence of some basic skills and the illiteracy of the computer and the absence of dealing with modern technologies of various types by the administrative staff, and the absence of such skills lead to the low level of performance of the enterprise for reasons of the most delayed completion due to reliance on traditional methods of work.

4) Absence of the important skills required by the information age such as (self-learning - problem solving - communication skills of all kinds - how to learn - conflict resolution, etc.) which must be provided to all employees of the institution.

4) low motivation of administrators and employees and all employees of the institution to curiosity and search for new in their academic disciplines or modern learning methods and training because they believe they are of little or no time to read and research.

Also, the incorrect planning indicators for the quality shift in the organization are: (Jack Taylor)

1) The organization does not know where to start to shift to quality.
2) The vision and mission of the Foundation is unclear to its employees and external audiences.
3) Lack of clarity of objectives that the institution wants to achieve.
4) Work responsibilities are not clear to all employees of the institution to take the lead for the shift towards quality.
5) non-defined work behaviors are consistent with the philosophy of the dissemination of quality that will drive the performance of the institution towards quality.

The information capabilities, which depend on the achievement of quantitative goals and whose content is controlled by what know, are based on knowledge content without providing a suitable space for learning how know, and the accompanying development of the thinking abilities of senior management. Towards quality, this type of curriculum and the mechanisms of follow-up implementation in the institutions contribute to the creation of stress and stress on staff to finish work in any form, and therefore the administrators resort to pressure on employees and employees to speed conservation and memory without taking into account cognitive, Multiple classifications, which is a key issue to achieve the quality of the institution. The success of the shift to quality in the organization necessitates keeping pace with informatics and modernity, providing suitable space for administrators and employees to practice contemporary topics that are in line with the aspirations of the community and other employers. Thus, (Cole, R. Bryan) has achieved the highest quality standards in education Agree the content of the programs and their activities to the aspirations of the community and all current and future employers.

As mentioned above, there are obstacles to the management of public relations in the dissemination of quality culture; some institutions may succeed in spreading quality programs, while others fail. In fact, the basic characteristics of the TQM are simple, and the main reason for the failure of these institutions is in the process of publishing itself.

The reason for the success of these institutions may not be to choose the best quality program, but to adopt a program that is compatible with their culture and members, and the commitment and participation of the employee of the organization in this program and its objectives. One of the other common causes of TQM implementation is the following:

1) The inability of senior management to clarify their commitment to quality.
2) To focus on the internal events of quality and attention to them because they affect the performance of quality and the omission of the needs of external customers.
3) The continuous change in the administrative leadership, which prevents the ability to control the overall quality program.

4) The problem of the length of time required to accomplish some work when using the TQM model.

5) The size of the beneficiaries, the diversity of their categories, their demands and their opposition in some cases, make their satisfaction surveys difficult.

6) Weak financial and informational capabilities, especially in the government sector.

It is important to note that overcoming these obstacles requires management to be aware of the process of quality improvement. The success of the organization or its failure in quality improvement depends first on the planning and preparation of the process, the necessary leadership skills and modern technical methods, Understanding and commitment of managers at all levels.

PR standards in the dissemination of quality culture:
The opinions of specialists and writers in the science of management are almost unanimous in the distribution of quality standards and the dissemination of their philosophy through public relations in institutions as follows:

1. Employees: The selection and employment of employees represents the first step in spreading the culture of quality and applying it in the institution, and is usually - selection through tests and functional tests to determine their readiness scientifically and practically and mentally to absorb and benefit from the administrative process. Where recruitment methods and staff selection vary, although it is still practiced in many institutions, especially those of the Arab world.

2. Programs and activities: This part of the standards is related to the extent to which programs and activities develop the employee's ability to identify and solve problems, a good understanding of the characteristics and practice of the profession, and the ability to retain professional skills. The quality of organization requires improvement of programs, activities, communication methods, Within the Department of Public Relations.

3. The administrative leadership of the Public Relations Department: Administrative leadership is imperative to its quality and depends largely on the leader. It involves the quality of strategic planning (Abdul Aziz Othman Altwaijri) and follow up programs and activities that lead to quality culture:
   a) The commitment of the senior management leadership to quality and depends on the quality of the performance of public relations and the institution.
   b) The atmosphere of good human relations between the staff and senior management and the leadership of the administration, which leads to efficient performance, and this requires good communication between employees of the institution.
   c) Selection of administrative leaders and training them according to standards in light of the need and functionality.

4. The financial resources are: The possibility of financing the public relations department is a very important indicator and it is the most important input from the administrative system without which the work system is unable to perform its basic tasks in implementing the programs and activities. And that the quality of the institution represents a variable dependent on the ability of financial finance.

5. Management of public relations and its relationship with the community or the public: The service of the community or the external public and the promotion of the main functions of the Department requires the achievement of this function to put the same public relations material and human resources in the service of the community, including the environment from which it receives support and support to achieve As far as you can (Mahdi Saleh Al-Samarrai) within its capabilities, this axis includes some indicators:
a) Link the management of public relations to the needs of the environment through the services provided by the institution.

b) Link research and exploratory studies carried out by public relations to the problems of the community in order to find solutions.

c) Interaction between public relations with human, research and intellectual resources and between society in its productive and service sectors.

6. The independence of the public relations department: One of the indicators of the effectiveness of public relations in spreading the culture of quality is independence and freedom from pressure. As far as public relations are free from decision making, freedom of research and publication, freedom of thought and expression of opinion, External pressure reduces the efficiency and effectiveness of the internal influence of public relations management, especially the control of the economic aspect and intellectual control. A balance must be struck between the requirements of public relations independence required by freedom of expression and decentralization in decision-making, taking into account the traditions of society. Empowerment is a "contemporary management process that ensures that employees and employees have the right to act and make decisions to manage their activities within the organization by delegating them the powers and providing them with the required information on time and giving them the full benefit" (Mahdi Saleh Al-Samarra) Appropriate. "One of the most important requirements for implementing empowerment is to adopt a philosophy of quality culture by taking responsibility for different behaviors and behaviors.

7. Ethical Responsibility Quality: Recent research and studies on the subject of organizational ethics within institutions support the idea of a reciprocal relationship between organizational cultures. The moral and moral context of the individual affects the organizational culture. The organizational culture seems to have a significant impact on the behavior of immoral workers in particular related to administrative corruption. There is no doubt that the prevalence of moral principles and rules of the employees of the institution, which will gain the institution of great benefits, perhaps the most prominent medical reputation, the reduction of tensions and confusion and conflict between employees, reduce the cases of discontent and fabrication of problems and others, and in turn help to accelerate the work and efficiency High-level productivity, and develop a spirit of loyalty to the enterprise. In addition to the ethics of quality culture, which includes the principles of quality culture on a set of ethical values without which the institution cannot achieve the objectives of the objectives, and we will focus here on the most prominent are:

a. Responsibility of management: It is divided into Two parts: Management responsibility: The management is keen on the prevalence of moral values and organizational within the institution to increase awareness of employees through training, advertising, motivation, instructions and publications, all of which help to strengthen the moral base in the institution. The responsibility of the employees: It is the special responsibility to achieve quality in methods, methods and results, each individual in the institution bears part of the responsibility according to his job position and the responsibility to carry out the work entrusted to him with all honesty and care.

b. Confidence: The important pillar of ethics everywhere, and in the culture of quality culture, the trust should be seen between the employees of the Department of Public Relations and the employees of the institution, because many elements of the overall quality depends on confidence represented in the trust between the senior departments and the working group to improve. And mutual trust between the employees themselves. And confidence in the means of advertising, advertising, programs and activities in the institution.

8. Performance evaluation: The effectiveness of evaluating the performance in improving the skills of employees and employees. Evaluating the strategic plan for TQM and evaluating the proposed model is based on
disseminating the quality culture and evaluating the public relations management ability to disseminate and apply this model, evaluating the means and communication strategies in public relations and the institution to achieve the concept of quality culture, Keeping abreast of developments and openness and facing new changes in the labor market.

It is therefore necessary to manage the public relations in the institutions of the need to classify the activities and programs carried out by these institutions at all levels to make the success of modern trends in the dissemination of quality culture into three groups are as follows:

A. activities of an institutional nature that have no impact at all, or have an indirect but indirect impact on programs, for example, the management of the activities of the enterprise, and the attractiveness of such activities in terms of design and form;

B. General institutional activities and functions that have a significant impact on programs, such as recruitment and promotion of the employees of the institution.

C. Activities directly related to the planning and implementation of programs and activities, such as adequacy, awareness and training. Evaluation of targeted staff results to improve performance through appropriate and consistent program quality.

These standards include nine stages that public relations can take into consideration through the dissemination of quality:

1. The goal is to provide a wide range of senior management who understand the meaning of the culture of quality.
2. The formation of a team whose mission is to undertake exploratory research.
3. Focus on prioritizing and public needs.
4. Try to link the institution's vision to the needs of the public through planning processes.
5. Link the work of departments, departments and departments different needs of the internal public institution.
6. The study teams are formed.
7. Through which a comprehensive survey project is presented.
8. Identify individuals and research teams.
9. in which public relations committees reach the dissemination of the philosophy of the culture of the concept of quality.

Despite the achievements of the Department of Public Relations in various institutions at the service, industrial or productive level of great achievements in the life of societies throughout the ages, however, the calls for reform and modernization or development, but enlightenment is continuing towards him, and not only these calls to the leadership departments and employees and employees, But contributed to the men of economy, politics, psychology and other opinion and advice, that many of the good ideas resulted from men outside the administrative system and leadership, and had a beneficial effect in establishing public relations to the concept of quality on solid foundations. Education and Science (UNESCO) In this era, the efficiency and effectiveness of public relations management and its presence in the institution have become a criterion for judging the status of the institution and its location among its public and beneficiaries of the institution and its cultural, Limit its ability and paralyze its movement towards achieving its achievements if it is not reserved for some of the most prominent factors: (Saleh Ahmed Ali)

A. The increasing demand for the outputs of the institution.
B. Diversity of the public and beneficiaries of the institution and the diversity of their needs and desires.
C. The emergence of many new and diversified institutions services inside and outside the country.
D. Resorting to the public or the beneficiaries to the new institutions to provide advanced techniques to solve the problems and difficulties facing that public.

E. Facing the competition between the institutions that each organization tries to highlight to its audience the quality of its services, the quality of its programs and activities, the excellence of its employees and employees, and the methods of work therein.

**Model to manage public relations in how to spread quality culture:**

1. (President Office discovers total quality) - Public Relations Office.

2. Research and exploratory team

3. Identify the needs of the public

4. The office develops the vision and uses the planning and then submits a five-year plan

5. Departments use planning and five-year plan

6. Daily management team and existing systems to develop processes

7. A comprehensive research and survey team

8. Results and the realization of the evolution of the system

9. Comprehensive management teams work to build systems that achieve goals

Review progress

Reviewing and refining the five-year plan
Conclusion:
In the last two decades, the institutions have become the most influential factors on the public and their awareness. The need for diversity of these institutions and the diversity and influence of the political aspects and their greater share in the promotion of the intellectual ideology of institutions and their institutional systems and humanitarian concepts, whether positive or negative, The need to review the impact of management performance in the light of quality standards and evaluation within this institution ... The standards of public relations and challenge in the dissemination of quality culture may represent a lifeboat for institutions that find themselves in need of modernity, The need to restructure public relations management is more than ever before. Even public relations management can succeed in adopting this philosophy. This philosophy must have a comprehensive commitment from the top of the rule. In order to be strong and achieve the success of the institution.

But there is a question that raises the question whether spreading the culture of quality in these institutions will give the institution additional strength and value in its competition with other institutions!

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Approach to the theories of Mass Communication
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Abstract:
Mass communication theories are normally imagined as approaches to clarify how mass communication influences us, how does mass communication impact our political or shopping decisions, how does it change our impression towards the others, how can it instill thoughts in our minds, or how does it trigger responses in people.

Mass communication theory can be defined as "an arrangement of statements that describes in a formal way a set of relationships between concepts, measurable by factors referring to characteristics or states of entities involved in the mass communication process."

Mass communication theories imagined in this way do exist and cover a specific reality of research, despite the fact that there is an assumption, which could be risky that media can get things done to us we are not exactly fit for controlling.

This study attempted to clarify the better purposes of theories related to mass communication and their applications.

Key words: Mass Communication, Agenda setting, Framing theory, Hypodermic needle theory, Cultivation, Spiral of Silence.

Introduction:
Mass communication refers to the study of how people exchange information through mass media to large segments of the population at the same time. In other words, mass communication refers to the imparting and exchanging of information on a large scale to a wide range of people (Watson et al, 1997).

A group involved in a mass communication circumstance is likewise exposed much the same to a message. Once released, a message can similarly achieve a large number of people. (Social media with its security settings changes the terms of this discussion, but let us acknowledge, until further notice, that mass media is relatively open and wide). Mass communication is also characterized by high speed (Lowery et al, 1983).

Messages circulate quick and far. At last, mass communication is interceded by means of telecom or solid media. A mass communication message is encoded and passed on through some technology, which makes it both not so much individual but rather more large than different kinds of correspondence. In brief, mass communication is mediated communication that backings heterogeneous group of people who trade messages that accessible to many other members. Mass communication includes mediation technologies, which could take one of two modalities: one to many or few to many, for example television, radio, print media, or social media (Hafele, 2011).
A theory is a set of statements placed in the configuration (implicit or explicit) "assuming, at that point." Theories describe in words a specific model of ideal connections, which are found in the context of causal relationships. The connections are derived from assumptions that prompt vital outcomes. Causality is thus implied. Causality may, in the meantime, be immediate or delayed (Berger & Arthur Asa, 1995; Davis et al, 1981).

A mass communication theory can be defined as an arrangement of statements that describes in a formal way a set of relationships between concepts, measurable by factors referring to characteristics or states of entities involved in the mass communication process (people, groups, establishments, units of content, etc.). Theories describe how forms function under certain circumstances. They will probably anticipate future states on the basis of present conditions. The scope of the “mass communication theory” concept needs to be defined in terms of what is and what is not mass communication, particularly in this time commanded by new types of "socially intervened" correspondence (Casmir & Fred L, 1994; DeFleur & Melvin, 1989).

Mass communication theories

The theories of mass communication states that communication, specifically the media decisively shapes how individuals think, feel, and act and how societies organize themselves and operate.

2.1 AGENDA SETTING THEORY

It was first put forth by Maxwell McCombs and Donald Shaw. They originally suggested that the media sets the public agenda, in the sense that they may not exactly tell you what to think, but they may tell you what to think about. Agenda setting theory explain the solid impacts of the media, the ability reveal to us what issues are important. McCombs and Shaw examined presidential campaigns in 1968, 1972 and 1976. In the research done in 1968 they concentrated on two components: awareness and information. Investigating the agenda-setting function of the mass media, they attempted to survey the connection between what voters in one community said were important issues and the actual content of the media messages utilized during the campaign (McCombs, 2003).

The core Assumptions of Agenda-setting is the formation of public awareness and concern of notable issues by the news media. Two important presumptions underlie most research on agenda-setting: (A) the press and the media do not reflect reality; they channel and shape it; (B) media concentration on a few issues and subjects drives general society to perceive those issues as more important than other issues. One of the most critical aspects in the concept of an agenda-setting role of mass communication is the time frame for this phenomenon. Furthermore, different media have different agenda-setting potential. Agenda-setting theory appears quite appropriate to enable us understand the pervasive role of the media (for instance on political communication systems).

The Statement of Agenda-setting as it expressed stated Bernard Cohen: “The press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about” (Rogers & Dearing, 1988).
Figure 1: Conceptual Model of Agenda-setting: (McQuail & Windahl, 1993)

The Favorite Methods of Agenda setting theory is Content-analysis of media and interviews of audiences. Regarding scope and application, Just as McCombs and Shaw extended their concentration, other researchers have extended examinations of agenda setting to issues including history, advertising, foreign, and medical news (Kleinnijenhuis & Rietberg E.M., 1995; Walgrave & Van Aelst, 2006).

This theory is intended to apply to the news media, although in certain cases it has been applied to other areas of the media and messages which they transmit to audiences (Scheufele, 2000).

2.2 FRAMING THEORY

Core Assumptions of this theory inspire that "media attracts the general population consideration regarding certain subjects, it decides where individuals think about, and the journalists select the topics." The concept of framing is related to the agenda-setting tradition but extend the research by concentrating on the essence of the current issues instead of on a specific theme. The basis of framing theory is that the media focuses consideration on specific events and after that spots them inside a field of importance (Semetko & Valkenburg, 2000).

In news things happens more than just raising certain subjects. The manner in which the news is brought, the frame in which the news is displayed, is also a decision made by journalists. Thus, a frame refers to the way media and media gatekeepers organize and introduce the occasions and issues they cover, and the way audiences interpret what they are given. Frames are abstract ideas that serve to organize or structure social implications. Frames influence
the view of the news of the audience, this form of agenda-setting delineates for what to think, as well as how to consider it.

Framing in organizations is a nature of communication that leads others to acknowledge one significance over another. It is a skill with significant consequences on how organizational individuals understand and react to the world in which they live (Deetz et al, 2000).

Instances of much-used frames include the ‘war on drugs’, or a person’s ‘battle with cancer’, or the ‘cold war’, expresses that evoke generally shared pictures and implications (Fairhurst et al, 1996).

2.3 HYPODERMIC NEEDLE THEORY

The Core Assumptions and Statements of this theory recommends that the mass media could influence an extensive group of people directly and consistently by ‘shooting’ or ‘injecting’ them with appropriate messages intended to trigger a desired response.

The "hypodermic needle theory" Or "Magic Bullet Theory" reflects the direct impact immediate and powerful effect on its audiences by means of mass media.

The two pictures used to express this theory (a bullet and a needle) suggest a powerful and direct stream of data from the sender to the receiver. The bullet theory graphically proposes that the message is a bullet, fired from the "media gun" into the viewer's "head". With similarly emotive imagery the hypodermic needle model demonstrate proposes that media messages are injected straight into a passive audience which is promptly impacted by the message (Berger & Arthur Asa, 1995; Casmir & Fred, 1994).

The example of application of the Magic Bullet Theory was outlined on October 30, 1938 when Orson Welles and the newly formed Mercury Theater group broadcasted their radio edition of H.G. Wells' "War of the Worlds." during the eve of Halloween; radio programming was interrupted with a "news bulletin" for the first time. The audience heard as Martians had begun an invasion of Earth in a place called Grover's Mill, New Jersey. Then it became known as the "Panic Broadcast" and changed broadcast history, civil defense, social psychology, and set a standard for provocative entertainment. 12 million people in the USA heard the broadcast, and about one million of those believed that an alien invasion was underway. A mass hysteria disrupted households, intruded on religious administrations, caused congested driving conditions and clogged communication systems. Individuals fled their city homes to look for protect in more rural areas, raided grocery stores and began to ration food. The country was in a condition of disarray, and this broadcast was the cause of it (Lowery et al, 1983; Severin et al, 1979).

1.4 TWO STEP FLOW THEORY

The two-step flow theory of communication explains influence of the message. This theory attests that information from the media moves in two stages. First, people (opinion leaders) who pay careful consideration to the mass media and its messages receive the information. Opinion leaders pass on their own interpretations in addition to the actual media content. The term 'personal influence’ refers to the process intervening between the media’s direct message and the people's definitive response to that message (Katz & Lazarsfeld, 2003).

Opinion leaders are very persuasive in motivating individuals to change their attitudes and behaviors and are very like those they impact. The two-step flow theory has enhanced our comprehension of how the mass media influence
decision making. The hypothesis refined the capacity to anticipate the influence of media messages on audience behavior, and it clarified why certain media campaigns may have failed to modify audience attitudes and behavior (Mersham et al, 2003).

The application of this theory to all kinds of mass media e.g. TV, radio, internet…etc. (DeFleur et al, 1995).

**Figure 2: Conceptual Model of two-step flow theory**

![Two-step flow theory](image)

**CULTIVATION THEORY**

Cultivation theory states that "high frequency viewers of television are more susceptible to media messages and the belief that they are real and valid. Heavy viewers are exposed to more violence and therefore are affected by the Mean World Syndrome, the belief that the world is a far worse and dangerous place then it actually is" (Miller, 2005).

Cultivation theory originally proposed by Gerbner & Gross, as with the decline of hypodermic needle hypotheses another point of view started to emerge: As indicated by theory. Media impacts happen similarly to the slow buildup of formations on cave floors, which take their interesting structures after ages of the enduring dribbling of limewater from the cave ceilings above. Cultivation theory in its most fundamental form, suggests that television is in charge of for shaping, or ‘cultivating’ viewers’ conceptions of social reality. The combined effect of enormous TV exposure by viewers over time subtly shapes the impression of social reality for people and for our culture as a whole. Cultivation research looks at the mass media as a socializing agent and examines whether television viewers come to trust the TV version of reality the more they watch it (Gerbner & Gross, 1976; Stappers, 1984).

**Figure 3: Conceptual Model of Cultivation theory**

![Cultivation theory](image)
2.6 PRIMING THEORY

Priming refers to improving the impacts of the media by offering the audience a prior context a context that will be utilized to interpret subsequent correspondence. The media serve to give the audience with standards and frames of reference.

Agenda-setting refers fundamentally to the significance of an issue; priming lets us know whether something is great or terrible, regardless of whether it is communicated effectively, etc. The media have made preparations about what a news program resembles, what a credible individual resembles, and so on (Domke et al, 1998; Scheufele 2001).

2.7 DEPENDENCY THEORY

Dependency theory proposes an indispensable relationship among audiences, media and the larger social framework. This hypothesis predicts that you rely upon media information to address certain issues and accomplish certain objectives, like uses-and-gratifications theory. But you do not depend on all media similarly (Ball-Rokeach & DeFleur, 1976).

Two variables influence the level of media dependence. First, you will turn out more dependent on media that address some of your issues than on media that give only a few. The second source of dependency is social stability (Infante et al, 1997; Littlejohn, 1999).

2.8 KNOWLEDGE GAP
The knowledge gap can bring about an expanded gap between individuals of lower and higher socioeconomic status. The attempt to enhance people’s life with data by means of the mass media might not generally work the way this is planned. Mass media may have the effect of increasing the distinction gap between individuals of social classes (Persaud, 2001).

Media presenting information should realize that individuals of higher financial status get their information in a different way than lower educated people. Moreover, this theory of the knowledge gap may help in understanding the increased gap between people of higher socioeconomic status and people of lower socioeconomic status. It can be used in different conditions (Severin & Tankard, 2001; Denny, 2000).

2.9 SPIRAL OF SILENCE

The phrase "spiral of silence" refers to how people have a tendency to stay silent when they feel that their views are in the minority. The model is depends on three premises: 1) individuals have a "quasi-statistical organ," a sixth-sense if you will, which enables them to know the overall public opinion, even without access to polls, 2) individuals have a fear of isolation and know what behaviors will improve their probability of being socially separated, and 3) individuals are hesitant to express their minority views, essentially out of fear of being isolated (Simpson, 1996).

The closer a person believes the opinion held is like to the predominant public opinion, the more they are ready to openly disclose that opinion in public. At that point, if public sentiment changes, the individual will recognize that the opinion is less in favor and will be less willing to express that opinion publicly. As the apparent separation between public opinion and a person's personal opinion grows, the more unlikely the individual is to express their opinion (Noelle-Neumann, 1991).

Figure 4: Conceptual Model of spiral of silence theory
2.10 MEDIA RICHNESS THEORY

Two fundamental assumptions of this hypothesis are: people want to overcome equivocality and uncertainty in organizations and a variety of media usually utilized as a part of organizations work preferable for certain tasks than others (Daft, 1986).

Using four criteria, Daft and Lengel exhibit a media richness hierarchy, arranged from high to low degrees of richness, to outline the capacity of media types to process ambiguous communication in organizations. The criteria are (1) the availability of instant feedback; (2) the capacity of the medium to transmit numerous cues for example body language, voice tone, and inflection; (3) the use of natural language; and (4) the personal focus of the medium. "Face-to-face communication" is the richest communication medium in the system followed by (telephone, electronic mail, letter, note, memo, special report, and finally, flier and bulletin) (Trevino et al, 1987).

1.11 MEDIUM THEORY

Medium theory focuses on the medium attributes itself (like in media richness theory) as opposed to on what it conveys or how information is received. In medium hypothesis, a medium isn't just a newspaper, the Internet, a digital camera and et cetera. Rather, it is the symbolic environment of any communicative act. Media, aside from whatever content is transmitted, affect individuals and society. McLuhan’s theory is that people adjust to their environment through a certain balance or proportion of the senses, and the essential medium of the age draws out a specific sense ratio, thereby influencing perception (McLuhan, 1978; Meyrowitz & Joshua, 1985).

2. CONCLUSION

Mass communication is the process by which a person, group of people, or organization creates a message, and transmits it through some type of medium to a large, anonymous, heterogeneous audience. This reveals that the audience of mass communication usually made up of different cultures, and behavior. Mass communication is regularly associated with media influence or media effects.

Communication researchers have identified several major theories associated with the study of mass communication. Communication theories address the processes and mechanisms that allow communication to take place.

This research essay shows where new traditions could be created and engaging communication theories with practical communication problems in general aspects.

References

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Abstract

This study examines the extent of using financial analysis techniques in stock trading decisions at Amman Stock Exchange (ASE). In addition, this study identifies the limitations and difficulties concerning the use of financial analysis techniques and examining if such limitations and difficulties influence the feasibility and quality of the results obtained by the analysis, therefore, minimize the benefit of using these techniques. In order to achieve these objectives, a questionnaire was designed and distributed to a sample of investment officers in Jordanian corporations, brokerage firms, and investment funds, as well as the individual investors, where the sample size was (209) of individual investors and companies, and the response rate was 85%.

The main results of the study showed that investors at ASE rely on the financial analysis using financial ratios and horizontal analysis in their investing and stock trading decisions, but they don’t rely on vertical analysis, break-even point (BEP) analysis, and financial failure predicting models. The results also indicated that there are statistically significant differences among stock investors who use financial analysis techniques regarding the extent of their reliance on the aggregate of these techniques, and these differences are attributable to the date of establishment (institutional investor), job title, age, educational level, academic qualification, and professional certificate. On the other hand, the results indicated that there are no statistically significant differences among investors who use financial analysis techniques regarding the extent of their reliance on the aggregate of these techniques attributable to the date of their commencement in stocks trading, capital (institutional investor), years of experience in the field of investment, and gender. Also, the results revealed that most of respondents have agreed on the importance of the limitations and difficulties facing them in the use of financial analysis techniques, and that these limitations and difficulties minimize the benefit of using these techniques and influence the feasibility and quality of the results obtained. Finally, the results indicated the presence of statistically significant differences among groups of study sample regarding the limitations and difficulties facing them in the use of financial ratios, horizontal analysis, vertical analysis, and break-even point analysis, and the absence of these differences regarding the limitations and difficulties facing them in the use of financial failure predicting models.

In the light of the earlier findings, the study concluded with a number of recommendations, such as the necessity to investors to rely more on debt ratios and ratios that relate to the statement of cash flows in their stock trading decisions, developing unified standard ratios, and increasing the number of investment funds in Jordan.


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Introduction:
Financial Analysis (FA) is one of the most growing areas in business environment, especially with the appearance of multi-purpose projects, the increase in its volume of transactions, competition, and different activities. Recently, many parties are more interested in FA and the use of its results in evaluating current business, discovering its strengths and weaknesses for a better future growth and success. Jordanian capital markets like in other countries all over the world, suffered from the recent global economic crises and many stockholders suffered from huge losses. This necessitates the need for human skills that possess the ability and know how to manage, protect, and evaluate investments to create a more encouraging and secured business environment.

Importance and Objectives of the Study:
The importance of the study stems from the investors need to use different financial analysis techniques (e.g. financial ratios, vertical and horizontal analysis, BEP, and financial failure predictive models). The objectives of this paper are:
1. To find out whether an investor in Amman Stock Exchange (ASE) relies on financial analysis techniques in making decisions related to buying and selling stocks.
2. To determine whether there are any significant demographic differences among investors in using financial analysis techniques.
3. To see if the limitations and difficulties related to the financial analysis techniques usage might decrease its using or not?
4. To find out whether there are significant differences among groups of the sample study regarding the limitations and difficulties facing them in using financial analysis techniques?

Related Literature:
Baker and Haslem (1973) examined the information needs of individual investors in common stocks in USA and the sources of information used by them in investment decision making. A survey was conducted on a sample of 851 common stock investors in metropolitan Washington, D.C. The results indicated that individual investors use many different factors in the analysis of common stocks, but expectation factors dominate, and that they need more meaningful information than will be provided only by forecasts of sales and earnings. The results also indicated that individual investors are very dependent upon stockbrokers and advisory services for their investment information and attach minor importance to financial statements as a source of information.
Aleisa (1991) investigated the usefulness of accounting reports to investors in Amman Stock Exchange Market. He conducted a survey on a study sample consisted of 33 brokers, brokerage firms and individual investors. The results of the study indicated that respondents view annual accounting reports as an important source of information for their investment decisions and that there is a consensus among respondents on the inadequacy of the current reporting practice in Jordan.
Edum-Fotwe et al. (1996) reviewed financial ratio tools for predicting contractor insolvency in United Kingdom. They highlighted three main methodologies of applying the financial ratios for evaluation of construction companies’ corporate performance and identifying potential insolvent contractors. These methodologies comprise traditional approaches, subjective index, and ratio models. They concluded that there can be a little doubt about the usefulness of financial ratios as a management evaluation tool for the construction industry and that they serve as early warning systems by indicating whether an organization is in good financial standing or exhibits characteristics of already failed companies. They suggested some approaches to improve the efficiency of these methodologies.
They suggested that a standardized subjective index and transformed ratio models are considered as alternatives that can produce improved evaluation of corporate entities.

Hatef and Zubaidi (2000) investigated the effect of accounting information on the investors' decision in Baghdad Stock exchange. They conducted a survey on a sample of 46 individual investors in Baghdad Stock exchange to determine the extent to which the investors rely on such information in making investment decisions in companies' shares. The results indicated that individual investors understand the accounting information and realize its importance regardless of other non-financial information sources that might affect their decisions, especially stock advisory, market lists, magazines and advertisement and that the individual investors seem to use the accounting information less than other sources of information.

Feng and Wang (2001) developed a performance evaluation model for highway bus industries with the consideration of transport indicators, financial ratios, and mix indicators. This model was then applied to the case study for the evaluation of 4 bus companies in Taipei region in Taiwan. Based on the cycle of operation activities, they classified evaluation indicators into: production, marketing, and execution. The results revealed that transport indicators or financial ratios can't alone measure all performance aspects of highway bus companies and that the performance evaluation could become more comprehensive if financial ratios are considered.

Graham et al. (2002) surveyed 34 financial analysts listed in the New York city area across 18 industries to address their use of financial information and their determination of earnings' quality in order to provide managers with some guidance as to the specific information analysts believe contributes most to high quality earnings. They found that financial analysts rely primarily on financial statement analysis in evaluating companies reported financial results, while technical analysis, the capital assets pricing model, and other methods are used much less. They found also that among various sources of financial information, the analysts primarily rely on firms' income statements, balance sheets, and cash flow statements in assessing firms' financial health. In evaluating firms and assessing the quality of firms' earnings, they found that analysts rely primarily on adjusted earnings figures, line of business data, reported cash flows, and the use of accounting conservatism.

Singh and Schmidgall (2002) identified commonly used ratios in the US lodging industry to discover their importance level for lodging financial executives. They surveyed 81 lodging financial executives about the importance they attach to 36 commonly used financial ratios. This study also examined the importance ranking across different hotel operating and ownership structures. The results showed that operating and profitability ratios clearly stand out as the most important ratios for lodging managers, and that the 10 most important ratios for financial executives consisted from 8 operating ratios, 1 activity ratio, and 1 profitability ratio.

Back (2005) developed three different models using multinomial logistic regression. These models on the one hand are based on a combination of non-financial variables and financial ratios, and on the other hand, on non-financial variables and financial ratios separately. The purpose was to explain differences between healthy firms and firms with financial difficulties in small and medium sized firms based on management background variables, previous payment pattern variables and financial ratios. He divided the firms with financial difficulties into four categories: bankrupt firms, reorganized firms, firms with recorded payment disturbances and firms with payment delays. The classification ability of the estimated models was tested on a holdout sample in order to demonstrate possible differences between the models. The study sample consisted of 3,199 Finnish firms. The results showed that the model based on non-financial variables classified firms slightly better than the financial ratio model, especially when classifying bankrupt firms and firms with payment delays, and the non-financial models classified reorganized firms and firms with payment disturbances as good, as did the financial ratio model and the combined model. The results also showed that the best overall classification was achieved using the model combining financial ratios and non-financial variables.
Using a hazard model, Beaver et al. (2005) examined secular changes in the ability of financial statement data to predict bankruptcy from 1962 to 2002. They examined the predictive ability through time for financial ratios, market-related variables and combined model of financial ratios and market-related variables. The sample consisted of 544 bankrupt firms and 4,237 non-bankrupt firms in USA. The results showed that the robustness of the predictive models is strong over a forty-year period, showing only slight changes, and that the slight decline in the predictive ability of the financial ratios is offset by improvement in the incremental predictive ability of market-related variables. The results also showed that when the financial ratios and market-related variables are combined, the decline in predictive ability appears to be very small.

Alrawi and Naji (2005) examined the use of financial ratios in the process of decision making at the administration level in all the 90 industrial corporations listed on Amman Stock Exchange Market (ASEM) in 2005. The results of their study indicated the high awareness of the individuals in these companies to the importance of using financial ratios in decision making process, although most industrial companies in which those individuals work do not use it and depend on management assessments and speculations. Moreover, findings revealed that individuals (general managers, financial managers, and accountants) possess a good knowledge in using and dealing with financial analysis techniques.

Cheng (2006) applied principal component analysis to investigate the effects of fundamental financial ratios on returns of initial public offerings (IPOs) in a sample of 99 listed electronics companies in the Taiwan Stock Exchange over the 10-year period between 1994 and 2003. He used the correlation between financial ratios and returns of IPOs as norms to assess whether the formula for calculating IPOs stock prices is valid. The results showed that the eight selected financial ratios, including liquid ratio and cash flow ratio are decisive factors that influence returns from IPOs and need to be taken into account by managers and prospective investors in their decision making. Zyood et al. (2007) investigated the available financial information in the market to serve current and prospective investors in making investments decisions in the securities market. In summary, findings showed that availability of financial reports and the shorter the period it covers, the more effective and realistic it would be to meet the expectations of investors about company’s performance which would make investor’s decisions more rational and realistic. They found out that the most important sources of information were monthly reports published in magazines and newspapers, yearly financial reports published by ASEM and the General Purpose Financial Statements that encompasses Auditor’s report. The latter was the most acceptable one by the investors subject of the study.

**Research Methodology:**
The researchers surveyed all parties involved in portfolio trading decisions and found that population of the study is composed of listed corporations, brokerage firms, investment funds, and individual investors. Availability of portfolio is a condition that must be met before a sample to be taken from any of the sectors population of the study. Therefore, a stratified random study sample was selected in the following manner:

1. **Listed Corporations:** Jordanian corporations listed on Amman Stock Exchange Market (ASEM) were 256 firms, classified into 3 main sectors and 23 minor sectors (www.ase.com.jo, 31/07/2008). A simple random sample of 40% (101 corporations) was drawn using table of random numbers within a sampling frame after excluding papers and Cartoon industry sector which is composed of 5 firms with no portfolio trading. A questionnaire was distributed to the sample and 95 were retrieved with a response rate of 94%.

2. **Brokerage firms** licensed according to the type of license "Dealer", that is, they are engaged in the business of buying and selling securities directly for their own account through the Market. The number of those companies was 56 as was reported by the Jordanian Securities Commission (JSC) on July 31, 2008. A study sample of 50% was selected which resulted in 24 out of 48 firms as sample size for this category. This is after excluding
8 corporations which were already selected in the first sample from the listed corporations. The questionnaire response rate was 96%.

3. Investment Funds registered at the Jordan Securities Commission (JSC) records were all selected due to the fact that they were only 4 Funds and it was easy and convenient to distribute one questionnaire to each one of them, therefore the response rate was 100%.

4. Individual Investors: The population of individual investors was 530717 based on the annual report of Securities Depository Center (SDC) published in 2007. Since the trading became electronic, and in cooperation with 3 brokerage firms among the top ten companies, it was estimated that the number of daily individual investors is about 200, and due to the fact that the population of the individual investors is homogeneous in dealing with the stock market, the researchers took a group of 80 individuals for one day which represents 40% of one day traders. A systematic random sample was selected with (200/80=2.5) sampling interval, which resulted in selecting 2 investors among each 5. Consequently, the first and the third from each 5 individuals came on that day were selected and given a questionnaire to answer. 67 questionnaires were retrieved, 11 of them were cancelled, which made the response rate equivalent to 70%.

Sample Profile:
At the outset of the questionnaire, each respondent was asked to provide his personal details to be able to determine respondent’s profile. Information about the date of establishment showed that majority of the subject firms (65.6%) were established after 1990 which indicates that most of the firms subject of the study are relatively new in business. This is supported by (88.8%) of the subject firms (in addition to Individuals) started investments in portfolio after 1990.

The results revealed that large capital is concentrated in corporations with range from 10-20 million Jordanian Dinars (JDs) which represents (31.6%) of the subject firms. The capital of (56.9%) of these corporations is more than 10 million. This might give those corporations more opportunities in portfolio investments with larger amounts of funds when compared with brokerage firms and investment funds.

The results showed that (75%) of the respondents in investment funds holding positions either finance manager, administrative manager, or investment manager. This is followed by (47.9%) in brokerage firms holding broker position, then (46.3%) were in corporations holding positions either finance manager, administrative manager, or investment manager. Finally, (37.5%) of individual investors were working in trade and business. In general, this indicates that the majority of the study sample working in good positions which qualify them to answer the questionnaire of the study.

Majority of respondents were aged from 20 to 50 years old. In the brokerage firms and investment funds, age of respondents between 20 to less than 30 years was (43.5%) and (75%) respectively. In corporations, the respondents’ age category from 30 to less than 40 years old was (42.1%). The age of individual investors from 40 to less than 50 years old was (42.9%). Moreover, majority of respondents (72.5%) held a Bachelor degree and (16.3%) held master degree. (55.1%) of the respondents held a degree in Accounting, followed by (10.7%) in Finance. This might show that the sample of this study represented qualified and capable persons who were able to answer the questionnaire of the study, aware of its importance, and have studied new concepts and techniques of financial analysis in their universities. However, the results showed that majority of respondents (78.7%) do not possess professional certificates, which might designate that respondents of this study are not interested in getting professional certificates or it is difficult for them to get any of them either due to the shortage of time or other reasons.

Finally, majority of respondents (65.2%) had more than 5 years experience in investments. This reached (72.7%) in corporations which had the highest number of respondents. Table 1 presents the sample profile of respondents.
<table>
<thead>
<tr>
<th>Establishment Date</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Before 1960</td>
<td>4</td>
<td>4.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>From 1960 - 1969</td>
<td>8</td>
<td>8.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>From 1970 - 1979</td>
<td>10</td>
<td>10.5</td>
<td>1</td>
<td>4.4</td>
<td>0</td>
</tr>
<tr>
<td>From 1980 - 1989</td>
<td>17</td>
<td>17.9</td>
<td>2</td>
<td>8.7</td>
<td>0</td>
</tr>
<tr>
<td>From 1990 - 1999</td>
<td>39</td>
<td>41.1</td>
<td>1</td>
<td>4.3</td>
<td>1</td>
</tr>
<tr>
<td>&gt;= 2000</td>
<td>17</td>
<td>17.9</td>
<td>19</td>
<td>82.6</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Starting Date in Portfolio Investment</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>From 1970 - 1979</td>
<td>6</td>
<td>6.3</td>
<td>1</td>
<td>4.3</td>
<td>0</td>
</tr>
<tr>
<td>From 1980 - 1989</td>
<td>10</td>
<td>10.5</td>
<td>2</td>
<td>8.7</td>
<td>0</td>
</tr>
<tr>
<td>From 1990 - 1999</td>
<td>34</td>
<td>35.8</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>&gt;= 2000</td>
<td>45</td>
<td>47.4</td>
<td>20</td>
<td>87</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Capital</td>
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<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Less than 5 Million JDs</td>
<td>19</td>
<td>20.0</td>
<td>16</td>
<td>69.6</td>
<td>2</td>
</tr>
<tr>
<td>5 and &lt; 10 Million JDs</td>
<td>22</td>
<td>23.1</td>
<td>5</td>
<td>21.8</td>
<td>1</td>
</tr>
<tr>
<td>10 and &lt; 20 Millions JDs</td>
<td>30</td>
<td>31.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20 and &lt; 30 Million JDs</td>
<td>9</td>
<td>9.5</td>
<td>1</td>
<td>4.3</td>
<td>1</td>
</tr>
<tr>
<td>30 and &lt; 40 Million JDs.</td>
<td>3</td>
<td>3.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40 and &lt; 50 Million JDs</td>
<td>2</td>
<td>2.1</td>
<td>1</td>
<td>4.3</td>
<td>0</td>
</tr>
<tr>
<td>&gt;=50 Million</td>
<td>10</td>
<td>10.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Job Title</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Finance, Administrative, Investment Manager</td>
<td>44</td>
<td>46.3</td>
<td>7</td>
<td>30.4</td>
<td>3</td>
</tr>
<tr>
<td>Accountant, Financial Analyst, Internal Auditor</td>
<td>32</td>
<td>33.6</td>
<td>2</td>
<td>8.7</td>
<td>0</td>
</tr>
<tr>
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</tr>
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<td>4.3</td>
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<tr>
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<tr>
<td><strong>Total</strong></td>
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<td>100</td>
<td>23</td>
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<td>4</td>
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<td>Gender</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
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<td>94.7</td>
<td>21</td>
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<td><strong>Total</strong></td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Age</td>
<td>Corporations</td>
<td>Brokerage Firms</td>
<td>Investment Funds</td>
<td>Individual Inventors</td>
<td>Whole Sample</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>----------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>20 and &lt; 30 Years Old</td>
<td>21</td>
<td>22.1</td>
<td>10</td>
<td>43.5</td>
<td>3</td>
</tr>
<tr>
<td>30 and &lt; 40 Years Old</td>
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<td>42.1</td>
<td>9</td>
<td>39.1</td>
<td>1</td>
</tr>
<tr>
<td>40 and &lt; 50 Years Old</td>
<td>18</td>
<td>18.9</td>
<td>4</td>
<td>17.4</td>
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<tr>
<td>&gt;= 50 Years Old</td>
<td>16</td>
<td>16.9</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
</tr>
</tbody>
</table>

| Educational level    | No.          | %               | No.              | %                    | No.          | %            |
|----------------------|--------------|-----------------|------------------|----------------------|--------------|
| Bachelor Degree      | 71           | 74.7            | 20               | 87                   | 3            | 75           | 35            | 62.5                 | 129          | 72.5        |
| Master Degree        | 17           | 17.8            | 2                | 8.7                  | 1            | 25           | 9             | 16.1                 | 29           | 16.3        |
| Diploma              | 5            | 5.3             | 0                | 0                    | 0            | 0            | 7             | 12.5                 | 12           | 6.7         |
| Secondary School Certificate | 1 | 1.1 | 0 | 0 | 0 | 0 | 3 | 5.3 | 4 | 2.2 |
| High Diploma         | 0            | 0               | 1                | 4.3                  | 0            | 0            | 2             | 3.6                  | 3            | 1.7         |
| PHD                  | 1            | 1.1             | 0                | 0                    | 0            | 0            | 0             | 0                    | 1            | 0.6         |
| Total                | 95           | 100             | 23               | 100                  | 4            | 100          | 56            | 100                  | 178          | 100         |

| Specialization       | No.          | %               | No.              | %                    | No.          | %            |
|----------------------|--------------|-----------------|------------------|----------------------|--------------|
| Accounting           | 71           | 74.7            | 14               | 60.9                 | 1            | 25           | 12            | 21.4                 | 98           | 55.1        |
| Finance              | 12           | 12.6            | 6                | 26.1                 | 0            | 0            | 1             | 1.8                  | 19           | 10.7        |
| Business Administration | 4          | 4.2             | 2                | 8.7                  | 2            | 50           | 5             | 8.9                  | 13           | 7.3         |
| Economics            | 3            | 3.2             | 0                | 0                    | 1            | 25           | 3             | 5.4                  | 7            | 3.9         |
| Public Administration| 0            | 0               | 0                | 0                    | 0            | 0            | 4             | 7.1                  | 4            | 2.2         |
| Others               | 4            | 4.2             | 1                | 4.3                  | 0            | 0            | 29            | 51.8                 | 34           | 19.1        |
| Without              | 1            | 1.1             | 0                | 0                    | 0            | 0            | 2             | 3.6                  | 3            | 1.7         |
| Total                | 95           | 100             | 23               | 100                  | 4            | 100          | 56            | 100                  | 178          | 100         |

<table>
<thead>
<tr>
<th>Professional Certificate</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
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<td>10.5</td>
<td>2</td>
<td>8.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>6.7</td>
</tr>
<tr>
<td>CMA</td>
<td>7</td>
<td>7.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.8</td>
<td>8</td>
<td>4.5</td>
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<tr>
<td>CPA</td>
<td>7</td>
<td>7.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>3.9</td>
</tr>
<tr>
<td>ACPA</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Others (CFA, CICA, CCS,…)</td>
<td>4</td>
<td>4.2</td>
<td>3</td>
<td>13</td>
<td>1</td>
<td>25</td>
<td>1</td>
<td>1.8</td>
<td>9</td>
<td>5.1</td>
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<tr>
<td>Without</td>
<td>65</td>
<td>68.4</td>
<td>18</td>
<td>78.3</td>
<td>3</td>
<td>75</td>
<td>54</td>
<td>96.4</td>
<td>140</td>
<td>78.7</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
<td>100</td>
<td>56</td>
<td>100</td>
<td>178</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of experience in investment</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 Years</td>
<td>26</td>
<td>27.3</td>
<td>13</td>
<td>56.5</td>
<td>2</td>
<td>50</td>
<td>21</td>
<td>37.5</td>
<td>62</td>
<td>34.8</td>
</tr>
<tr>
<td>5 and &lt; 10 Years</td>
<td>30</td>
<td>31.6</td>
<td>3</td>
<td>13</td>
<td>1</td>
<td>25</td>
<td>21</td>
<td>37.5</td>
<td>55</td>
<td>30.9</td>
</tr>
<tr>
<td>10 and &lt; 15 Years</td>
<td>13</td>
<td>13.7</td>
<td>4</td>
<td>17.4</td>
<td>1</td>
<td>25</td>
<td>9</td>
<td>16.1</td>
<td>27</td>
<td>15.2</td>
</tr>
<tr>
<td>&gt;= 15 Years</td>
<td>26</td>
<td>27.4</td>
<td>3</td>
<td>13.1</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>8.9</td>
<td>34</td>
<td>19.1</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
<td>100</td>
<td>56</td>
<td>100</td>
<td>178</td>
<td>100</td>
</tr>
</tbody>
</table>
Empirical Results:
The discussion and analysis of the results of this study summarizes the mean responses of the respondents based on five point Likert scale ranging from 5 (indicating highly important, or highly used) to 1 (indicating unimportant, or not used).

Table 2 shows the importance of sources of information used by the investors sample of the study to determine companies’ performance and in deciding whether to buy or sell stocks. Positive sample trends with an average of > 3.5 could be observed toward items 1, 2, 3, and 4 in table no. 2. This reveals “highly important” sources of information according to the sample of the study. The trends toward the remaining items were moderate with an average from 2.5 to < 3.5.

The most important source of information for respondents is given to the annual reports with an average of 4.47 which indicates “high importance” of such reports as a source of information in stock investment decisions. This is followed by “experience in previous years” with an average of 4.39 which indicates that investors are keen on their experience and previous trials in making investment decisions. The third ranked source of information is “periodicals” issued by ASE with an average of 4.04, which might be due to the reliability of such reports, given that it is issued by a governmental body that tries to establish a base for fair trading and in protecting traders in the Stock Exchange Market.

Table 3 reveals that investors depend on more than one party for financial analysis purposes. All investment funds and most of brokerage firms have their own department; other brokerage firms depend mostly on their finance manager and other parties to make the analysis. Corporations depend on various bodies, 32.7% have their own department, 32.6% depend on their finance manager, 29.5% get assistance of a brokerage firm, 11.5% depend on many other parties, and 9.6% depend on a specialist or a financial analyst. Moreover, table 3 shows that majority of individual investors (67.9%) depend on brokerage firms and 30.4% depend on financial analyst. This might indicate that most individual investors do not possess the necessary skills and knowledge of how to make financial analysis.

Table 2: Sources of information used by stock investors

<table>
<thead>
<tr>
<th>No.</th>
<th>Source of Information</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Investors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Annual Reports</td>
<td>4.52</td>
<td>0.67</td>
<td>4.70</td>
<td>0.56</td>
<td>5.00</td>
</tr>
<tr>
<td>2</td>
<td>Experience in previous years</td>
<td>4.38</td>
<td>0.67</td>
<td>4.57</td>
<td>0.51</td>
<td>4.25</td>
</tr>
<tr>
<td>3</td>
<td>Periodicals issued by ASE</td>
<td>4.05</td>
<td>0.86</td>
<td>4.30</td>
<td>0.47</td>
<td>3.75</td>
</tr>
<tr>
<td>4</td>
<td>Financial Analysis &amp; Advisory services</td>
<td>3.74</td>
<td>1.01</td>
<td>3.48</td>
<td>0.79</td>
<td>2.50</td>
</tr>
<tr>
<td>5</td>
<td>Newspapers &amp; Magazines</td>
<td>3.38</td>
<td>1.06</td>
<td>4.09</td>
<td>1.00</td>
<td>3.00</td>
</tr>
<tr>
<td>6</td>
<td>Direct contact with Company’s admin.</td>
<td>3.53</td>
<td>1.04</td>
<td>3.91</td>
<td>1.12</td>
<td>4.25</td>
</tr>
<tr>
<td>7</td>
<td>TV Channels &amp; Programs</td>
<td>2.60</td>
<td>1.10</td>
<td>3.52</td>
<td>1.08</td>
<td>2.25</td>
</tr>
<tr>
<td>8</td>
<td>Auditing Offices</td>
<td>3.44</td>
<td>1.15</td>
<td>3.43</td>
<td>1.20</td>
<td>3.25</td>
</tr>
<tr>
<td>9</td>
<td>Rumors</td>
<td>2.68</td>
<td>1.30</td>
<td>3.57</td>
<td>1.41</td>
<td>2.00</td>
</tr>
<tr>
<td>10</td>
<td>Internet sites &amp; forums</td>
<td>2.67</td>
<td>1.18</td>
<td>3.26</td>
<td>1.05</td>
<td>2.50</td>
</tr>
<tr>
<td>11</td>
<td>Friends &amp; Personal relationships</td>
<td>-</td>
<td>-</td>
<td>4.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Other sources</td>
<td>5.00</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table no. 3

Parties which stock investors rely on to carry out the task of financial analysis

<table>
<thead>
<tr>
<th>No.</th>
<th>Party</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Investors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1</td>
<td>Own Department</td>
<td>28</td>
<td>29.5</td>
<td>13</td>
<td>56.5</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Finance Manager</td>
<td>22</td>
<td>23.1</td>
<td>6</td>
<td>26.1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Specialist or Financial Analyst</td>
<td>2</td>
<td>2.1</td>
<td>1</td>
<td>4.4</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Assistance of brokerage firms</td>
<td>17</td>
<td>17.9</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Other parties</td>
<td>11</td>
<td>11.5</td>
<td>2</td>
<td>8.7</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>1 &amp; 3</td>
<td>1</td>
<td>1.1</td>
<td>1</td>
<td>4.3</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>1 &amp; 4</td>
<td>2</td>
<td>2.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>2 &amp; 3</td>
<td>3</td>
<td>3.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>2 &amp; 4</td>
<td>6</td>
<td>6.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>3 &amp; 4</td>
<td>3</td>
<td>3.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>95</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>4</td>
</tr>
</tbody>
</table>

Table no. 4 summarizes the usage extent of financial analysis techniques and other means by stock investors subject of this study. It could be observed that ratio analysis received “highly important” rank and is the most common technique used by the whole population with an average of 3.8 for their responses. Institutional investors are the highest users of ratio analysis with an average of 4.5, 4.3, and 4.17 for the investment funds, brokerage firms, and corporations respectively. Technical analysis is ranked as the second highly important technique used by the population of the study with an average of 3.65.

The usage of horizontal analysis, vertical analysis, and BEP are moderately ranked by the respondents with an average of 3.32, 2.93, and 2.54 respectively. Capital Assets Pricing Model (CAPM) and Models of forecasting financial failures received an unimportant ranking or little use by respondents with an average of 2.42 and 1.84 respectively. This result regarding the usage of forecasting financial failures Models is consistent with (Matar, 2003) findings as it may indicate the difficulty in using or applying such models by the respondents.

However, it is observed from table 4 that there is a consensus among all groups on the extent of their use of financial analysis techniques and other means except for individuals who rely on technical analysis greater than financial ratios, that is logical as most individuals lack the skill and experience in how to calculate financial ratios, and they rely extensively on brokerage firms and financial experts in addition to technical analysis in their investment decisions.

Table no. 4

The usage extent of financial analysis techniques and other means by stock investors

<table>
<thead>
<tr>
<th>No.</th>
<th>Financial Analysis Technique &amp; Other means</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Ratio Analysis</td>
<td>4.17</td>
<td>0.82</td>
<td>4.30</td>
<td>0.70</td>
<td>4.50</td>
</tr>
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<td>2</td>
<td>Technical Analysis</td>
<td>3.72</td>
<td>0.91</td>
<td>3.91</td>
<td>0.79</td>
<td>4.50</td>
</tr>
<tr>
<td>3</td>
<td>Horizontal Analysis</td>
<td>3.71</td>
<td>1.03</td>
<td>3.52</td>
<td>0.85</td>
<td>3.75</td>
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<td>Vertical Analysis</td>
<td>3.36</td>
<td>1.17</td>
<td>3.13</td>
<td>1.01</td>
<td>3.50</td>
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<td>5</td>
<td>BEP Analysis</td>
<td>2.91</td>
<td>1.28</td>
<td>2.78</td>
<td>1.20</td>
<td>2.25</td>
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<tr>
<td>6</td>
<td>Capital Assets Pricing Model</td>
<td>2.83</td>
<td>1.28</td>
<td>2.65</td>
<td>1.23</td>
<td>2.75</td>
</tr>
<tr>
<td>7</td>
<td>Financial Failure predicting Models</td>
<td>2.12</td>
<td>1.41</td>
<td>2.26</td>
<td>1.29</td>
<td>1.50</td>
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</table>
Table 5 summarizes the most common 10 ratios used by whole sample of stock investors in a descending order. Earnings per share (EPS), Price Earnings Ratio (PE), and Return on Investment (ROI) receive the highest ranks out of 10 ratios used, with an average of 4.10, 4.07, and 4.05 respectively.

Table no. 5  
The most common 10 ratios used by whole sample of stock investors

<table>
<thead>
<tr>
<th>No.</th>
<th>Financial Ratio</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Earning per share</td>
<td>4.10</td>
<td>1.09</td>
</tr>
<tr>
<td>2</td>
<td>Price earnings ratio</td>
<td>4.07</td>
<td>1.08</td>
</tr>
<tr>
<td>3</td>
<td>Return on investment</td>
<td>4.05</td>
<td>1.08</td>
</tr>
<tr>
<td>4</td>
<td>Dividend Payout</td>
<td>3.99</td>
<td>1.08</td>
</tr>
<tr>
<td>5</td>
<td>Net Profit Margin</td>
<td>3.90</td>
<td>1.09</td>
</tr>
<tr>
<td>6</td>
<td>Dividends per share</td>
<td>3.85</td>
<td>1.11</td>
</tr>
<tr>
<td>7</td>
<td>Current ratio</td>
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<td>8</td>
<td>Dividend yield</td>
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<td>1.21</td>
</tr>
<tr>
<td>9</td>
<td>Operating income margin</td>
<td>3.69</td>
<td>1.14</td>
</tr>
<tr>
<td>10</td>
<td>Debt ratio</td>
<td>3.68</td>
<td>1.29</td>
</tr>
</tbody>
</table>

When ratios are classified into groups used by stock investors of the study, as shown in Table 6, generally investment ratios with an average of 3.7 are the most commonly used ratios by all respondents except for brokerage firms that use debt ratios more. This reveals high importance of these ratios for them as it measures the ability of a company to pay its long-term obligations when they are due.

Profitability ratios come in the second rank for the whole sample study with an average of 3.43 except for corporations and brokerage firms in which liquidity ratios receive the second rank. This might show that brokerage firms are more effective in using ratios which is consistent with (Lutfi, 2006) findings because a company might generate profit but it might not own enough liquidity to pay its short and long-term obligations.

Debt ratios is the third ranked group of ratios for the whole sample as it receives a highly important level with an average of 3.35, except for brokerage firms in which investment ratios receive the 3rd rank. Liquidating ratios receive the 4th rank except for corporations and brokerage firms. Finally, Statement of Cash Flows(SCF) ratios receive the 5th rank of the sample study, except for investment funds.

Table no. 6  
The usage extent of financial ratios groups by stock investors

<table>
<thead>
<tr>
<th>No.</th>
<th>Financial Ratios Group</th>
<th>Corporations Mean</th>
<th>Brokerage Firms Mean</th>
<th>Investment Funds Mean</th>
<th>Individual Inventors Mean</th>
<th>Whole Sample Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td>Investment ratios</td>
<td>4.05</td>
<td>0.69</td>
<td>3.84</td>
<td>0.67</td>
<td>4.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Profitability ratios</td>
<td>3.78</td>
<td>0.72</td>
<td>3.65</td>
<td>0.79</td>
<td>4.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Debt ratios</td>
<td>3.78</td>
<td>0.97</td>
<td>4.13</td>
<td>0.62</td>
<td>3.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Liquidity ratios</td>
<td>3.81</td>
<td>0.77</td>
<td>3.95</td>
<td>0.76</td>
<td>3.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Statement of cash flow ratios</td>
<td>3.28</td>
<td>1.18</td>
<td>3.38</td>
<td>1.01</td>
<td>4.00</td>
</tr>
</tbody>
</table>

While the results do not reveal much difference in the importance of the models of forecasting financial failures as all respondents ranked its usage very low with averages ranges from 1 to 2.30. This is depicted in table 7, it could be observed that Altman Model is the most commonly used model by all respondents, followed by Beaver Model,
then Campisi Model. This might be due to the fact that Altman Model is well known and probably more accurate and this result supports the result discussed in table 4 where brokerage firms are found to be more capable of using such models and have the skills and know-how to apply it beside the fact that they have their own departments in charge of financial analysis.

Table no.7

The most common 7 models of forecasting financial failure used by stock investors

<table>
<thead>
<tr>
<th>No.</th>
<th>Model of forecasting financial failure</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Altman Model</td>
<td>2.03</td>
<td>1.38</td>
<td>2.30</td>
<td>1.43</td>
<td>1.25</td>
</tr>
<tr>
<td>2</td>
<td>Beaver Model</td>
<td>1.72</td>
<td>1.18</td>
<td>1.74</td>
<td>1.18</td>
<td>1.00</td>
</tr>
<tr>
<td>3</td>
<td>Campisi Model</td>
<td>1.65</td>
<td>1.08</td>
<td>1.57</td>
<td>1.12</td>
<td>1.75</td>
</tr>
<tr>
<td>4</td>
<td>Casey Model</td>
<td>1.64</td>
<td>1.10</td>
<td>1.61</td>
<td>1.27</td>
<td>1.75</td>
</tr>
<tr>
<td>5</td>
<td>Wilcox Model</td>
<td>1.63</td>
<td>1.08</td>
<td>1.48</td>
<td>0.95</td>
<td>1.00</td>
</tr>
<tr>
<td>6</td>
<td>Moyer Model</td>
<td>1.52</td>
<td>0.99</td>
<td>1.74</td>
<td>1.32</td>
<td>1.00</td>
</tr>
<tr>
<td>7</td>
<td>Shirata Model</td>
<td>1.57</td>
<td>1.07</td>
<td>1.57</td>
<td>0.99</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 8 shows the limitations and difficulties of using financial ratios based on the opinion of all respondents. Unavailability of a unified standard in calculating financial ratios is ranked by respondents as the most important obstacle facing them in calculating financial ratios and interpreting its results. This is followed by inflation, different accounting treatments, and misleading indicators with averages of 3.9, 3.8, and 3.65 respectively. Those obstacles affect financial ratios effectiveness, inflation for example affects depreciation and inventory which will be reflected on profits. Moreover, it is difficult to generalize whether a particular ratio is good or bad which necessitates careful interpretation and judgment of results when using trend analysis or benchmarking (comparisons with other competitors in the same industry) (Brigham and Ehrhardt, 2005). Differences in accounting treatment between companies in the same industry makes ratio analysis more difficult, which forces investors to compare ratios with previous years for the same company more than comparing ratios of that company with its competitors in the industry.

Table no. 8

Limitations and difficulties and their impact on quality and benefits of financial ratios results

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitations and Difficulties</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Unavailability of unified standard for calculation</td>
<td>3.98</td>
<td>1.02</td>
<td>4.13</td>
<td>1.01</td>
<td>3.50</td>
</tr>
<tr>
<td>2</td>
<td>Inflation</td>
<td>3.89</td>
<td>0.99</td>
<td>4.17</td>
<td>0.78</td>
<td>4.25</td>
</tr>
<tr>
<td>3</td>
<td>Different accounting treatments</td>
<td>3.87</td>
<td>0.99</td>
<td>3.83</td>
<td>1.15</td>
<td>4.25</td>
</tr>
<tr>
<td>4</td>
<td>Misleading indicators</td>
<td>3.61</td>
<td>1.04</td>
<td>3.83</td>
<td>0.83</td>
<td>3.75</td>
</tr>
<tr>
<td>5</td>
<td>Employing window dressing techniques by some firms</td>
<td>3.49</td>
<td>1.10</td>
<td>3.78</td>
<td>0.95</td>
<td>3.00</td>
</tr>
<tr>
<td>6</td>
<td>Reflecting past performance</td>
<td>3.62</td>
<td>1.01</td>
<td>3.96</td>
<td>0.88</td>
<td>3.75</td>
</tr>
<tr>
<td>7</td>
<td>Lack of financial ratios to homogeneity</td>
<td>3.49</td>
<td>0.97</td>
<td>3.96</td>
<td>0.56</td>
<td>3.75</td>
</tr>
</tbody>
</table>
Table 9 reveals difficulties encountering respondents in using horizontal analysis. There is a consensus agreement between respondents in ranking the importance of such difficulties. The most important difficulty is the distortion of an analysis that might result if inappropriate base year is selected as this difficulty received an average of 3.88, which means that investors must be aware of base year selection, and they must use a normal year that does not include abnormal conditions to make reasonable comparisons. The second ranked difficulty with an average of 3.79 is the problem of using year to year change in percentage analysis that might lead to extreme values if some values are very low or very high in the base year. Finally, the third most important difficulty is the problem of having negative values in the base year which makes computation of percent change meaningless.

Table no. 9

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitations and Difficulties</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Distortion of analysis results</td>
<td>3.96</td>
<td>0.85</td>
<td>4.09</td>
<td>0.73</td>
<td>3.50</td>
</tr>
<tr>
<td>2</td>
<td>Leading to extreme values</td>
<td>3.92</td>
<td>0.77</td>
<td>3.87</td>
<td>0.69</td>
<td>3.50</td>
</tr>
<tr>
<td>3</td>
<td>Having negative values in the base year</td>
<td>3.26</td>
<td>1.09</td>
<td>3.70</td>
<td>0.93</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Table 10 shows the two difficulties encountering respondents in using vertical analysis which reveals again that all respondents - except investment funds - agree in ranking these two difficulties. Ignoring the change in the designated base in vertical analysis receives high important level with an average of 3.64 and depending on absolute figures to be converted into ratios which may lead to misleading results is the second highest difficulty with an average of 3.47. Therefore, investors must be very careful when determining the designated base and must compare it with previous periods, and they must be very careful in dealing with absolute numbers because it amplifies comparison difficulty.
Table no. 10
Limitations and difficulties and their impact on quality and benefit of vertical analysis results

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitations and Difficulties</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Ignoring the change in the designated base</td>
<td>3.81</td>
<td>0.96</td>
<td>3.91</td>
<td>0.90</td>
<td>3.00</td>
</tr>
<tr>
<td>2</td>
<td>Depending on absolute figures to be converted into ratios may lead to misleading results</td>
<td>3.64</td>
<td>0.98</td>
<td>3.83</td>
<td>0.98</td>
<td>3.50</td>
</tr>
</tbody>
</table>

Difficulties in Using BEP are summarized in table 11 which shows that study sample ranked with an average of 3.67 the problem of dependence the BEP analysis on assumptions which are considered incorrect as the most important difficulty that faces them in using BEP and therefore, they get unrealistic results. The second difficulty with an average of 3.57 is unavailability of clear approach in classifying most expenses as either fixed or variable expenses. These two difficulties might be the main reasons that justify why BEP receives an overall low score by the respondents of this study after financial failure predicting models.

Table no. 11
Limitations and difficulties and their impact on quality and benefit of BEP analysis results

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitations and Difficulties</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Dependence of break-even analysis on incorrect assumptions</td>
<td>3.85</td>
<td>0.82</td>
<td>3.83</td>
<td>1.07</td>
<td>3.50</td>
</tr>
<tr>
<td>2</td>
<td>Unavailability of clear approach in classifying most expenses as either fixed or variable</td>
<td>3.59</td>
<td>0.97</td>
<td>3.96</td>
<td>1.11</td>
<td>3.75</td>
</tr>
</tbody>
</table>

Table 12 shows the difficulty encountering respondents in using financial failure predicting models which is the difficulty of applying these models as it is in its original form to study the possibilities of financial distress in all circumstances. Table 12 shows that all respondents agree on the importance of this difficulty with an average of 3.80. These models were built in circumstances which may differ from the conditions of the firms subject of the study and analysis (Mattar, 2003). This may explain the low use of these models by stock investors as it is the least used tool among the financial analysis techniques and other means.

Table no. 12
Limitations and difficulties and their impact on quality and benefit of the results of Financial Failure Predicting Models

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitations and Difficulties</th>
<th>Corporations</th>
<th>Brokerage Firms</th>
<th>Investment Funds</th>
<th>Individual Inventors</th>
<th>Whole Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>The difficulty of applying these models as it is in its original form</td>
<td>3.82</td>
<td>0.89</td>
<td>4.17</td>
<td>0.89</td>
<td>3.50</td>
</tr>
</tbody>
</table>
Hypothesis of the Study:
The following four hypotheses are tested to achieve the objectives of the study:

H01: Stock investors in ASE do not depend on financial analysis techniques in stock trading decisions.
H1: Stock investors in ASE depend on financial analysis techniques in stock trading decisions.
H02: There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their demographic profile.
H2: There are significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their demographic profile.
H03: The limitations and difficulties facing respondents in using financial analysis techniques do not minimize its benefits and feasibility.
H3: The limitations and difficulties facing respondents in using financial analysis techniques minimize its benefits and feasibility.
H04: There are no significant differences among groups of study sample regarding the limitations and difficulties facing them in the use of financial analysis techniques.
H4: There are significant differences among groups of study sample regarding the limitations and difficulties facing them in the use of financial analysis techniques.

Hypothesis H01: Stock investors in ASE do not depend on financial analysis techniques in stock trading decisions:
Table no.13 presents one-Sample T-Test results related to the extent of using financial analysis techniques in stock trading decisions in ASE. Ratio and horizontal analysis remain significant even in the presence of other financial analysis techniques with average ranges of 3.80 and 3.32 respectively, which is more than the standard average of this study (3) and with statistical significance at (0.01) level of significance. It could also be observed that the extent of using BEP and Models of forecasting financial failure are ranked with low averages of 2.54 and 1.84 respectively. This indicates that stock investors in ASE do not depend on those techniques as their ranked average is less than (3) with statistical significance at 0.01. Moreover, results show that stock investors do not depend on vertical analysis with average of (2.93) and no statistical significance. These results support H0 null hypothesis with respect to vertical analysis, BEP, and models for financial failure and rejected with respect to horizontal and ratio analysis.

Table no. 13
One Sample T-Test related to the extent of using financial analysis techniques in stock trading decisions

<table>
<thead>
<tr>
<th>No.</th>
<th>Financial Analysis Technique</th>
<th>Mean</th>
<th>SD</th>
<th>Degrees of freedom</th>
<th>t-calculated</th>
<th>t-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ratio Analysis</td>
<td>3.80</td>
<td>1.07</td>
<td>177</td>
<td><strong>10.03</strong></td>
<td>1.96</td>
<td>0.001</td>
</tr>
<tr>
<td>2</td>
<td>Horizontal Analysis</td>
<td>3.32</td>
<td>1.24</td>
<td>177</td>
<td><strong>3.45</strong></td>
<td>1.96</td>
<td>0.001</td>
</tr>
<tr>
<td>3</td>
<td>Vertical Analysis</td>
<td>2.93</td>
<td>1.33</td>
<td>177</td>
<td>0.67</td>
<td>1.96</td>
<td>0.498</td>
</tr>
<tr>
<td>4</td>
<td>BEP Analysis</td>
<td>2.54</td>
<td>1.31</td>
<td>177</td>
<td><strong>4.68</strong></td>
<td>1.96</td>
<td>0.001</td>
</tr>
<tr>
<td>5</td>
<td>Financial Failure predicting Models</td>
<td>1.84</td>
<td>1.28</td>
<td>177</td>
<td><strong>12.03</strong></td>
<td>1.96</td>
<td>0.001</td>
</tr>
</tbody>
</table>

** At level of significance less than 0.01

H02: There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their demographic profile:
In order to examine this hypothesis, the researchers subdivided it into Ten (10) sub-hypothesis:
H02.01: There are no significant differences among stock investors (institutional) in the extent of using financial analysis techniques when they are grouped according to the date of their establishment.

One-Way ANOVA results are presented in Table 14. It shows that there are significant statistical differences at (0.05) level of significance among institutional stock investors in the extent of using horizontal analysis, vertical analysis, and the aggregate of these techniques when they are grouped according to the date of establishment. The post hoc analysis shows that the mean ranks for 1990-1999 period are superior when compared with other periods. This might be due to the fact that most companies were established during this period and the more subject companies are experienced, the more they might use these techniques. On the other hand, results show no significant statistical differences in the extent of using BEP, Ratio analysis and Models of forecasting financial failures. In the light of the above, the null sub-hypothesis H02.01 is rejected with respect to horizontal analysis, vertical analysis, and the aggregate of these techniques and accepted with respect to BEP, ratio analysis, and models of forecasting financial failures.

Table no. 14
One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors (institutional) with respect to the date of their establishment

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>25.147</td>
<td>5</td>
<td>5.03</td>
<td><strong>6.09</strong></td>
<td>2.29</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>95.738</td>
<td>116</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>120.885</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>17.871</td>
<td>5</td>
<td>3.57</td>
<td>*2.99</td>
<td>2.29</td>
<td>0.014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>138.661</td>
<td>116</td>
<td>1.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>156.533</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>13.519</td>
<td>5</td>
<td>2.70</td>
<td>1.75</td>
<td>2.29</td>
<td>0.128</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>179.112</td>
<td>116</td>
<td>1.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>192.631</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ratio Analysis</td>
<td>Between groups</td>
<td>6.610</td>
<td>5</td>
<td>1.32</td>
<td>2.21</td>
<td>2.29</td>
<td>0.057</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>69.267</td>
<td>116</td>
<td>0.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>75.877</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Financial Failure predicting Models</td>
<td>Between groups</td>
<td>9.514</td>
<td>5</td>
<td>1.90</td>
<td>1.01</td>
<td>2.29</td>
<td>0.413</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>217.642</td>
<td>116</td>
<td>1.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>227.156</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Aggregate of financial analysis techniques.</td>
<td>Between groups</td>
<td>12.800</td>
<td>5</td>
<td>2.56</td>
<td><strong>4.42</strong></td>
<td>2.29</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>67.201</td>
<td>116</td>
<td>0.58</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>80.001</td>
<td>121</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

* At level of significance less than 0.05  ** At level of significance less than 0.01

H02.02: There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to date of commencement in stocks trading.

Table 15 shows no significant differences at (0.05) level of significance among stock investors in the extent of using financial analysis techniques when they are grouped according to starting date of their investments in stocks. Therefore, null sub-hypothesis H02.02 is accepted with respect to all financial analysis techniques.
Table no. 15
One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to the their commencement in stock trading

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>3.496</td>
<td>3</td>
<td>1.66</td>
<td>0.76</td>
<td>2.6</td>
<td>0.519</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>267.251</td>
<td>174</td>
<td>1.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>270.747</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>4.95</td>
<td>3</td>
<td>1.65</td>
<td>0.94</td>
<td>2.6</td>
<td>0.424</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>306.241</td>
<td>174</td>
<td>1.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>311.191</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>0.985</td>
<td>3</td>
<td>0.33</td>
<td>0.19</td>
<td>2.6</td>
<td>0.904</td>
</tr>
<tr>
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<td></td>
<td>Within groups</td>
<td>303.24</td>
<td>174</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>304.225</td>
<td>177</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ratio Analysis</td>
<td>Between groups</td>
<td>1.191</td>
<td>3</td>
<td>0.4</td>
<td>0.34</td>
<td>2.6</td>
<td>0.794</td>
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<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>200.927</td>
<td>174</td>
<td>1.16</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>202.118</td>
<td>177</td>
<td></td>
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<td>Financial Failure predicting Models</td>
<td>Between groups</td>
<td>1.424</td>
<td>3</td>
<td>0.48</td>
<td>0.29</td>
<td>2.6</td>
<td>0.837</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>290.172</td>
<td>174</td>
<td>1.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>291.596</td>
<td>177</td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td>Aggregate of financial analysis techniques..</td>
<td>Between groups</td>
<td>1.323</td>
<td>3</td>
<td>0.44</td>
<td>0.45</td>
<td>2.6</td>
<td>0.717</td>
</tr>
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<td></td>
<td></td>
<td>Within groups</td>
<td>170.11</td>
<td>174</td>
<td>0.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>171.433</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* At level of significance less than 0.05
H02.03: There are no significant differences among stock investors (institutional) in the extent of using financial analysis techniques when they are grouped according to their capital.

One-Way ANOVA results are presented in table no. 16. It reveals that capital is not a factor that influences stock institutional investors’ choice in selecting different financial analysis techniques. Based on that, null sub-hypothesis H02.03 is accepted with respect to all financial analysis techniques.

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>5.485</td>
<td>6</td>
<td>0.91</td>
<td>0.91</td>
<td>2.17</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>115.4</td>
<td>115</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Total</td>
<td>120.885</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>14.036</td>
<td>6</td>
<td>2.34</td>
<td>1.89</td>
<td>2.17</td>
<td>0.089</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>142.497</td>
<td>115</td>
<td>1.24</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>Total</td>
<td>156.533</td>
<td>121</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>7.739</td>
<td>6</td>
<td>1.29</td>
<td>0.8</td>
<td>2.17</td>
<td>0.57</td>
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<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>184.892</td>
<td>115</td>
<td>1.61</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>192.631</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ratio Analysis</td>
<td>Between groups</td>
<td>2.289</td>
<td>6</td>
<td>0.38</td>
<td>0.6</td>
<td>2.17</td>
<td>0.733</td>
</tr>
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<td></td>
<td>Within groups</td>
<td>73.588</td>
<td>115</td>
<td>0.64</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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<td>5</td>
<td>Financial Failure</td>
<td>Between groups</td>
<td>9.887</td>
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<td>1.65</td>
<td>0.87</td>
<td>2.17</td>
<td>0.518</td>
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<td>Within groups</td>
<td>217.269</td>
<td>115</td>
<td>1.89</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
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<td>121</td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td>Aggregate of financial analysis techniques.</td>
<td>Between groups</td>
<td>5.336</td>
<td>6</td>
<td>0.89</td>
<td>1.37</td>
<td>2.17</td>
<td>0.233</td>
</tr>
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<td></td>
<td></td>
<td>Within groups</td>
<td>74.665</td>
<td>115</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>80.001</td>
<td>121</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H02.04: There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their job title.

Table no.17 reveals one-way ANOVA results that indicate significant statistical differences at (0.01) level of significance among stock investors in the extent of using different financial analysis techniques when they are grouped according to their job titles. Post hoc tests show that those differences are to the benefit of GM and Assistant GM as the most common users of vertical and BEP analysis. This might be due to the fact that their high positions qualify them to use such techniques although the use of the whole sample for those techniques is low. Moreover, differences are to the benefit of brokers in their reliance on horizontal analysis, ratio analysis, and Models of forecasting financial failure since brokers responses have gotten the highest average in the post hoc analysis and the findings of this study reveals that brokers are the most common users of the financial failure predicting models and they highly use horizontal and ratio analysis. Based on the above mentioned results, the null sub-hypothesis H02.04 is rejected and the substitute one is accepted with respect to all financial analysis techniques. This means
that “There are significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their job title”.

Table no. 17
One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their job title

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>61.770</td>
<td>5</td>
<td>13.35</td>
<td>**10.17</td>
<td>2.21</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>208.977</td>
<td>172</td>
<td>1.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>270.747</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>79.235</td>
<td>5</td>
<td>15.85</td>
<td>**11.75</td>
<td>2.21</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>231.956</td>
<td>172</td>
<td>1.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>311.191</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>43.563</td>
<td>5</td>
<td>8.71</td>
<td>**5.75</td>
<td>2.21</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>260.661</td>
<td>172</td>
<td>1.52</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>304.225</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ratio Analysis</td>
<td>Between groups</td>
<td>62.900</td>
<td>5</td>
<td>12.58</td>
<td>**15.54</td>
<td>2.21</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>139.218</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
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<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Financial Failure</td>
<td>Between groups</td>
<td>29.234</td>
<td>5</td>
<td>5.85</td>
<td>**3.83</td>
<td>2.21</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>predicting Models</td>
<td>Within groups</td>
<td>262.361</td>
<td>172</td>
<td>1.53</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>291.596</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Aggregate of financial</td>
<td>Between groups</td>
<td>52.074</td>
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<td>2.21</td>
<td>0.001</td>
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<tr>
<td></td>
<td>analysis techniques..</td>
<td>Within groups</td>
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<td>172</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>171.433</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* At level of significance less than 0.01
H02.05: There are no significant differences between stock investors in the extent of using financial analysis techniques when they are grouped according to their gender.

This sub-hypothesis is accepted with respect to all financial analysis techniques since independent sample T-Test results presented in Table 18 did not indicate any significant differences at (0.05) level of significance.

Table no. 18
Independent Sample T-Test related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their gender

<table>
<thead>
<tr>
<th>No.</th>
<th>Financial Analysis Technique</th>
<th>Mean</th>
<th>SD</th>
<th>Degrees of freedom</th>
<th>t-calculated</th>
<th>t-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
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<td>1</td>
<td>Horizontal Analysis</td>
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<td>3.31</td>
<td>1.21</td>
<td>176</td>
<td>0.43</td>
<td>1.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>3.46</td>
<td>1.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Male</td>
<td>2.94</td>
<td>1.33</td>
<td>176</td>
<td>0.24</td>
<td>1.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>2.85</td>
<td>1.28</td>
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</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Male</td>
<td>2.56</td>
<td>1.32</td>
<td>176</td>
<td>0.88</td>
<td>1.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>2.23</td>
<td>1.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ratio Analysis</td>
<td>Male</td>
<td>3.82</td>
<td>1.05</td>
<td>176</td>
<td>0.92</td>
<td>1.96</td>
</tr>
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<td>1.33</td>
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<td>Financial Failure predicting Models</td>
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<td>0.89</td>
<td>1.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>1.54</td>
<td>1.05</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Aggregate of financial analysis techniques</td>
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<td>0.99</td>
<td>176</td>
<td>0.63</td>
<td>1.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>2.72</td>
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</tr>
</tbody>
</table>

H02.06: There are no significant differences between stock investors in the extent of using financial analysis techniques when they are grouped according to their age.

Table 19 shows one way ANOVA results that indicate significant statistical differences at (0.05) level of significance among stock investors with respect to their dependence on horizontal, vertical, ratios, models of forecasting financial failure, and the aggregate of these techniques. Post hoc tests show that those differences are to the benefit of age category from 20 to less than 30 years old since it has gotten the highest averages. This is may be correlated with table 1 findings in which the researchers found out that most of the respondents in charge of stock investment decisions at investment funds and brokerage firms are in the age of 20 to 30 years old, and these groups are more able to use these techniques and majority of them have their own department for financial analysis purposes. Thus, sub-hypothesis H02.06 is rejected with respect to horizontal, vertical, ratio analysis, models of forecasting financial failure, and the aggregate of these techniques, and accepted with respect to BEP analysis.
### Table no. 19

**One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their age**

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>17.149</td>
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<td>5.72</td>
<td>*3.92</td>
<td>2.60</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>253.598</td>
<td>174</td>
<td>1.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>270.747</td>
<td>177</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
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<td>7.57</td>
<td>**4.57</td>
<td>2.60</td>
<td>0.004</td>
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<tr>
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<td>Within groups</td>
<td>288.469</td>
<td>174</td>
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<tr>
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<td>Total</td>
<td>311.191</td>
<td>177</td>
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</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>5.629</td>
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<td>1.88</td>
<td>1.09</td>
<td>2.60</td>
<td>0.353</td>
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<td></td>
<td>Within groups</td>
<td>298.569</td>
<td>174</td>
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<td>Ratio Analysis</td>
<td>Between groups</td>
<td>12.680</td>
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<td>4.23</td>
<td>*3.88</td>
<td>2.60</td>
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<td>Total</td>
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<td>177</td>
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</tr>
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<td>5</td>
<td>Financial Failure predicting Models</td>
<td>Between groups</td>
<td>17.275</td>
<td>3</td>
<td>5.76</td>
<td>*3.65</td>
<td>2.60</td>
<td>0.014</td>
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<td></td>
<td></td>
<td>Within groups</td>
<td>274.320</td>
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<td></td>
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<tr>
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<td>Total</td>
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</tr>
<tr>
<td>6</td>
<td>Aggregate of financial analysis techniques..</td>
<td>Between groups</td>
<td>13.303</td>
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<td>**4.88</td>
<td>2.60</td>
<td>0.003</td>
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<td></td>
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<td>158.130</td>
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<td>Total</td>
<td>171.433</td>
<td>177</td>
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</tr>
</tbody>
</table>

* At level of significance less than 0.05  
** At level of significance less than 0.01

**H0.07:** There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their educational level.

Table no. 20 presents one-way ANOVA results to examine the above mentioned sub-hypothesis. It shows significant statistical differences between stock investors in using financial analysis techniques when they are grouped according to their academic qualifications. Those differences are found to be to the benefits of PhD holders, and this might be because they are more qualified to use different financial analysis techniques. Therefore, sub-hypothesis H0.07 is rejected with respect to all financial analysis techniques, which means that there are significant differences between stock investors in using financial analysis techniques when they are grouped according to their academic qualifications.
Table no. 20
One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their educational level

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>20.856</td>
<td>5</td>
<td>4.17</td>
<td>*2.87</td>
<td>2.21</td>
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<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>249.891</td>
<td>172</td>
<td>1.45</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>270.747</td>
<td>177</td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>20.811</td>
<td>5</td>
<td>4.16</td>
<td>*2.47</td>
<td>2.21</td>
<td>0.035</td>
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<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>290.380</td>
<td>172</td>
<td>1.69</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>311.191</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>22.078</td>
<td>5</td>
<td>4.42</td>
<td>*2.69</td>
<td>2.21</td>
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<td></td>
<td></td>
<td>Within groups</td>
<td>282.147</td>
<td>172</td>
<td>1.64</td>
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</tr>
<tr>
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<td></td>
<td>Total</td>
<td>304.225</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ratio Analysis</td>
<td>Between groups</td>
<td>17.997</td>
<td>5</td>
<td>3.60</td>
<td>**3.36</td>
<td>2.21</td>
<td>0.006</td>
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<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>184.121</td>
<td>172</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>202.118</td>
<td>177</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Financial Failure</td>
<td>Between groups</td>
<td>23.104</td>
<td>5</td>
<td>4.62</td>
<td>*2.96</td>
<td>2.21</td>
<td>0.014</td>
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<tr>
<td></td>
<td>predicting Models</td>
<td>Within groups</td>
<td>268.492</td>
<td>172</td>
<td>1.56</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Aggregate of financial</td>
<td>Between groups</td>
<td>18.734</td>
<td>5</td>
<td>3.75</td>
<td>**4.22</td>
<td>2.21</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>analysis techniques..</td>
<td>Within groups</td>
<td>152.699</td>
<td>172</td>
<td>0.89</td>
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</tr>
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<td></td>
<td>Total</td>
<td>171.433</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* At level of significance less than 0.05  ** At level of significance less than 0.01

H02.08: There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their field of specialization.

The results of one-way ANOVA available in table no. 21 shows significant differences between stock investors at (0.01) level of significance in the extent of using financial analysis techniques when they are grouped according to their field of specialization. Post hoc tests show that these differences are to the benefit of respondents who are specialized in economics and depend on horizontal analysis. It appears that their interest in the performance of macroeconomics might justify their inclination toward horizontal analysis. Also, differences are to the benefit of respondents who are specialized in Business administration and depending on BEP more than other respondents. This might be related to their interests in the growth and future success of their companies as managers in their companies. Moreover, differences are to the benefit of finance specialization as they found to be the largest users of ratio analysis, vertical analysis, and forecasting financial failure Models. Finally, It seems from these results that there might be some other factors lead to those differences like whether an investor has taken related training techniques and/or working with investors who have used such techniques. In light of the above, sub-hypothesis H02.08 is rejected and its substitute is accepted which means that there are significant differences among investors in the extent of using financial analysis techniques when they are grouped according to their field of specialization.
Table no. 21

One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their field of specialization

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>58.450</td>
<td>6</td>
<td>9.74</td>
<td>*7.85</td>
<td>2.10</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>212.297</td>
<td>171</td>
<td>1.24</td>
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</tr>
<tr>
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<td>Total</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>90.774</td>
<td>6</td>
<td>15.13</td>
<td>*11.74</td>
<td>2.10</td>
<td>0.001</td>
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<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>220.417</td>
<td>171</td>
<td>1.29</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>311.191</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>66.648</td>
<td>6</td>
<td>11.11</td>
<td>*7.99</td>
<td>2.10</td>
<td>0.001</td>
</tr>
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<td></td>
<td></td>
<td>Within groups</td>
<td>237.577</td>
<td>171</td>
<td>1.39</td>
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<tr>
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<td></td>
<td>Total</td>
<td>304.225</td>
<td>177</td>
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</tr>
<tr>
<td>4</td>
<td>Ratio Analysis</td>
<td>Between groups</td>
<td>71.777</td>
<td>6</td>
<td>11.96</td>
<td>*15.69</td>
<td>2.10</td>
<td>0.001</td>
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<td></td>
<td></td>
<td>Within groups</td>
<td>130.341</td>
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<td>0.76</td>
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</tr>
<tr>
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<td>202.118</td>
<td>177</td>
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<tr>
<td>5</td>
<td>Financial Failure predicting Models</td>
<td>Between groups</td>
<td>43.390</td>
<td>6</td>
<td>7.23</td>
<td>*4.98</td>
<td>2.10</td>
<td>0.001</td>
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<td></td>
<td>Within groups</td>
<td>248.205</td>
<td>171</td>
<td>1.45</td>
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<tr>
<td></td>
<td></td>
<td>Total</td>
<td>291.596</td>
<td>177</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Aggregate of financial analysis techniques</td>
<td>Between groups</td>
<td>61.599</td>
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<td>10.27</td>
<td>*15.98</td>
<td>2.10</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>109.834</td>
<td>171</td>
<td>0.64</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>171.433</td>
<td>177</td>
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</tr>
</tbody>
</table>

* At level of significance less than 0.01

H0.02.09: There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their professional certificates.

Table no. 22 reveals one-way ANOVA results related to the above mentioned sub-hypothesis. It indicates that there are significant differences at (0.05) level of significance between stock investors regarding their dependence on BEP, Models of forecasting financial failure, and the aggregate of these techniques when investors are grouped according to their professional certificates. Post hoc results indicate that those differences are to the benefit of Arab Certified Public Accountants since their responses have gotten the highest averages. This might be because their sample is few (1.1%) and they highly use BEP and models of forecasting financial failure in financial analysis. The results show also that there are no significant differences between stock investors in the extent of using other financial analysis techniques when they are grouped according to their professional certificates. This partially supports sub-hypothesis no. H0.02.09, and therefore it is rejected for respondents that use models, BEP analysis, and the aggregate of these techniques and accepted for respondents that use horizontal, vertical and ratio analysis.
**Table no. 22**

One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their professional certificates

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Analysis</td>
<td>Between groups</td>
<td>9.627</td>
<td>5</td>
<td>1.93</td>
<td>1.27</td>
<td>2.21</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>261.120</td>
<td>172</td>
<td>1.52</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>270.747</td>
<td>177</td>
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<td></td>
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</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>15.422</td>
<td>5</td>
<td>3.08</td>
<td>1.79</td>
<td>2.21</td>
<td>0.117</td>
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<td>172</td>
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<tr>
<td>3</td>
<td>BEP Analysis</td>
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<td>22.362</td>
<td>5</td>
<td>4.47</td>
<td>*2.73</td>
<td>2.21</td>
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<td>281.863</td>
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<td>1.64</td>
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<td>Total</td>
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<td>177</td>
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<td>1.02</td>
<td>2.21</td>
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<td>196.301</td>
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<td>177</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5</td>
<td>Financial Failure predicting Models</td>
<td>Between groups</td>
<td>31.404</td>
<td>5</td>
<td>6.28</td>
<td>**4.15</td>
<td>2.21</td>
<td>0.001</td>
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<td></td>
<td></td>
<td>Within groups</td>
<td>260.192</td>
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<td>1.51</td>
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<tr>
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<td></td>
<td>Total</td>
<td>291.596</td>
<td>177</td>
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<tr>
<td>6</td>
<td>Aggregate of financial analysis techniques..</td>
<td>Between groups</td>
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<td>2.81</td>
<td>*3.07</td>
<td>2.21</td>
<td>0.011</td>
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<td></td>
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<td>Total</td>
<td>171.433</td>
<td>177</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

* At level of significance less than 0.05  
** At level of significance less than 0.01

**H02.10:** There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their years of experience in investments.

This sub-hypothesis is accepted with respect to all financial analysis techniques since one-way ANOVA results presented in table no. 23 show no significant differences between investors at (0.05) level of significance when they are grouped according to their years of experience in investments.

**Table no. 23**

One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their years of experience in investments

<table>
<thead>
<tr>
<th>No.</th>
<th>Fin. Analysis Technique</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>Between groups</td>
<td>7.121</td>
<td>3</td>
<td>2.37</td>
<td>1.57</td>
<td>2.60</td>
<td>0.199</td>
</tr>
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<td></td>
<td>Within groups</td>
<td>263.626</td>
<td>174</td>
<td>1.52</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>270.747</td>
<td>177</td>
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</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>Between groups</td>
<td>7.925</td>
<td>3</td>
<td>2.64</td>
<td>1.52</td>
<td>2.60</td>
<td>0.212</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>303.266</td>
<td>174</td>
<td>1.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>311.191</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BEP Analysis</td>
<td>Between groups</td>
<td>4.212</td>
<td>3</td>
<td>1.40</td>
<td>0.81</td>
<td>2.60</td>
<td>0.488</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>300.013</td>
<td>174</td>
<td>1.72</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ratio Analysis

<table>
<thead>
<tr>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within groups</td>
<td>194.299</td>
<td>174</td>
<td>1.12</td>
</tr>
<tr>
<td>Total</td>
<td>202.118</td>
<td>177</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Financial Failure predicting Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of variance</td>
</tr>
<tr>
<td>Within groups</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aggregate of financial analysis techniques..</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of variance</td>
</tr>
<tr>
<td>Within groups</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

H02: There are no significant differences among stock investors in the extent of using financial analysis techniques when they are grouped according to their demographic profile.

Table 24 presents one-way ANOVA results related to hypothesis no. 2. It discloses that there are significant differences at (0.05) level of significance among stock investors regarding the extent of using the aggregate of financial analysis techniques when they are grouped according to date of establishment (institutional investor), job title, age, academic qualifications, area of specialization, and professional certificates. However, results indicate no significant differences between stock investors when they are grouped according to date of commencement in stocks trading, capital (institutional investor), and years of experience in the field of investment. Moreover, table no. 25 shows results of independent sample T-Test which indicate no significant differences among stock investors when they are grouped according to their gender. In light of the above, H02 is rejected with respect to date of date of establishment (institutional investor), job title, age, academic qualifications, area of specialization, and professional certificates, while H02 is accepted with respect to date of commencement in stocks trading, capital (institutional investor), years of experience in the field of investment, and gender.

Table no. 24
One Way ANOVA related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their demographic profile (excluding gender)

<table>
<thead>
<tr>
<th>No.</th>
<th>Demographic characteristics</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Establishment date</td>
<td>Between groups</td>
<td>12.800</td>
<td>5</td>
<td>2.56</td>
<td>**4.42</td>
<td>2.29</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>67.201</td>
<td>116</td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>80.001</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Starting date in portfolio investment</td>
<td>Between groups</td>
<td>1.323</td>
<td>3</td>
<td>0.44</td>
<td>0.45</td>
<td>2.60</td>
<td>0.717</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>170.110</td>
<td>174</td>
<td>0.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>171.433</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Capital</td>
<td>Between groups</td>
<td>5.336</td>
<td>6</td>
<td>0.89</td>
<td>1.37</td>
<td>2.17</td>
<td>0.233</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>74.665</td>
<td>115</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>80.001</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Job title</td>
<td>Between groups</td>
<td>52.074</td>
<td>5</td>
<td>10.42</td>
<td>**15.01</td>
<td>2.21</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>119.359</td>
<td>172</td>
<td>0.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>171.433</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Age</td>
<td>Between groups</td>
<td>13.303</td>
<td>3</td>
<td>4.43</td>
<td>**4.88</td>
<td>2.60</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>158.130</td>
<td>174</td>
<td>0.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>171.433</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table no. 25
Independent Sample T-Test related to the extent of using financial analysis techniques in stock trading decisions by stock investors with respect to their gender

<table>
<thead>
<tr>
<th>No.</th>
<th>Demographic characteristics</th>
<th>Mean</th>
<th>SD</th>
<th>Degrees of freedom</th>
<th>t-calculated</th>
<th>t-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>2.90</td>
<td>0.99</td>
<td></td>
<td></td>
<td></td>
<td>0.533</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2.72</td>
<td>0.93</td>
<td>176</td>
<td>0.63</td>
<td>1.96</td>
<td></td>
</tr>
</tbody>
</table>

H03: The limitations and difficulties facing stock investors in using financial analysis techniques do not minimize its benefits and feasibility.

Table 26 presents one-sample T-Test results which indicate that the limitations and difficulties encountering stock investors in the use of ratios, vertical, horizontal, BEP analysis, and financial failure predicting models minimize its benefit and feasibility with average ranges of (3.44, 3.55, 3.58, 3.62, and 3.80) respectively, which is more than the standard average of this study (3) and with statistical significance at (0.01) level of significance. This indicates that most respondents agree that those difficulties minimize the benefits, quality, and feasibility of the results obtained from using financial analysis techniques. Therefore, H03 hypothesis is rejected and its substitute hypothesis is accepted.

Table no. 26
One Sample T-Test related to the impact of limitations and difficulties facing stock investors in using financial analysis techniques on its benefits and feasibility

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitations and difficulties of using:</th>
<th>Mean</th>
<th>SD</th>
<th>Degrees of freedom</th>
<th>t-calculated</th>
<th>t-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ratio Analysis</td>
<td>3.44</td>
<td>0.70</td>
<td>177</td>
<td>**8.48</td>
<td>1.96</td>
<td>0.001</td>
</tr>
<tr>
<td>2</td>
<td>Vertical Analysis</td>
<td>3.55</td>
<td>0.93</td>
<td>177</td>
<td>**7.92</td>
<td>1.96</td>
<td>0.001</td>
</tr>
<tr>
<td>3</td>
<td>Horizontal Analysis</td>
<td>3.58</td>
<td>0.78</td>
<td>177</td>
<td>**10.05</td>
<td>1.96</td>
<td>0.001</td>
</tr>
<tr>
<td>4</td>
<td>BEP Analysis</td>
<td>3.62</td>
<td>0.93</td>
<td>177</td>
<td>**8.89</td>
<td>1.96</td>
<td>0.001</td>
</tr>
<tr>
<td>5</td>
<td>Financial Failure predicting Models</td>
<td>3.80</td>
<td>0.94</td>
<td>177</td>
<td>**11.41</td>
<td>1.96</td>
<td>0.001</td>
</tr>
</tbody>
</table>
** At level of significance less than 0.01

**H04:** There are no significant differences among groups of study sample regarding the limitations and difficulties they encounter in using financial analysis techniques.

One-way ANOVA results presented in table no. 27 shows that there are significant differences at (0.05) level of significance among groups of the study sample regarding limitations and difficulties they face in using ratios, horizontal, vertical, and BEP analysis. These differences are found to the benefit of brokerage firms as they have gotten the highest averages in post hoc tests. This might be due to the fact that they are more capable in using financial techniques and they are more aware of the difficulties and limitations and their impact on benefits and feasibility of the results obtained from the analysis. However, results in table 27 shows no significant differences at (0.05) level of significance between groups of study sample regarding the difficulties and limitations facing them in using models of predicting financial failure. Thus H04 is rejected with respect to limitations and difficulties for ratios, horizontal, vertical, and BEP analysis and it is accepted with respect to difficulties and limitations for models of predicting financial failure.

### Table no. 27

One Way ANOVA related to the differences among groups of study sample regarding the limitations and difficulties they encounter in using financial analysis techniques

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitations and difficulties of using:</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>f-calculated</th>
<th>f-tabulated</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Ratio Analysis</strong></td>
<td>Between groups</td>
<td>7.850</td>
<td>3</td>
<td>2.62</td>
<td><strong>5.82</strong></td>
<td>2.60</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>78.167</td>
<td>174</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>86.017</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Horizontal Analysis</strong></td>
<td>Between groups</td>
<td>9.677</td>
<td>3</td>
<td>3.23</td>
<td><strong>5.79</strong></td>
<td>2.60</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>96.892</td>
<td>174</td>
<td>0.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>106.569</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>Vertical Analysis</strong></td>
<td>Between groups</td>
<td>14.540</td>
<td>3</td>
<td>4.85</td>
<td><strong>6.06</strong></td>
<td>2.60</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>139.203</td>
<td>174</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>153.743</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>BEP Analysis</strong></td>
<td>Between groups</td>
<td>7.076</td>
<td>3</td>
<td>2.36</td>
<td>*2.80</td>
<td>2.60</td>
<td>0.042</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>146.577</td>
<td>174</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>153.653</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>Financial Failure Predict. Models</strong></td>
<td>Between groups</td>
<td>4.999</td>
<td>3</td>
<td>1.66</td>
<td>1.92</td>
<td>2.60</td>
<td>0.128</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within groups</td>
<td>151.119</td>
<td>174</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>156.118</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* At level of significance less than 0.05  ** At level of significance less than 0.01
Conclusions

The primary purpose of this study was to find out whether investors in ASE depend on financial analysis techniques in making decisions related to buying and selling stocks, to determine whether there are any significant demographic differences between stock investors in using financial analysis techniques, to see if the limitations and difficulties related to the financial analysis techniques usage might decrease its usage or not, and to find out whether there are significant differences among groups of the sample study regarding the limitations and difficulties facing them in using financial analysis techniques. The results from this study showed the following:

1. Ratio analysis received “highly important” rank (first priority) among all investors in ASE and found to be the most common technique used by the whole population in buying and selling stocks. The second priority was given to horizontal analysis, and investors do not depend on vertical analysis, BEP and models of forecasting financial failure.
2. The most common ratios used by the whole sample of stock investors out of 10 ratios used were: Earning per share (EPS), Price Earnings Ratio (PE), and Return on Investment (ROI).
3. When ratios are classified into groups used by stock investors of the whole study sample, generally investment ratios were the most commonly used ratios by all respondents, followed by profitability ratios, debt ratios, liquidity ratios, and statement of cash flows ratios.
4. Respondents ranked the use of models of forecasting financial failures as very low and it is observed that Altman Model was the most commonly used model by all respondents.
5. Results indicated that there are no significant differences between stock investors in the extent of using financial analysis techniques that could be attributable to date of commencement in stocks trading, capital (institutional investor), years of experience in the field of investment, and gender.
6. There are significant differences between investors in the extent of using financial techniques that could be attributable to job title, educational level, and field of specialization.
7. Results revealed that there are significant differences between investors in the extent of using some of the financial analysis techniques attributable to date of establishment (institutional investor), age, and professional certificates, and no significant differences in the extent of using the others.
8. The limitations and difficulties facing investors in using financial analysis techniques minimize its benefits and feasibility, and respondents agreed that unavailability of a unified standard in calculating financial ratios was ranked by respondents as the most important obstacle facing them in calculating financial ratios and interpreting its results. This is followed by inflation, different accounting treatments, and misleading indicators.
9. Results showed that there are significant differences between groups of the study sample regarding limitations and difficulties they face in using ratios, horizontal, vertical, and BEP analysis, and showed no significant differences between groups of study sample regarding the difficulties and limitations in using models of predicting financial failure.

Finally, in light of the above mentioned findings, the researchers recommend the necessity for investors to rely more on debt ratios and ratios that relate to the statement of cash flows in their stock trading decisions, developing unified standard ratios, and increasing the number of investment funds in Jordan.

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Climate warming at the Arctic ... and What after the melting of the permafrost?

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The average temperature rise in the North Pole, Siberia, Greenland, Alaska and Northern Russia to cause the melting of very old ice revealing a corpse of reindeers reached by an epidemic virus disappeared for decades in these polar zones. This was the main cause of the re-emergence of anthrax disease, which was considered a very dangerous epidemic in the polar reindeer population. The consequence of global warming is the very advanced melting of the pack ice below the superficial layer of eternally frozen soils, which has released toxic gases that have been trapped for a long time. Among these gases one cites methane which is class hazardous natural gas.

Siberian soil is constantly releasing other highly hazardous materials and gases. A high-risk contagious bacterium has emerged from permafrost, (a sub-surface layer of soil that remains frozen all year long occurring mainly in Polar Regions) on behalf of Anthrax. Anthrax, or disease of the anthrax, disappeared since 1941 - 75 years ago, appears under various symptoms such as fever, vomiting and cutaneous wounds. It is infectious and is fatal unless treated. It is a contagious disease affecting both humans and animals (Scandal of the envelope contaminated with a bacteriological weapon largely mediated after the attack of September 11, 2001).

The first appearances of the people contaminated by this bacterium go back to last July that caught the Anthrax contagion from the reindeer. Polar reindeer herds are widespread in the polar region and have hundreds of thousands of heads (about 250,000 individuals). Since the first half of December 2016, more than 2400 reindeer have been killed, as the number of people attacked by this bacterium has increased to 72 cases, including 41 children who have been hospitalized (report by the Siberian Times).

Urgent Action:

• Shoot down the reindeer infected by Anthrax
• Destroy dead animal carcasses
• Destroy dead animals
• Isolates people who have been affected by Anthrax
• Vaccines people at high risk of infection (the vaccine is only 40% effective)
• Avoids direct contact with subjects affected by Anthrax without taking protective measures
• Wash thoroughly the body parts suspect to be exposed to Anthrax bacteria.
Can the hazard extend over the entire polar region?

The increase in average temperatures above the normal in the Polar Regions is an undeniable change. A dramatic jump in the average temperature of the summer season of the North Pole approaching 35°C compared to the normal average temperatures of July which should not exceed 17°C causes a radical disturbance of the behavior of this Arctic region.

The thawing of permafrost or permafrost triggers two serious problems. Researchers are concerned about the resurgence of fossilized epidemic-bacteria and viruses trapped for decades in frozen ground and escaping high-toxicity greenhouse gas trapped in ice.

The first problem is as quoted above and as a result of the massive melting of ice the release of bacteria and viruses (scientists have discovered a giant Virus in the name of Mollivirus dating back more than 30,000 years) in the wild who are ignored in the Immune systems of modern living beings, making it difficult to combat infections and the spread of epidemics.

The second problem, and after warming old soils that have been frozen for centuries, are getting rid of their gaseous contents and releasing increasing quantities of greenhouse gases such as methane (CH\textsubscript{4}) and carbon dioxide (CO\textsubscript{2}).

What are the effects of these gases that escape from permafrost?

These gases are classified as toxic and the measurements show unexpected growth in the volume of gases that are more than 200 times higher than the tolerated standards. Craters in the ground are created by explosions of underground gas pockets due to intense bacteriological action, according to Vladimir Pushkarw, Director of the Russian Center for Arctic Exploration. Or the uprooting of unsystematic underground material of behavior to scientists and researchers in the form of bubbles of greenhouse gases that flow from under the polar subsoils that lodge in the permafrost or litter of the terrestrial crust. The gases in these frozen soils contain higher levels than the atmospheric concentrations of greenhouse gases tolerated, 20 times more carbon dioxide (CO\textsubscript{2}) than normal and 200 times more than methane (CH\textsubscript{4}). This is the main cause of the unusual rise of greenhouse gases on the polar ice cap.

Naturally, permafrosts contain microorganisms that can either release methane (CH\textsubscript{4}) or consume it and transform it into carbon dioxide (CO\textsubscript{2}). These emissions into the atmosphere of high-risk gas on climate are coupled with the emissions of gases due to anthropogenic activities, namely agriculture and industry, such as the combustion of natural gas and oil, from coal mining. This increases the potential for warming by major greenhouse gases and increases the risk of climate change. According to Florent Dominé, a researcher in the French-Canadian laboratory (CNRS journal), all the carbon dioxide (CO\textsubscript{2}) blocked in the permafrost is transformed into CO\textsubscript{2} by living microorganisms, so the concentration of this gas in the atmosphere would be Three times higher than customary levels.

These greenhouse gases trapped in the permafrost constitute real delayed effect bombs. Increasing the concentration of these gases in the Earth's atmosphere is one of the main factors responsible for global warming.

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Generalized Data mining analysis on Well logs for facies classification
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ABSTRACT
Well logs are petrophysical data recording properties of fluid and rocks in oil & gas wells. One important aspect of well log interpretation is to understand downhole lithology across drilling interval. This paper is based on the work of the “Facies Classification Using Machine Learning” authored by Brendon Hall [1] in different software environment. The dataset was from [1], which was originally taken from a University of Kansas class exercise on the Hugoton and Panoma gas fields. First, we examined a set of well-logs for a completeness of petrophysical data. Then, we applied different classification algorithms which is not widely spread between different models and capture the different dependencies between the well logs and wireline information in the lithology and facies classification. Finally, we proposed an algorithm which has the higher precision and more generalized compared with training and testing data set, as the best suitable for the facies classification. In our case, we arrived at a conclusion of Bayesian algorithms which gave us a simple model with more common and narrow results.

Keywords
Petrophysical log; wireline log; log interpretation; hydrocarbon; saturation; data mining;

1. INTRODUCTION
Understanding downhole hydrocarbon distribution and its quantification are important objectives when drilling a well.

Well logs are source of information including rock properties such as: mineral component, resistivity, density, pore-volume distribution, permeability; and fluid properties such as: fluid type, mobility, hydrogen index, etc.

Lithology information gives us the physical characteristics of the rocks whereas the facies information tells us the chemical composition of the rocks and the reservoir at different depths. Traditionally, log interpretations and the facies classification are done manually. With the available big data recorded from downhole sensors and from environmental drilling dynamics, reservoir dynamics, adjacent wells’ activities, the log interpretation becomes too heavy for human to do it efficiently.

Previous data mining works in well log analysis include characterization of the hydrocarbon reservoir using one or more intelligent technology, permeability and porosity evaluation using statistical neural network. The data mining techniques are used in this paper to identify the facies patterns in well logs, which correlate to hydrocarbon zones.

The Objective of this paper is to preprocess the data from a single well log archive and visualize the data using a data mining tool. Then it is tried to apply different classification algorithms to accurately predict the facies from different depths. As the facies information depends on the well log attributes, it is tried to identify the best algorithm.
which captures all the dependencies and gives us the best and precise results. This would give us the best solution to predict the possible identification of the fluids.

Future development possibility of this research can go beyond identifying hydrocarbon from non-hydrocarbon intervals, it could be developed into regression prediction of hydrocarbon saturation along the wellbore. If the concept is proved, this method would improve significantly interpretation turn-around and reduce the human factors associated to logs interpretation.

2. LITERATURE REVIEW

In one of the recent study, the statistical Neural networks have been proposed to be the best intelligent method and to have better accuracy for analyzing petrophysical well logs. In particular, it gives reliable performance in evaluation of porosity and permeability with respect to the hydrocarbon reservoir characterization. The challenge in the process might be the selection of input variables that governs the process with the dataset having large number of potential input variables, correlation between these and their redundancy. However, a well-trained bagged neural network could provide the results of improved quality as compared those with PCA or classical neural network. [1]

Well logging interpretation includes qualitative and quantitative interpretation. The qualitative interpretation is used to calculate the saturation of water and oil, amount of clay and also used to locate the pay zones more accurately. To get a more efficient and automatic way of well log interpretation, it is suggested to combine data mining technique and an intelligent method such as Mountain function-based classification. Although, the data mining algorithms are used for classification, integrating them with the quantitative clustering method could help to arrive at more accurate interpretation of high dimensional dataset. [2]

However, gaps are sometimes present in well logs. It has been empirically tested that, we can actually use Artificial neural networks, Random forests and generalized linear models like Bayesian Regression and Random Sample consensus in the prediction of missing logs. Anyways, these algorithms show significantly different in prediction results depending on the gap size and the missing values in those gaps. It is recommended that it is important to have the samples clustered by the log similarity from the same well. [3]

Lithology plays an important role in all the related fields of petroleum and lithology prediction is an important facet of petroleum engineering. Hence, it is imperative to identify the precise lithology of a reservoir as it can be a costly affair otherwise. Furthermore, the lithology prediction obtained from drilling cuttings is less accurate because of the problems associated with the depth matching of cuttings and also less economic due to operation costs. Petrophysical well-logs are used for lithology identification as a more efficient and economic alternative as opposed to the conventional drilling cutting approach (Rider, 2002). Some prevailing lithology identification methods have been developed by combining well-logs and cross plots. [4]

There are different algorithms in machine learning, classification, clustering, regression, association rule mining. We anticipate to use a classification algorithm in this study. Therefore, we have chosen a classification algorithm SVM (Support Vector Machine) in order to identify litho-facies on the basis of well-log measurements. An SVM is categorized as a supervised-learning algorithm which is fed with the training data to train the model with the relationships between the predictors and the predicted (class attribute). [5]

3. EXPERIMENTAL DESIGN

The dataset used in this project has been taken from the University of Kansas. The dataset contains labelled lithologies of the logs for the nine wells. There are five wireline log measurements, two indicator variables and a
facies label at half-foot interval, in the dataset. In terms of machine learning, each log measurement represent a feature vector that maps a set of features to a class i.e. the log measurements to the facies type.

**Dataset [1]**

The chosen dataset represents nine wells, with 4149 instances, seven attributes (used as predictor variables), and a class attribute (rock facies). The dataset has been divided into training and test data. For the test data, we have used only seven predictor variables without the explicit class-attribute i.e. rock facies. The data has been taken from the Council Grove gas reservoir situated in Southwest Kansas. While the carbonate gas reservoir, The Panama Council Grove Field, is a 2700 square miles. Facies represent the examination of cores from nine wells which were taken vertically at half-foot intervals. The seven predictor variables have been split into five variables from wireline log measurements and two from geologic constraining variables. A continuous variable has been used, sampled at a half-foot sample rate.

The seven predictor variables are:

- Five wire line log curves include gamma ray (GR), resistivity logging (ILD_log10), photoelectric effect (PE), neutron-density porosity difference and average neutron-density porosity (Delta PHI and PHIND). Note, some wells do not have PE.
- Two geologic constraining variables: nonmarine-marine indicator (NM_M) and relative position (RELPOS)

The nine discrete facies (classes of rocks) are:

1. Nonmarine sandstone
2. Nonmarine coarse siltstone
3. Nonmarine fine siltstone
4. Marine siltstone and shale
5. Mudstone (limestone)
6. Wackestone (limestone)
7. Dolomite
8. Packstone-grainstone (limestone)
9. Phylloid-algal bafflestone (limestone)

The facies mentioned above are not discrete which means that they depends on one another and blend with each other. In other words, these facies have neighbors which are rather close to one another. Hence, any improper labelling in these neighboring facies could be a problem. The following table lists the facies and their abbreviated labels, and their approximate neighbors,
The names of the 9 wells are SHRIMPLIN, ALEXANDER D, LUKE G U, KIMZEY A, CROSS H CATTLE, NOLAN, Recruit F9, NEWBY, CHURCHMAN BIBLE.

The below table gives us the statistical distribution of the input variables.

<table>
<thead>
<tr>
<th>Facies</th>
<th>Label</th>
<th>Adjacent Facies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SS</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>CSiS</td>
<td>1, 3</td>
</tr>
<tr>
<td>3</td>
<td>FSiS</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>SiSh</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>MS</td>
<td>4, 6</td>
</tr>
<tr>
<td>6</td>
<td>WS</td>
<td>5, 7</td>
</tr>
<tr>
<td>7</td>
<td>D</td>
<td>6, 8</td>
</tr>
<tr>
<td>8</td>
<td>PS</td>
<td>6, 7, 9</td>
</tr>
<tr>
<td>9</td>
<td>BS</td>
<td>7, 8</td>
</tr>
</tbody>
</table>

Looking at the count values, most values have 4149 valid values except for PE, which has 3232. This has been taken care in preprocessing.
Data preprocessing
The missing values in our dataset could be handled by the unsupervised attribute filter in weka called Replace Missing Values. This filter replaces the missing values for any numeric attribute in a dataset with the modes and means from that attribute in the training data. The values of the attribute PE have been filled using this filter.

For getting a data for testing, one of the well has been removed from the data set and kept for testing. Hence, the training data would have logs of 8 wells and the testing data would have information from 1 well.

Regarding Attribute selection and dimensionality reduction, all the attributes were used for the analysis as it is in the dataset. However, improper attributes would create ambiguity in application of certain algorithms such as Support vector machines.

4. METHODOLOGY
There were two main approaches carried out in our analysis of well logs for lithology classification. One with the algorithms having less generalized approach and the other with generalized algorithms. For an approach with less generalization we have chosen Support Vector Machines (SVM) and Decision trees with J48.

We have chosen the SVM as a preferred algorithm for our dataset, as opposed to Neural Networks, since SVM minimizes the upper bound of the generalization error by maximizing the margin between the separating hyperplane and the data. Likewise, the decision tree (J48) algorithm the critical distribution of the data is easily understandable and generates the rules for the prediction of the target variable.

Likewise, for the counterpart we have chosen Bayesian Algorithms such as BayesNet and Naïve Bayes. This is since Bayesian theorem aims at the conditional probability of the class variable depending upon the input variables based on the previous experience and therefore the difference between the accuracy of the training and testing model is very less and so it could be considered to produce more generalized results.

SVM Classifier
Support vector Machines algorithm is one of the few algorithms which can be used for both classification and regression problems. SVM is an optimal solution for many complex problems such as well log classification. This is since SVM is considered as the maximum margin classifier. This algorithm gives us an optimized process to choose the best solution from different feasible solutions for the different problems. The chosen solution would have the maximum distance from the two-class hyper planes in the existence of partial or limited instances of the basically two classes which can be considered as constraint conditions of the optimization problem. These classes are called support vectors. [4]

J48 Decision Tree
The Decision tree algorithm is used to identify how an attribute behaves for different number of instances. This is used to find out the pure subset of different attribute vectors so that if there is any instances that is new compared to the trained instances, there would be high precision for the prediction of the new classes.

It is an extension of ID3 with some of the additional features such as filling up of missing values, pruning of the trees, accounting for continue attribute value ranges, decision rules derivation etc. In WEKA , we have lot of options such as pruning which could be used for getting an higher precision. The other decision tree algorithms stop when
there is a pure subset in the last leaf where the J48 generate decision rules to obtain a model with good equilibrium in the decision tree which could have higher flexibility and accuracy in the model. [7]

**Bayesian Algorithms:**

Naive Bayes and Bayes Net are the algorithms is based on the Bayesian theorem as proposed by Thomas Bayes. Bayes theorem shows the relationship between two conditional probabilities by combining expectations based on the previous values i.e. prior probabilities, with information from the available data. In this paper, we have used Bayes theorem to calculate the probability of certain facies in the presence of the well-log readings followed by the assignment of the facies of the highest posterior probability to the given observation. [8]

The application of the Bayes theorem to identify and classify the facies can be written as follows:

\[
P(Y | X=x) = \frac{(P(Y) P(X = x | Y))}{P(X=x)}
\]

**RESULTS AND EVALUATION**

In our experiment, all the algorithms followed the same procedure as used by [1], however, we have used a different tool i.e. WEKA. The corresponding classifiers have been selected from WEKA classifiers tab. In this, instead of doing the classification the training (8 wells) and testing(1 well) has been done separately with two different data set which are split up from the original data set.

On running the SMO classifier, we can arrive at an accuracy of 85% in training the data set with 8 wells, similarly the testing accuracy have been acquired to be 39%. The figure 1 shows the graph between the correctly classified instances from the testing set and training set compared with the prediction time taken for each instances. From this graph we could see that there is more smoothness between training accuracy and the testing accuracy which means there are not much variations in most of the instance classifications. The classes doesn’t change that often from instance to instance. We could see that this is because of the high marginal classification in the hyper planes in the SVM algorithm. Hence this algorithm could not be considered as a perfect solution for well log lithology classification where we would have much variations in the instances depending upon the depth of the wells. With the elimination of generalization error in the SVM model, we could not correctly predict the best classes under different depths.

**Figure 1:**
Similarly the any decision tree algorithm could also have less generalization and more equilibrium towards the instances since judgement of the prediction is done when there is a pure leaf. This could be sometimes incorrect when there is more variations in the input variables. However we got a accuracy of 92% in the training model and which is drastically reduced while testing the model which got an accuracy of 34.3%

The bayesian algorithms such as Bayes Net or Naive Bayes capture the dependencies between the attributes and the class variables. However training them with the 8 wells gave us an accuracy of 75.5% and which is not more scattered from the testing without the labels which gave us the accuracy of 51.2%

**Figure 2:**

![BayesNet training: 75.49% testing: 51.22%](image)

Similarly the Naive bayes algorithm gave us an accuracy of 64% while training the model and with the testing set it gave an accuracy of 54%. From the graph in figure 2&3 we can see that the prediction of the class variable while testing doesn’t differ much from that of the training. This could be put in other words as there are much variations in the class variables which purely depends upon the different input attributes in the instances. Therefore the bayesian algorithm could be considered as a more generalized method to classify the lithology information and facies classification in the well logs where there would be more variations in the instances in different depth and the precision is important in predicting the hydrocarbons. This could be achieved quite well using the bayesian algorithm where all the class variable depends on either one of the input variable and hence training the model by analysing the dependencies in the well logs would give more precise and accurate prediction.

**Figure 3:**

![NaiveBayes training 64% testing 54%](image)
5. **CONCLUSION AND DISCUSSIONS**

In this paper on the analysis of well logs for different facies classification the following conclusions were arrived,

1. Our study confirmed that even using a different tool for data mining like WEKA the results are almost similar.

2. In [1], Support Vector Machine algorithm performed best at 43% accuracy. However, our experiment in WEKA showed Naive Bayes gives best prediction of 51%.

3. We found the Support Vector Machine algorithm gives more smoother results than others

4. In both the bayesian algorithm it is seen that prediction is not too far off from actual classification. Hence bayesian algorithms can be considered as the more generalized way to predict the lithology information.

5. Simple experiments shows data mining potential in predicting reservoir properties

However, a limitation of the study is that the experiments were conducted with few wireline logs, whereas in real time there could be number of other logs corresponding to the facies. This paper could be extended in future to identify the lithology information and check their dependencies with such log attributes using Bayesian network. This could yield different results as the conditional probability would rely upon number of other inputs.

6. **REFERENCES**


Using Networking Tools to Facilitate Knowledge Creation and Conversion:
“An Empirical Study in Police College-Abu Dhabi”
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Abstract:
In the present and future, organizations are challenged to seek the best ways and tools to invest on for knowledge creation and utilization to be able to achieve competitive advantage. This study examines the role of using the variety types of networking tools to facilitate knowledge creation and conversion. The population for this study consist of all employees at the police college-Abu Dhabi. A simple random sampling technique was used to select the respondents surveyed for this study, a total of 220 questionnaires were administered to respondents chosen from different administration; statistical tools were used to test the hypothesis such as: one way ANOVA and simple regression. The findings indicated that there were no significant differences in the perception of employees toward the utilization of networking tools for the purpose of knowledge creation and conversion. The study also showed that the networking tools had a significant impact on knowledge creation and conversion through applying the SECI model.

Keywords: Networking, Knowledge creation and conversion.

1. Introduction
Knowledge is one of the most valuable assets for modern business organizations particularly in today's current rapid business environment, therefore organizations are continually investing in all different types of tools and methods that can best enable the creation and acquisition of knowledge from different sources, people are supposedly, the main source of knowledge, and the best way of acquiring knowledge is through sharing it among and between individuals, because knowledge could increase its value when its shared with others.

It’s believed that knowledge sharing would facilitate the transformation of collective individual knowledge to organizational knowledge without the existence of orphaned knowledge and knowledge depreciation. (Yang, 2007)

Knowledge creation and conversion lie between the tacit and explicit forms. Tacit knowledge is actionable, and therefore most valuable, and much recent attention has focused on the importance of tacit knowledge for sustaining competitiveness (Lam, 2000). It is also the most important basis for the generation of new knowledge. In their often-referenced work on innovation and knowledge creation, Nonaka and Takeuchi (1995) posit that organizational knowledge is created through a continuous and dynamic interpersonal interaction between tacit and explicit knowledge (Stenmark, 2000). They also emphasize in their work that there are four modes in which organizational knowledge is created through the interaction and conversion between tacit and explicit. These are socialization, externalization, combination, internalization (Weichoo, 1998).

Organizations that plan to introduced knowledge management had difficulty, as they face the barrier of the application, acquisition, and extension of knowledge, hence information technologies play a critical role in shaping organizational efforts for knowledge creation, acquisition, integration, valuation, and use (Sambaurthy, 2005). The use of information technology is not new. The early pioneers have used it, but still
it is not common to all organizations; however it is important to note that knowledge creation cannot be done by the deployment of technology tools alone, rather it requires the willingness of people to deal with technology tools.

The primary purpose of this study is to assess the impact of information system technology utilization on applying the SECI model for the purpose of knowledge creation and conversion based on the belief that effective adoption of four modes of Nonaka and Takeuchi model requires the support of information system technology. This information technology represents of three types of networks (internet, intranet, and extranet) and the database. These components play a critical role as they facilitate and accelerate the speed of knowledge transfer and conversion from tacit to explicit and vice versa. The various types of tools which has been developed for the purpose of this study (which were to be connected and utilized along with networks and database) will be discussed and elaborated on through out theoretical framework.

2. Theoretical Framework

2.1. Knowledge Value

The success of a company in the twenty-first century will be determined by the extent to which an organization’s members can develop their intellectual capabilities through knowledge creation. Thus, in order to sustain competitive advantage, managers’ understanding of knowledge creation and transfer is vital as the success of a company might be determined by managers’ intellectual capital. (Alipnour et al, 2011)

Human knowledge exist in different forms: tacit and explicit. Tacit knowledge is that which is experiential, intuitive, insights and hunches. It is the subjective and experience-based knowledge that cannot be expressed in words, sentences, and formalized or articulated, and therefore difficult to share. Explicit knowledge on the other hand refers to knowledge that has been expressed into words and numbers. Such knowledge can be shared formally and systematically in the form of data, specifications, manuals, drawings, audio and video tapes, computer programs, patents, and the like (Fernandez et al., 2004).

Despite the distinction between tacit and explicit knowledge, Nonaka and Takeuchi believe that tacit and explicit knowledge are mutually complementary entities, which interact with and interchange into each other in the creative activities of human beings (Kathuri, 2002).

2.2. Networking Tools

The focus of this study will be on networking tools that facilitate knowledge creation and sharing, which include of three types: Internet, intranet, extranet, and on database as a main infrastructure for knowledge creation and conversion.

Internet was designed to connect different networks (LANs and WANs) across the world and perform this task using special computers called routers (Jashapara, 2004). The most popular internet applications are e-mail, browsing the sites on the World Wide Web (WWW), and participating in special-interest news groups (O’Brien, 2002).

Intranets are internal company networks that use the internet and web technologies that allow users to find and share documents, collaborate, and communicate with each other. Think of an intranet as a mini-internet, one that is internal to accompany; only authorized users can access intranets, which are secured by firewalls (Malaga, 2005).

Extranets on the other hand is a web site that allows customers and business partner’s limited access to an organization’s extranet, similar to an intranet. An extranet uses internet and www protocols. It operates similar to intranets but is directed at customers rather than employees. By using extranets, companies are
making this type of information increasingly available at a single interactive site that is easy to navigate (Alter, 2001).  

**Database** refers to structured collection of electronically stored data that is controlled and accessed through computers based on predefined relationships between predefined types of data items related to a specific business, situation, or problem (Alter, 2001). Knowledge discovery in databases is a process used to search for and extract useful information from volumes of documents and data (Turban et al. 2006).

**Location of knowledge**

Knowledge resides in several different locations or reservoirs, as summarized in figure (1) they encompass people, including individuals and groups; artifacts, including practices, technologies and repositories; and organizational entities, including organizational units, organizations and inter organizational networks. Fernandez (2004)

-Figure (1) Locations of knowledge

**Knowledge in people**

Knowledge resides within the minds of individuals members of the firm. The knowledge stored in individuals is reason several companies continually seek ways to retain knowledge that might be lost because of individuals retiring or otherwise leaving the organization.

In addition, considerable knowledge resides within groups because of the relationship among the members of the group. Consequently, groups form beliefs about what works well and what does not. The collective knowledge is synergistic - greater than the sum of each individuals knowledge. (Fernandez, 2004)

- **Knowledge in Artifacts**

Knowledge is embedded in procedures, rules, and norms that are developed through experience overtime and guide future behavior. Considerable knowledge is also often stored in technology and systems, storing data, information technologies and computer based information systems; knowledge repositories could be either paper based, such as books, papers, and other documents, or electronically based.
- **Knowledge in organizational entities**

Knowledge is stored within an organization unit such as department or an office, the organizational unit represents a formal grouping of individuals, who come together not because of common interests, but instead because of organizational structuring.

Over time, as individuals occupying certain roles in an organizational unit depart and are replaced by others, the incumbents inherit some, but not all, of the knowledge development by their predecessors. This knowledge may have been acquired through the systems, practices, and relationships within that unit.

An organizational, such as a business unit on a corporation, also stores certain knowledge, especially contextually specific knowledge.

The norms, values, practices and culture within the organization, and across its organizational units, contain knowledge that is not stored within the mind of any one individual.

Finally, knowledge is also stored in interorganizational relationships. As organizations establish and consolidate relationships with customers and suppliers, they draw on knowledge embedded in those relationships. Both customers and suppliers have considerable knowledge about the strengths and weaknesses of those products that deal with, this enable the organization to learn from the experience of customers with the products that consume or use.

**Knowledge sharing tools**

The following knowledge management tools categories are most common used via information technology:

- **Intranet-Based systems:** Intranets, in their actual configuration, emphasize internal information, and are constructing important links among organizations and their employees. Intranet is an appropriate tool to systematize and add the explicit knowledge that is dispersed through departments. Intranet hypertext structure helps this process because the navigation through links can create a new organization of concepts. More than that, intranet hypertext structure facilitates new organization of concepts. Intranets become organizational assets, part of the structural dimension of the intellectual capital of organizations.

- **Electronic document management (EDM):** Electronic Document Management (EDM) systems are repositories of important corporate documents. EDM systems are presented as explicit knowledge stores, It also deal only with the explicit dimension of knowledge. Documents are an efficient way to exchange explicit knowledge that, organized and combined, can lead to new knowledge.

- **Workflow systems** Workflow systems support standardized business processes. These systems regulate the information flow from person to person, place to place, task to task, in processes that require ordered and structured information. The objective of workflow systems is to establish and accelerate the process flow, following its steps and tracking each activity that composes the process. They make explicit, the knowledge that is embedded in standard processes, mainly supporting the formal codification of existing knowledge.

- **Artificial intelligence- Based systems Artificial Intelligence** (AI) is the Computer Science field that has produced the first studies relating information to knowledge.

- **Business intelligence (BI):** Business Intelligence (BI) is a set of tools used to manipulate a mass of operational data and to extract essential business information from them.

- **Knowledge map systems:** The software in this category were specifically designed for Knowledge Management. Knowledge maps work like yellow-pages that contain a "who knows what" tools. A
knowledge map does not store knowledge. The map just points to people who own it, creating opportunities for knowledge exchange.

- **Innovation support tools**: Innovation support tools are software that contribute to knowledge generation along the product design process. These tools intend to create a virtual environment that stimulates the multiplication of insights and are especially used in industrial R&D (Research and Development).

- **Competitive intelligence tools**: Competitive intelligence (CI) aims at systematically feeding the organizational decision process with information about the organizational environment in order to make it possible to learn about it and to take better decisions in consequence.

- **Knowledge portals**: In an attempt to consolidate the various departmental intranets, organizations are constructing corporate intranets or portals which function as home pages to departmental intranet sites and external internet resources. A great contribution of portals is to integrate heterogeneous information sources, providing a standard interface to the users.

- **Video conferencing**: Desktop video conferencing (DTVC) provides a means for two or more people to see and hear each other from their desktop computer, enabling them to collaborate and share knowledge without leaving their desk.

- **Text-Based conferencing**: Individuals can share knowledge and information. Usenet news groups are worldwide discussion forums on a multitude of topics where discussions take place on an electronic bulletin board, with individuals posting messages for others to read. (Jashapara, 2004; Alter, 2002; Rodrigo, Baroni, 2001; Marwick, 2001)

3. **The Conceptual Framework and Hypothesis.**

This study developed a conceptual framework that consist of two parts: the first part of the framework consisted of information systems technology (networks of three types and database) and proposed tools that fit each mode; the second part illustrated the four modes of Nonaka and Takeuchi SECI model. Figure: 1) depicts the study model.

![Figure 1: Research Framework / Study Model.](image-url)
Hypothesis 1: Employees of all levels at the police college-Abu Dhabi will differ in their perception toward the utilization of networking tools for the purpose of knowledge creation and conversion.

Using networking tools utilization for applying SECI model: There are many common knowledge management tools categories, which can be effectively used via NETWORKING TOOLS for the purpose of knowledge creation and conversion they include: Intranet-Based, Electronic document management (EDM), Workflow systems support standardized business processes, Artificial intelligence-Based systems, Business intelligence (BI), Knowledge map systems. It also includes Innovation support tools, Competitive intelligence tools competitive intelligence (CI), Knowledge portals, and Video conferencing: Desktop video conferencing (DTVC), Text-Based conferencing (Jashapara, 2004; Alter, 2002; Rodrigo, Baroni, 2001; Marwick, 2001). Thus, we posit that:

Hypothesis 2: There is no significant impact of networking tools on applying SECI model by the employees of all levels at the police college-Abu Dhabi. This hypothesis is broken in to four minor hypotheses:

i. Networking tools utilization for socialization (tacit to tacit): Socialization refers to a process where certain individuals or groups share their own experience to create and deliver their tacit knowledge such as spiritual models and skills. It is the process of transforming one tacit knowledge into another (Huang & Wang, 2003).

The most typical way in which knowledge is built and shared is in face-to-face meetings and shared experiences. An increasing proportion of meetings and other interpersonal interactions use on-line tools known as groupware. Groupware is a blend of synchronous (like chat), asynchronous (like e-groups) people feel free to exchange opinions and collaborate. There are other common tools of groupware summarized by Jashapara (2004)which include: Group decision support systems (GDSS) with brainstorming, ideas generation and voting system, collaborative writing and white boards, computer-based conferencing, schedule meetings and daily organizers, and finally e-mail systems used proactively. Thus, we posit that:

H0: 2.a. There is no significant impact of networking tools on applying socialization for the purpose of knowledge creation and conversion.

ii. Networking tools utilization for externalization (tacit to explicit): Externalization refers to a process where tacit knowledge has gone through a socialization process and transformed into a specific concept (Explicit knowledge). Through an externalization process, tacit knowledge becomes specified, and metaphors, analogies, concepts, hypothesis and models, take shape (Nonaka, 1998). Collaboration systems and other groupware (for example, specialized brainstorming applications) can support this kind of interaction to some extent. On-line discussion databases are another potential tool to capture tacit knowledge and to apply it to immediate problems (Marwick, 2001).

Newsgroups and similar forums are open to all, unlike typical team discussions, and share some of the same characteristics in that questions can be posed and answered, but differ in that the participants are typically strangers. Newsgroups are willing to offer advice and assistance, presumably driven by a mixture of motivations including altruism, wish to be seen as an expert, and the thanks and positive feedback contributed by people they have helped (Kathuri, 2002). Thus, we posit that:

H0: 2.b. There is no significant impact of networking tools on applying externalization for the purpose of knowledge creation and conversion.
iii. **Networking tools utilization for combination (explicit to explicit):** Combination refers to a process where explicit knowledge is converted into more complicated sets of explicit knowledge through the systemization of concepts and conversion of knowledge (Nonaka & Konno, 1998). Once tacit knowledge has been conceptualized and articulated, thus converting it to explicit knowledge, capturing it in a persistent form as a report, e-mail, a presentation, or a Web page makes it available to the rest of the organization. Although the most common way by far to capture knowledge is to write a document, technology has made the use of other forms of media feasible. Digital audio and video recordings are now easily produced by those that have access to and know how to use the equipment and an expert may find that speaking to a camera or microphone is easier or more convenient than writing, particularly if the video is of a presentation that has to be made in the ordinary course of business. Search and data mining tools are the most important technology for the manipulation of explicit knowledge. Thus, we posit that:

**Hₐ: 2.c.** There is no significant impact of networking tools on applying the combination for the purpose of knowledge creation and conversion.

iv. **Networking tools utilization for internalization (explicit to tacit):** Internalization refers to a process where new knowledge is created through the conversion of explicit knowledge into tacit knowledge within an organization (Nonaka & Konno, 1998). It is closely connected with “learning through practice” (Huang & Wang, 2003). Internalization takes place when explicit knowledge is exposed to a new concept or method that is better than the existing ones (Riggins & Rhee, 1999). Technology can help users form new tacit knowledge, for example, by better appreciating and understanding explicit knowledge. It is a challenge of particular importance in knowledge management, since acquisition of tacit knowledge is a necessary precursor to taking constructive action. Methods to process explicit knowledge, already described, can support understanding. For example putting a document in the context of a subject category or of a step in a business process, by using document categorization can help a user to understand the applicability or potential value of its information. Thus, we posit that:

**Hₐ: 2.d.** There is no significant impact of networking tools on applying internalisation for the purpose of knowledge creation and conversion.

4. **Literature Review**

Kamla & Olfman, (2017) in their research focus on Inter-organizational knowledge sharing systems (IKSS) are crucial for scientific, social and economic development especially in knowledge-intensive sectors. Knowledge sharing processes and systems will not only be challenged by individual and organizational factors but also by social, technical and political inter-organizational factors.

Muhammad et al, (2016) focus to develop and combined an understanding of the antecedents of knowledge sharing behaviour among the non-academic staff of different higher learning institutions in Malaysia, and the results indicate that attitude and subjective norms both influence the staff knowledge sharing behaviour significantly and positively. Additionally, this research also revealed that intention of knowledge sharing variable plays a substantial role as a mediating variable in those relationships.

Zahra (2015) in her article highlights key findings from a 25-year-long stream of research, conducted in several countries, that shows how CE creates knowledge and the variety of knowledge that emerges from different CE activities. It also explains the role of entrepreneurial hubs in capturing, accumulating, converting and translating, and integrating this knowledge, enabling companies to build new revenue streams.
Jalonen (2014) explores in his paper the interplay between knowledge and emotions in the organisational knowledge creation process in the context of social media. The paper concludes that knowledge and emotion shared in social media contribute to the social identity, which increases the odds of altruistic behaviour towards others in a way that benefits the organisation.

Caldas & Cândido (2013) tried in their study to analyze the dynamics of inter-organizational knowledge conversion into existing Ba spaces in a cooperative network. The data analysis was performed from the triangulation of primary and secondary data and from the non-participant observation, within specific variables. The results point that the network displays an unfavorable configuration regarding the favorable characteristics to dynamics of knowledge conversion, which influences negatively its performance, especially the intensity and quality of information.

CEPTUREANU & CEPTUREANU (2010) indicate in their study that, Capturing and / or creating knowledge is a central part of the implementation of knowledge management and is the first stage of the cycle knowledge management. There are several approaches, techniques and tools that can be used to "extract" explicit knowledge to create new ones and to organize all knowledge in a systematic manner. Translation of knowledge into a form explicit or understandable called encoding, facilitates other knowledge management processes, such as storage or dissemination of knowledge. Multidisciplinary nature of knowledge management is highlighted by the fact that techniques used to capture knowledge from several fields such as sociology, economics, mathematical analysis etc.

Meng Yew (2006) found in his study that the online study course encouraged processes and created conditions consistent with Nonaka model of knowledge creation, the study also found that the student gained deep insights and understandings laden with tacit knowledge.

Another interesting result of Berryman (2005) which was conducted to determine whether a relationship exists among participant group demographics (experience), and implementation of an integrated knowledge transfer system. Results suggested that an online training implementation is a valid tool for certain specific transfer design characteristics. The application of knowledge transfer system designed around organization-specific variables showed promise as a factor in enhanced knowledge transfer in web based training in virtual organizations.

Lertpittayapoom (2005) stressed in his study the importance of critical knowledge, which can be obtained from the environment, often through partnership arrangements. Such arrangements are widespread in information system implementation where technology-related capabilities are vital to the success of the implementation. The study followed a qualitative research methodology by conducting an in depth case study to answer the research questions. The case study is a software implementation project where the client is a major University in the Midwestern part of the US and the major vendor is one of the largest technology vendors in the technology industry. It was found that to involve the flows of knowledge at the individuals, groups, and organizational levels; knowledge sharing could be observed from the knowledge that flows from one level to another.

5. Study Methodology

5.1. Population and Sample

The target population of this study comprised all the employees at the police college-Abu Dhabi, (200) questionnaires were distributed to employees in different departments; (198) questionnaires were returned
from academic staff, (4) questionnaires were excluded from the analysis leaving (194) questionnaires that were included in the analysis.

5.2. Data Collection
Primary data collection and secondary data collection methods were engaged. The primary data collection was carried out using a self-designed questionnaire. Secondary data was collected based on the findings of prior studies, published papers, articles, books and the World Wide Web (Internet).

5.3. Instrument for Primary Data Collection
A questionnaire survey was adopted in this study to collect primary data, we selected (16) items of Information Systems Technology as it represents the networking tools, and (22) item of the SECI model as follow: (1-4) measures the usage of Internet, (5-8) measures the usage of Intranet, (9-12) measures the usage of Extranet, (13-16) measures the usage of Database, (17-22) measures the applying of Socialization, (23-28) measures the applying of Externalization, (29-33) measures the applying of Combination, (34-38) measures the applying of Internalization.

5.4. Validity and Reliability of the Data

5.4.1. Validity of Data Collected
To ensure the face validity of the instrument tool, it was given to six expert referees. The referees displayed their constructive comments and suggestions, which were taken into consideration.

5.4.2. Reliability of Data Collected
The reliability of data collected was measured using Cronbach alpha coefficient; the reliability test was conducted to check for inter-item correlation in each of the variables in the questionnaire. The test results are as follows: Cronbach alpha for Independent Variable = 0.8642, Cronbach alpha for dependent Variable = 0.8951, Cronbach alpha for over all instrument = 0.9255, which exceeded the acceptable limit.

5.4.3. Data Analysis
In order to test the hypothesis, the following tools were used: descriptive analysis frequencies, means and standard deviation were calculated, while to test the hypothesis one way ANOVA was used to measure the differences between groups, and finally simple regression analysis was calculated to assess the impact of IST on applying the SECI model.


6.1. Test Hypothesis 1
Test whether employees at the police college-Abu Dhabi will differ in their perception toward the utilization of networking tools for the purpose of knowledge creation and conversion, we carried out one-way ANOVA analysis. It was found that ANOVA for the perception is not significant, refer to Table (1) (sum of square between groups =0. 172with (DF=1, F=0. 567, P=0. 403). Based on this result we reject the null hypothesis1, and accept the alternative hypothesis, the perception of employees at the police college do not differ toward the utilization of IST for the purpose of knowledge creation and conversion.
6.2. Test the Major Hypothesis 2

Test that "there is no significant impact of networking tools utilization on applying SECI model by the employees at the police college-Abu Dhabi". This hypothesis is the study carried out the simple regression to test the major hypothesis; tables (2.a) depict the model. It was found encouraging result here. It shows that the value of ($R^2 = 0.434$), this means that IST was able to explain (434%) of the variance in the dependent variable, it also shows the F value is ($f=48.163$) significant at ($P \leq 0.05$), in addition the value of Beta ($\beta=0.651$, $P \leq 0.05$). Based on the result we reject the null hypothesis 2 and accept alternative hypothesis that indicate networking tools has a significant impact on applying the SECI model by the employees at the police college-Abu Dhabi at the level ($P \leq 0.05$).

Table (2)

Regression results: Impact of networking tools utilization on applying the SECI model

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$\beta$</th>
<th>F</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall factors</td>
<td>.66</td>
<td>.43</td>
<td>.434</td>
<td>.651</td>
<td>48.163</td>
<td>6.155</td>
<td>.000*</td>
</tr>
</tbody>
</table>

Note: *Significant level at $p \leq 0.05$

6.3. Test Minor hypotheses

6.3.1. Test Minor Ho: 2.a

That "There is no significant impact of networking tools utilization on applying socialization for the purpose of knowledge creation and conversion". The study carried out the simple regression to test the minor hypothesis. Tables (3a) depict the model. It shows that the value of ($R^2 = 0.625$), this means that networking tools were able to explain (625%) of the variance in the dependent variable (socialization). It also shows the F value is ($f=74.634$) significant at level ($P \leq 0.05$), which mean there is statistical evidence to support the existence of a relationship effect between the utilization of information systems technology and socialization, it also shows that the coefficients of individual independent variables of internet, intranet, extranet, database is: (0.085, -0.048, 0.346, and 0.489) respectively. In addition there is statistical evidence to show that beta value for extranet ($\beta=0.346$, $P \leq 0.05$), and database ($\beta=0.478$, $P \leq 0.05$). Based on the result we reject the Ho: 2.a and accept alternative hypothesis that indicates: networking tools has a significant impact on socialization at level ($P \leq 0.05$).

Table (3a)

Regression results: Impact of networking tools utilization on Socialization
6.3.2. Test minor Ho: 2.b
That "There is no significant impact of networking tools utilization on applying Externalization for the purpose of knowledge creation and conversion". The study carried out the simple regression to test the minor hypothesis. Tables (4.a) depict the model it shows that the value of \( R^2 = 0.229 \), this means that networking tools was able to explain \( (229\%) \) of the variance in the dependent variable (externalization). It also shows the F value is \( (f=12.215) \) significant at level \( (P \leq 0.05) \), which means there is statistical evidence to support the existence of a relationship effect between the utilization of information systems technology and socialization. It also shows that the coefficients of individual independent variables of internet, intranet, extranet, database is: \((-0.023, -0.151, 0.062, and 0.477)\) respectively. In addition, there is statistical evidence to show that beta value for intranet \( (\beta = 0.083, P \leq 0.05) \) and database \( (\beta = 0.477, P \leq 0.05) \). Based on the result we reject the Ho: 2.b and accept alternative hypothesis that indicates: networking tools has a significant impact on externalization at level \( (P \leq 0.05) \).

Table (4a)
Regression results: Impact of networking tools utilization on Externalization

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>( R^2 )</th>
<th>Adj. ( R^2 )</th>
<th>( \beta )</th>
<th>F</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictor: Over all factors</td>
<td>.78</td>
<td>.62</td>
<td>.608</td>
<td>.478</td>
<td>74.634</td>
<td>1.533</td>
<td>.000*</td>
</tr>
</tbody>
</table>

Note: *Significant level at \( p \leq 0.05 \)

6.3.3. Test Minor Ho: 2.c
That "There is no significant impact of networking tools utilization on applying combination for the purpose of knowledge creation and conversion". The study carried out the simple regression to test the minor hypothesis. Tables (5.a) depict the model. It shows that the value of \( R^2 = 0.309 \), this means that networking tools were able to explain \( (309\%) \) of the variance in the dependent variable (combination). It also shows the F value is \( (f=19.016) \) significant at \( (P \leq 0.05) \), which means there is statistical evidence to support the existence of a relationship effect between the utilization of information systems technology and combination. It also shows that the coefficients of individual independent variables of Internet, intranet, extranet, database are \((-0.073, 0.045, -0.033, and 0.568)\) respectively. In addition, there is statistical evidence to show that beta value for database \( (\beta = 0.568, P \leq 0.05) \). Based on the result we reject the Ho: 2.c and accept alternative hypothesis that indicates: networking tools has a significant impact at level \( (P \leq 0.05) \) on combination.

Table (5a)
Regression results: Impact of networking tools utilization on Combination

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6.3.4. Test minor Ho:2.d
Test whether there is no significant impact of networking tools utilization on applying the internalization for the purpose of knowledge creation and conversion. The study carried out the simple regression to test the minor hypothesis. Tables (6.a) depict the model, it shows that the value of ($R^2 = 0.432$), this means that networking tools were able to explain (432%) of the variance in the dependent variable (internalization), it also shows the $F$ value is ($f=34.466$) significant at ($P\leq0.000$) there is statistical evidence to support the existence of a relationship effect between the utilization of information systems technology and combination between academic staff. It also shows that the coefficients of individual independent variables of internet, intranet, extranet, database are (0.168, 0.058, 0.411, and 0.166) respectively. In addition there is statistical evidence to show that beta value for Internet ($\beta=0.176$, $P\leq0.05$), extranet ($\beta=0.411$, $P\leq0.05$), and database ($\beta=0.166$, $P\leq0.05$). Based on the result we reject the $Ho: 2.d$ and accept alternative hypothesis that indicates: networking tools has a significant impact at level ($P\leq0.05$) on internalization.

Table (6a)
Regression results: Impact of networking tools utilization on Internalization

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$\beta$</th>
<th>F</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictor: Over all factors</td>
<td>.54</td>
<td>.30</td>
<td>.283</td>
<td>-.073</td>
<td>19.016</td>
<td>8.465</td>
<td>.000*</td>
</tr>
</tbody>
</table>

Note: *Significant level at $p \leq 0.05$

7. Conclusion and Recommendations
The findings of this empirical study confirmed the following:

1. The study indicated that there are no differences between all employees at the police college-Abu Dhabi in their Perception toward the utilization of information systems technology for the purpose of knowledge creation and conversion.
2. The Study revealed that networking tools had a significant impact at level ($P\leq0.05$) on knowledge creation and conversion through applying the SECI model by the employees at the police college-Abu Dhabi.
3. The study showed that there is statistical evidence to support the existence relationship effect between the utilization of networking tools and socialization, In addition, the study showed that $\beta$ value for extranet, and database is significant at level ($P\leq0.05$).
4. The study revealed that there is statistical evidence to support the existence relationship effect between the utilization of networking tools and externalization; In addition, the study showed that $\beta$ value for intranet and database is significant at level ($P\leq0.05$).
5. The study indicated that there is statistical evidence to support the existence relationship effect between the utilization of networking tools and combination; In addition, the study showed that $\beta$ value for database is significant at level ($P\leq0.05$).
6. The study indicated that there is statistical evidence to support the existence relationship effect between the utilization of networking tools and internalization; In addition, the study showed that \( \beta \) value for internet, extranet, and database is significant at level \( (P \leq 0.05) \).

Based on the study findings, the authors make the following recommendations:

1. To continue encourage and motivate employees to share knowledge among employees and between them at all levels.
2. It’s very important to create an environment and culture that support the knowledge creation and sharing, and support the socialization that may be ensures the trust which help in facilitating the movement and transfer of knowledge.
3. It’s important to continue invest in the networking tools that support the knowledge creation and sharing among all employees.
4. There are other tools that can be adopted to support the knowledge creation and sharing such as; knowledge café, creating knowledge forums, community of practices, workshops…etc.

8. References

Job Satisfaction, Organizational Citizenship Behaviour And Procedural Justice: An Empirical Study In Hospitality Industry
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Abstract
Organizational Citizenship behavior has become very vital for management due to positive outcomes associated with it. OCB improves excellence, productivity and overall business profitability. Antecedents of OCB are a matter of inquisitiveness and research. This study tries to unfurl the association between job satisfaction and OCB in the growing field of tourism and hospitality across north Indian cities. A moderator variable, procedural justice, is also tested in relation to these variables. Simple linear regression and hierarchical multiple regression are used to test the hypotheses. The results suggest that job satisfaction significantly predicts OCB and procedural justice act as a moderator. The outcomes are discussed and implications and learning are outlined. Limitations of the study are discussed and direction for future research is indicated.

Key Words: Job Satisfaction, Organizational Citizenship Behaviour, Procedural Justice, Moderation

Organizational citizenship behaviour in this competitive era, where mere fulfilling the assigned duties is not sufficed and discretionary positive behaviour is given considerable value, is sought after by the management. Job satisfaction is one very strong factor which brings out positive behaviour from employees. This study attempts to understand whether OCB in context of job satisfaction. Alongside it also explore procedural justice has a possible moderator between the two factors. This paper attempts to fill a gap in understanding OCB, especially in context of an inter-relationship of job satisfaction and procedural justice.

Job Satisfaction and Organizational Citizenship Behaviour
Job satisfaction is a work related aspect that is widely studied. In the field of organizational studies it may be the most researched area. (Judge & Church, 2000). Due to its significance in understanding employee’s behaviour, many models of job satisfaction have been formulated. Research shows that there is a overwhelming relation between job satisfaction and successful organizations (Volkwein & Zhou, 2003) Locke (1976) definition of job satisfaction is most popular, it states that job satisfaction is "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (p. 1304). Hoppock (1935) defined job satisfaction as psychological, physiological and environmental circumstances that lead to satisfaction in a job.

Smith, Kendall, & Hulin (1969) assert that pay, promotion, kind of co-workers, type of supervisors, and work itself were regarded as fundamental facets of job satisfaction. Workplace environment, recognition and management were added by Locke (1976). Spector (1997) observed that job characteristics (e.g., autonomy) and individual characteristics (e.g., locus of control) are significantly related to job satisfaction. Feedback from supervisor (Anseel and Lievens, 2007), a culture of learning (Egan, Yang, and Bartlett, 2004), good career prospects (Gaertner and Nollen,1992) and communication by top leadership (Pincus, 1986) are important in understanding job satisfaction.
Job satisfaction influences many critical individual behaviors at the workplace. These are attendance at work (Scott & Taylor, 1985); turnover decisions (Carsten & Spector, 1987; Hom, Katerberg, & Hulin, 1979; decisions to retire (Schmitt & McCune, 1981); psychological withdrawal behaviors (Roznowski, Miller, & Rosse, 1992); prosocial and organizational citizenship behaviors (Bateman & Organ, 1983; Farrell, 1983; job performance (Judge, Thoresen, Bono, & Patton, 2001); and workplace incivility (Mount, Ilies, & Johnson, 2006).

The concept of organizational citizenship behaviour (OCB) was introduced by Bateman and Organ (1983). Organ’s (1988) definition of OCB is seen as most comprehensive and acceptable, it states that OCB is “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization”. On similar lines, Borman (2004) asserts that OCB are actions by employees which are not restricted to official job description and are valuable for organization. These behaviours may include participating voluntary, sharing of creative plans, non-squandering of organizational assets etc.

In depth understanding of the various facets of OCB has resulted in blossoming of sub dimensions of OCB, these are: Altruism, Conscientiousness, Civic Virtue, Sportsmanship, Courtesy. Williams & Anderson (1991) further bifurcated OCB in two categories: one as behavior that is directed towards the individual (OCBI) and the other as behavior that is directed towards the organization (OCBO). In answering as to why employees indulge in OCB, Rioux and Penner (2001) assert that impression management, pro-social values, and organizational concerns push employees to exhibit OCB.

According to Podsakoff, MacKenzie, Paine, & Bachrach (2000) research on OCB has gained significance as establishments are very keen to gather information and forecast human behaviour. Yen & Niehoff (2004) acknowledge that OCB is strongly associated with effectiveness in organization. Similarly, Podsakoff & MacKenzie (1994) have also argued that organizational success is predicted by OCB. Also very significantly, Podsakoff et al. (2009) and Chen, Hui, and Sego (1998) in two different work observed that OCB is negatively associated to turnover and employee absenteeism. Some other implications of OCB are, positive perception of supervisors (Vilela, Varela Gonzalez, & Ferrin, 2008), high performance ratings (Allen & Rush, 1998), improvement in group performance (Dunlop & Lee, 2004), high productiveness (Sun et al., 2007) and rise in profits (Koys, 2001).

Separate studies by Evans & Davis (2005) and Lin (2008) found that OCB (especially OCB towards individuals) resulted in sharing and exchanging of knowledge, especially tacit knowledge among group members and it lead to the improvement in doing a task and better productivity. Universally it is recognized that tacit knowledge is relevant for organizational learning and enhancing the capabilities of employees.

In terms of antecedents of OCB, employee’s perceived fairness is seen as a strong variable, and is explained by equity theory (Adams, 1965). Fairness with regard to input (effort) and output (reward) enhances OCB (MacKenzie, Podsakoff, & Fetter, 1993). Meta-analytical research and others (Ilies, Nahrgang, & Morgeson, 2007; LePine, Erez, & Johnson, 2002; Podsakoff et al., 2009) found that individual, task and organizational characteristics, and transformational leadership behaviours are strongly related to OCB.

**Does job satisfaction predict OCB?**

Organ (1988b) asserts that job satisfaction and OCB has a strong association. Moorman et al, (1993) observe that this assertion of Organ formed the basis of OCB being studied in context of job satisfaction. Organ (1990) acknowledges that social exchange theory is the principle that aids in our understanding of the relation between job satisfaction and organizational citizenship behaviour. Social exchange theory...
asserts that if required conditions are present in an organization, employees would reciprocate positively. Blau (1964) worked extensively on social exchange concept, he states that employee and organization are intertwined through exchange relationship. Coyle-Shapiro (2002) says that core principle in social exchange is the norm of reciprocity which according to Gouldner (1960) is obligation of employees to respond in a favourable manner when they are treated nicely by the organization.

As stated earlier satisfaction with remuneration, promotion decisions, good supervisors and work itself are regarded as fundamentals of job satisfaction. These are all provided by the organization for their employees, presence of these and other features like autonomy in work, presence of a learning culture etc leads to employees job satisfaction. When employees due to these aspects feel satisfaction in their jobs, then they are obliged to respond with positive behaviour and actions. In this context it should also lead to employees reciprocating with organizational citizenship behaviour.

This is found in research by Bateman and Organ (1983), Smith and co-authors (1983), Organ and Lingl (1995), who assert that job satisfaction is strongly and positively related to OCB. In their studies, Williams and Anderson (1991), Lapierre and Hackett (2007), and Bowling (2010) Organ and Ryan (1995), Judge and colleagues (2001) also found positive effect of job satisfaction on OCB. Hoffman and associates (2007) in their work reported that job satisfaction is seen as causing variation in OCB. Thus it is posited that:

**Hypothesis 1: Job Satisfaction will positively predict Organization Citizenship behaviour.**

**Procedural Justice as a moderator**

Procedural justice refers to the perceived fairness of decision-making procedures (Leventhal, 1980). Employees gauge the procedures and processes that are adopted to come to a decision, and put great value on these being fair and just. Procedures are scrutinized for the “degree of consistency, bias suppression, accuracy, correctability and ethicality” (Leventhal, 1980). Fair procedure is known to reduce unfavourable outcomes (Bies and Shapiro, 1988). Thibaut and Walker (1975) observe that procedural justice has incredible value due to its ability to influence long term outcomes.

Procedural justice has a direct relation with OCB and it also impacts OCB indirectly in conjunction with other variables (Moorman et al., 1998; Moorman, 1991). According to Organ (1990) perception of fairness plays a leading role in enhancing organizational citizenship behaviours. Several researches have articulated that among all the three dimensions of justice, procedural justice is the strongest predictor of organizational citizenship behaviors (Chiaburu & Lim, 2008; Cropanzano, Preha, & Chen, 2002). Skarlicki and Latham (1997) found that higher level of OCB was displayed by members of union whose stewards were trained methodically to observe fair behavior in various processes. Indian studies by Kamdar et al.(2006) and Gupta & Singh (2013) found a positive correlation between procedural justice and various dimensions of OCB. Aryee et al., (2002) acknowledge that employees exhibit beneficial work attitudes if they perceive fairness in organization. Procedural justice is an important variable that influences employee thinking with regard to other key variables. As fairness in processes and practices is vital to any organizational effort, procedural justice is likely to act as a moderator which in conjunction with one variable affects the other. Various sub-dimensions of job satisfaction have been outlined earlier in this paper. But presence of procedural fairness is valuable in enhancing the impact of job satisfaction on OCB. High level of procedural fairness in organization in interaction with job satisfaction is likely to enhance the employees OCB. Here it is posited that:

**Hypothesis 2: Procedural justice will moderate the relation between job satisfaction and organization citizenship behaviour**
Framework of the study

Figure 1

Research Methodology

Sample and Data Collection

The data was collected from three north Indian cities which are a hub of economic activity. The establishments included Hotel/Accommodation, travel agency/tour operator, online travel agent and adventure tour operators.

Questionnaires were sent through email and the respondents were briefed about the study. The final sample consisted of 204 valid responses, out of the total 325 distributed questionnaires. Out of the valid responses, 64.7% were males and 35.3% were females. The respondents in the study on an average were quite young, with around 90% under the age of 40 years.

Measurement Scales

The respondents were asked to make their choice on a five-point Likert-scale ranging from 1 to 5, with 1 indicating ‘strongly disagree’ and 5 for ‘strongly agree’.

Procedural Justice (PJ): Procedural Justice was measured by a popular validated scale developed by Niehoff and Moorman (1993). It contains 6 items and a sample item is as follows, “My supervisor makes sure that all employee concerns are heard before Job decisions are made”. The scale demonstrated an internal consistency (alpha) reliability of .86.

Organizational Citizenship Behavior (OCB): Organizational citizenship behaviour was measured by 8 items scale developed by Lee and Allen (2002). The sample statement of the scale is “You offer ideas to improve the functioning of the organization”. Cronbach’s alpha was 0.88.

Job Satisfaction (JS): Job satisfaction was measured by 3 item scale taken from Cammann et al. (1979). A sample item is as follows, “All in all, I am satisfied with my job”. Alpha was .73 in this study.
Results and Analysis

Table 1: Mean, Standard Deviation & Correlation Coefficients

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>JS</th>
<th>OCB</th>
<th>PJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Satisfaction</td>
<td>3.55</td>
<td>.94</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Citizenship Behavior</td>
<td>3.91</td>
<td>.69</td>
<td>.47*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Procedural Justice</td>
<td>3.41</td>
<td>.81</td>
<td>.59*</td>
<td>.49*</td>
<td>1</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.01 level (1-tailed).

N = 204

Table 1 presents the mean and standard deviation of the three variables in the study. It also shows the correlation among the three variables.

Table 2: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.47</td>
<td>.22</td>
<td>.22</td>
<td>.607</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Job Satisfaction

Table 3: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>22.20</td>
<td>1</td>
<td>22.20</td>
<td>60.13</td>
<td>.000a</td>
</tr>
<tr>
<td>Residual</td>
<td>74.58</td>
<td>202</td>
<td>.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>96.78</td>
<td>203</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Job Satisfaction

b. Dependent Variable: Organizational Citizenship Behaviour
To determine whether our independent variable, job satisfaction significantly predicted the dependent variable, organizational citizenship behaviour; a simple linear regression was performed. Tables 2, 3 & 4 indicate the results. Job satisfaction significantly predicted OCB, $b = .34, t (202) = 16.17, p < .001$. Job satisfaction also explained a very significant proportion of variance in employee engagement, $R^2 = .22, F (1, 202) = 60.13, p < .001$. Based on the results of simple linear regression, the first hypothesis is accepted.

To test the hypothesis, whether procedural justice moderates the relationship between job satisfaction and OCB, a hierarchical multiple regression analysis was conducted (Table 5). In the first step, job satisfaction and procedural justice were entered. These accounted for a significant amount of variance in OCB, $R^2 = .30, F (2, 201) = 43.14, p < .001$. To eliminate any concern regarding multicollinearity, the variables were centred. An interaction term between job satisfaction and OCB was created in line with Aiken & West (1991).

Subsequently, the interaction term was added to the regression model. As is evident in Table 5, the addition of interaction term changed the variance explained by the first model, $\Delta R^2 = .03, \Delta F (1, 200) = 8.84, p = .00$. Hence, procedural justice has a significant effect on the relationship between job satisfaction and OCB.

**Discussion**

The objective of this paper was to understand the relation between job satisfaction and organizational citizenship behaviour. It also attempted to study whether procedural justice influences the relation between
job satisfaction and organizational citizenship behaviour. This study finds that job satisfaction significantly predicts OCB. This is in line with previous findings (Bateman and Organ, 1983; Smith et al, 1983; Lapierre and Hackett, 2007). It also reinforces the principle of social exchange in relation to employee’s job satisfaction and its impact on organizational citizenship behavior. Employees are obliged to respond when organization supports them and create necessary condition to enhance job satisfaction, they reciprocate with positive and beneficial voluntary behaviour towards the organization. If organizations desire to enhance OCB, job satisfaction has to be an important variable they should work upon.

With regard to the second hypothesis, the outcome indicates that procedural justice in conjunction with job satisfaction has a significant effect on OCB. Thus, along with other moderators, procedural justice is established as a moderator between job satisfaction and OCB. It improves our ability to know more about how OCB is affected by job satisfaction in relation with procedural fairness. OCB is a feature that is strongly present in successful and leading organizations , and others should understand that without fairness OCB would just remain an ideal to be accomplished. As Yadav & Yadav (2016) assert that no organization in this volatile, uncertain, complex and ambiguous (VUCA) environment can strengthen its internal working without catering for fairness in organization.

Implications, Limitation & Further Research
This study has some important implications for management. Senior managers should work hard on improving various facets of job satisfaction. They should be eager and aware of procedures and processes that might be perceived as unfair. Enhancement of OCB requires extra effort from the management, especially in areas of human resource management. All key areas like rewards, promotions and training should be based on transparency; performance management decisions should follow clear and fair procedures.

Limitations can unintentionally appear in any research work. As the research design is cross-sectional , conclusions with regard to cause-effect as shown in framework model should be seen with caution . Being self-reported many potential biases like common-method variance can be present. This work is limited to tourism field in north Indian cities and therefore generalizations across other industries and cultures requires discreetness while making inferences.

The future path for research may focus on other industries like education, telecom etc. Long term studies over a period of time can be undertaken to suggest causality. Other moderators can be identified to understand OCB.

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Ethical Responsibilities for Assessment of Techniques and Legal Framework to Minimize IT Crimes in UAE
Dr. Mohammed A. Afifi, Obaida Alkhatib and Rashed Alshamsi

Abstract:
This paper provides an overview of the ethical values to prevent or minimize the IT crimes in UAE. The paper describes different aspects and views of the Ethical Responsibilities for Assessment of Techniques and Legal Framework that will directly contribute to Minimize IT Crimes. It will shed some lights on the IT crimes which might seem normal day-to-day activity on the Internet and how does it negatively affect the stability and security of the cyberspace. Also, the research shows some examples of such crimes, and then will address the possibilities and responsibilities of how to minimize the number of crimes. It all starts from the literature procedures of protecting self-machines by installing or activating the first guard line of a firewall to the most sophisticated access policy that can ever be applied. At this point, we cannot simply bypass the ethical impact of IT crimes on the cyber society and the major role of the awareness campaigns that will positively contribute and help to promote the ethical values that will become a part of the people’s culture to protect the cyberspace. As it has been experienced in various places, there are a number of differences in policies and procedures when designing the cyberspace access privileges, these differences are a simple result of the variations of cultures and laws applied for these locations. Finally, we will address impact of the legal framework that shapes the regulations and the ethical values to minimize the IT crimes in order to show to what level it has reached and how it became a major issue in our daily life.

Keywords: Cybercrime, IT-Crimes, Computer Ethics, Cyberspace Laws

1. INTRODUCTION
IT-Crimes have increased in the last decade, due to the development accruing every day. There is no limits to the technology change, it has reached all the fields, unlike two decades back which was related mostly to CPU speed and network communication enhancements, but now by the appearance of the Internet as a trend controlling the whole market, and by the introduction of different technologies like Internet Of Things (IoT), mobile application, network gaming, and cloud computing that made a lot of things did not remain the same where all being evolved.

Criminals on the other hand found large area to commit IT related crimes. This happened due to complicity and diversity of the new technologies appearing in the market. The new technologies as it has its advantages for enhancing our life, making the use of E-marketing and communication much easier than before, it has its disadvantages for giving the criminals a bigger ground and back-end door to attack the consumers.
The legal issues and laws has to accommodate this new kind of crimes and develop new or create better laws, to stop the misuse of such technologies, either by attacking ethics of community or committing crimes, that may cause a serious loss of money or threatening people’s lives.

An example is what happened in UAE when some of social media bloggers start attacking each other using inappropriate words, at the beginning there was not any clear or a direct law for such cyberspace cases but it was just the general public law used for normal social life. Then a fine was made which may reach up to 500,000 AED in case of using social media to attack others by words. As such, people started to think many times before committing such an act and many users stopped the use of inappropriate words due to this law. [1]

Many people may commit cybercrimes and offenses to other people and may violate laws without knowing the legal consequences due to their lack of education and cyberspace literature. Many people do not read or understand the legal issues mentioned in the Service Level Agreements they agree on during the process of signup for some services and accordingly they are not aware of committing a crime till it happens. This paper will introduce the ethical responsibilities and how to deal with different situations to avoid IT crimes in UAE.

2. LITERATURE REVIEW

All Cybercrimes can be prevented by using authentic technologies with the likes of a retina scan or any biometric test; developing or upgrading the existing technology; using firewalls in the computer; using original copies of software; using data recovering tool; by educating ourselves better to report the crimes and to have a knowledge of when our data is being tampered with. [2]

For the prevention of IT crimes a few methods that are suggested are using strong passwords; securing our computers with firewalls; blocking spywares attack; using the latest operating system; protecting our data; using a secure network; using an e-identity; securing our wireless fidelity network; getting better knowledge of fishy business. [3]

Strong defense is not enough. Legislation and law enforcement must be meshed together. Congress considered the Personal Data Privacy and Security Act of 2005 (Now 2008) which “contains many measures that will help, including increasing criminal penalties for computer fraud involving personal data, invoking RICO (Racketeer Influenced and Corrupt Organizations) Act provisions in cases of unauthorized access to personal information, and making it a crime to intentionally conceal a security breach involving personal data.” [4]

The way to protect IT is to follow preventive measures; individuals, institutions, and government alike should all follow the physical measures. We have seen the actions of the government and what bots and viruses are capable of and it is important that security measures be implemented. Apart from that the legal term for all the individual countries should be kept in mind. When talking about the global village; the “interoperability” in legal framework should be endorsed. [5]
Keeping Backups of the data and not indulging in cyber stalking would help in not being catfished. Using the public sites is yet another option to beware of the cybercrimes. It is completely impossible to eliminate cybercrime, but these measures could help in reducing them. [6]

Cybercrime is emerging as a serious threat. Worldwide governments, police departments and intelligence units have started to react. Initiatives to curb cross border cyber threats are taking shape. There have been special cyber cells across the country and they have started educating the personnel. This paper is an attempt to provide a glimpse on cybercrime in society. [7]

Basically there are three strategies to fight cybercrime these being proactive defense technique, reactive defense technique, recovery techniques. If these techniques are used judiciously and properly, one can come very close to eliminating cybercrimes. [8]

At the national level, both existing and new (or planned), cybercrime laws most often concern criminalization, indicating a predominant focus on establishing specialized offences for core cybercrime acts. Globally, many jurisdictions tend to perceive their criminal and procedural law frameworks to be sufficient, although this masks large regional differences. [9]

3. SCOPE AND LIMITATIONS

3.1 IT-Crime
Also called Cybercrime; Cybercrime is any criminal activity that involves a computer, networked device or a network. While most cybercrimes are carried out in order to generate profit for the cybercriminals, some cybercrimes are carried out against computers or devices directly to damage or disable them, while others use computers or networks to spread malware, illegal information, images or other materials. Some cybercrimes do both -- i.e., target computers to infect them with viruses, which are then spread to other machines and, sometimes, entire networks. [10]

Through the informatics revolution, IT crimes are being increased by the usage of a wide variety of IT-criminal attacks. Moreover, the attacking methods are improved which resorted to using of different technologies. A primary impact from cybercrime is financial, and cybercrime can include many different types of profit-driven criminal activity, including ransomware attacks, email and internet fraud and identity fraud, as well as attempts to steal financial account, credit card or other payment card information. Cybercriminals may target private personal information, as well as corporate data for theft and resale. [10] [11]

The ubiquity of internet connectivity has enabled an increase in the volume and pace of cybercrime activities because the criminal no longer needs to be physically present when committing a crime. The internet’s speed, convenience, anonymity and lack of borders make computer-based variations of financial crimes, such as ransomware, fraud and money laundering, as well as hate crimes, such as stalking and bullying, easier to carry out. [10]
Cybercriminal activity may be carried out by individuals or small groups with relatively little technical skill or by highly organized global criminal groups that may include skilled developers and others with relevant expertise. To further reduce the chances of detection and prosecution, cybercriminals often choose to operate in countries with weak or nonexistent cybercrime laws. [10]

### 3.2 IT-Crimes Areas

Table 1. Shows some applications of IT-Crimes [12]

<table>
<thead>
<tr>
<th>Area</th>
<th>Attack Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy</td>
<td>Using of others' data without their knowledge</td>
</tr>
<tr>
<td>Access to E-mails</td>
<td>Browsing the e-mails' messages without permission</td>
</tr>
<tr>
<td>Personal Health Information</td>
<td>Access to the patients records in the hospital's database without permission</td>
</tr>
<tr>
<td>Banking</td>
<td>Access to the customers' financial information which lead to steal money</td>
</tr>
<tr>
<td>Copyright</td>
<td>Publishing others' work under the attacker name</td>
</tr>
</tbody>
</table>

#### 3.3 IT-Crimes Examples

Hacking into a university database, bank-financial records, patients’ medical files, and governmental confidential files, all of these categories are examples of facing a daily non-stop IT criminal attacks where on the other hand, the attacked-party is working to improve the security measures to prevent any breach to its crucial data.

The following are some cases that involving the Cybercrimes which are based on Abu Dhabi Digital Governmental Laws, explains what actions involving technology are considered to be cybercrimes in the UAE and how these crimes are punished:

- Obtaining or publishing information of others without permission.
- Obtaining information of the government, or of institutions operating in the State without permission.
- Accessing a website for the purpose of harming it, prohibiting others from using it, obstructing communication between people or tapping their calls or messages.
- Using technology with the intent to commit or conceal a crime.
- Pirating websites of others.
- Destroying or disabling another electronic system or suspending e-mails.
- Obtaining the password of an information system. [13]
3.4 Minimizing Techniques
As a reaction of IT-Crimes, individuals and businesses are trying to minimize the IT-Crimes’ dangerous impact, where it is hard and far away to completely prevent most of the unlawful entries and direct IT-Crimes and threats. In order to do that, it is recommended to apply some precedent techniques which will help to reduce the dark-side and damage caused by attacks or before making some preventive measures to detect these attacks before happening over the individuals or the organization’s computers.

The suggested techniques are:

- Educate and train your employees about the danger of IT-Crimes; where they are the opened door for the hackers to let them access to the organization's data. [15]
- Protect your computer. This can be achieved by the followings:
  i. Use strong password: Short password is easy to be remembered and also easy to be hacked, so use a long one that having at least 8 characters which consist of a combination of upper and low characters, numbers, and symbols. Moreover, make sure to change the password in a periodically manner to reduce the likelihood of it being known. [16]
  ii. Install powerful firewall on your system which is like a wall in your home that prevents other people from accessing it.
  iii. Upgrade your computer operating system to make sure that you have the latest updates of the security tools.
  iv. Install intrusion detection which alarms the employees and IT-staff that a strange person is accessed to the systems.
- Back-up your information continuously to ensure that your data is stored in such another storage area in case you lost your current data due to hacking or failure in the servers.
- Having a restriction on accessing into sensitive data which only the critical data can be accessed by authorized users.
- Ensure that you have a security expert to take care of your organization's data.
- The concept of Bring Your Own Device (BYOD) is not allowed inside your organization scope. The usage of employees’ personal devices will lead to have a back-end door for the hackers to access to the organization network which means accessing to the sensitive data.

3.5 The Ethical Impact of IT-Crimes
Different cultures and nationalities lead to have different ethical standards in one community inside UAE. When we are talking about IT-Crimes and the ethical impact over each individual in the community so we have to mention how much this individual will be affected negatively due to the IT-crimes? The answer will be different from one to another, where the most affected parties are the governmental organizations and private sector. For example, one of the Healthcare Centers in UAE requests to have software from an IT firm. The IT firm will develop the software based on the Timelines that mentioned in the signed contract, but may this company will develop the software in such a bad way where there is no any respect to the Quality Standards in the software. In this case, may the IT firm will request to have a ready developed software by resorting to the outsourcing, so they will get a benefit by having a developed software, with less cost and within the timelines that they have. The software is ready and the Healthcare center started using the software after they paid the money to the IT firm. Later on, the software will face a huge amount
of run-time errors. In this case, we can call the ethicality of IT firm is too bad and the reputation will not be nice in the community because of the cheating methods that they used. Though, how to control these types of tricks in a legal way? [17]

3.6 The Legal Regulation of IT-Crimes in UAE

The variety of IT-Crimes will lead to have different legal regulations in each country. Previously, there was no such a digital control over any IT-Crime but gradually, governments started issuing a pool of different laws and penalties in case of having any IT-Crime. [18] The methods of catching the attackers are improving based on the periodically changes of technological tools. For example, one of the Information Security Centers in UAE that taking care of any illegal action of IT-Crime is Dubai Public Prosecution which has 51-laws related to Information Technology Crimes. These laws are restricting the movement of any IT-Criminal who want to do such an illegal activity against UAE different institutes. The 51-laws are focused over different IT-Crimes categories. For example, Article 17 states that anyone who publishing a pornography material will be forced to pay 250,000 AED to the government. [19] So as we noticed that as the technologies are becoming available to everyone at a very affordable cost, the IT-Crimes are increasing proportionally and this is where governments have to keep an eye and be careful tracing any illegal and unethical activities that will have a negative impact on the community.

4. ETHICAL RESPONSIBILITIES OF TECHNIQUES ASSESSMENT [19] [20]

The ethical responsibilities are not things to be dictated and applied; they are more like a sort of life that has to be cultivated and watered so the community itself becomes more protective and respecting the values of the cyberspace. The followings are answers for the most important questions addressing the issue:

I. What is the UAE society Ethical Responsibilities for Assessing the Minimizing Techniques of IT-Crimes?

In this era of technological advancements, IT crimes have become a major reason of concern. Nowadays, Internet is the solution to every problem, whether online shopping or studying, everything can be done with a connection to the Internet. However, due to our increased reliability on Internet, we have become more prone towards cybercrime too.

It is observed that minimization techniques are being applied on the cybercrimes, where public is aware of the seriousness of crime to the individuals and communities along with preventive measures.

The UAE society also has some ethical responsibilities towards these cybercrimes. They are:

- Spread Awareness - The society can spread awareness about the cybercrimes and the way sensitive data can be secured.
- Apply new rules and regulations - UAE participates in several that take place between nations. They can propose rules that restrict the usage of anyone's personal data.
- Ask nations to apply transparency - The policies regarding the access of organization's data should be transparent and known to public.
- Security checks should be promoted - UAE should announce the benefits of regular security checks to public.

II. Are the minimizing techniques helped Individuals and Community to protect their data from the hackers?
IT crime can be defined as a crime which is conducted by using computer as a medium. Either sensitive information is accessed and misused by the hacker or attempts are made to spoil one's image. Yes, the minimizing techniques are helping the community and individuals to protect their data from the hackers. Here are the ways to do that:

- **Educating employees** – Hackers use Malware to affect the system. There are links, which when clicked infect our system with virus. If employees are educated about IT crimes, they will never click on such links.
- **Passwords** – Strong passwords are tough to crack. They lead to secure system. But, this technique is mostly neglected. According to a survey by CNN Money, 'Password1’ is the most popular password for business systems.
- **Bring your own device** – This concept is being rejected by many organizations. This way company only has to worry about security of its own systems. This makes the data less vulnerable to unauthorized access.
- **Back up** – There are two terminologies involved here. First one is check pointing – to save the process till a particular point. So, backup for the process is present till that point. In case of data loss, process can be retrieved till its last check point. This retrieval process is known as roll back. So, back up helps to retrieve data in case any loss occurs.

### III. What are the point of views of individuals and community to have IT-Crimes?

The individuals and community have different views regarding IT crimes. Some know that these crimes should be taken seriously and other just ignore the existence of such issue. However, workshops and seminars are being organized all over the country regarding the IT crimes and Ethical responsibilities. They are making people and communities aware about these crimes and necessity of system security.

People now know about the spam mails and links. They are aware of the truth behind the lucrative offers that come through mails and other sources. Instead of pirated version of operating system, registered ones are being preferred.

In organizations, most of the people are aware about the importance of secure data and system. They know that leaking of sensitive data could cause them huge financial loss and its misuse can spoil their reputation. People know the seriousness of IT crimes but still there are communities that need to make aware about these crimes.

### IV. How UAE society is thinking about IT-Crimes?

There are several law made by the UAE society to keep the IT crimes in check. These laws make sure that data security is provided to the individuals as well as communities. The UAE methods against these crimes are adopted by GCC as well. According to the UAE cybercrime law no 5 (issued in 2012), of any individual is found guilty for misusing the computer or any other electronic network, he can be jailed or have a give a fine up to AED 3 million.

The hackers can be divided into three categories:

- **Minor hackers** - The one who hack accounts for fun.
- **Malevolent hackers** - The one who use hacking to take revenge from someone.
- **Criminals** - The one who use hacking for financial gains and have great knowledge about cyber world.
The punishment is given on the basis of these categories. It is possible that the hacker is a child, and hacked account out of curiosity. It is also possible that the hacker is a professional criminal. Hence, UAE society thinks that categorization of the hackers is important according to the crime conducted.

V. Are Individuals and Community suggesting more techniques to minimize the IT-crimes?
The minimization techniques are surely helpful in securing the system to some extent. But, they are not full proof. According to individuals and communities there are other techniques that can be added to the list. Addition of these techniques in the list will make the minimization techniques more reliable. These techniques can be:

- Combine passwords with human metrics - This means use fingerprints, retina scan or voice recognition along with password to unlock the system.
- Security check of employees - The security and background check of employees should also be conducted. We will know if anyone has a history of cybercrime.
- Use of cards or tokens - They should be provided to the authorized users.

5. CONCLUSION
As we have gone through the research, and the deep study of the related issue, it was found that the IT-Crimes are a major issue which should be addressed in many different aspects by the government, community, and individuals. Because of the new developments in the IT-Crimes, and what hackers try to do to our communities by expanding the criminal chances to attack, infect, or destroy our lives. The communities and individuals ethical values are in danger, and it might negatively affect the new generations, so the government has to be sure that they learn from an early educational level, how to immune the society and their ethical principles from the invasion in different areas and how to protect our culture. In addition, we have to make educational sessions and public awareness campaigns in order to literate people in how to deal with IT-Crimes in an ethical manner based on the legal regulations of UAE.

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