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## EDITORIAL

The editorial board of IJ-TIM are delighted to introduce the first issue of the second volume to 2022 year of the “International Journal of Technology, Innovation and Management” (IJTIM). The IJTIM is published by Global Academic Forum on Technology, Innovation and Management (GAF-TIM). The IJTIM aims to bring out the best of quality manuscripts from the field of technology, computation, and information. IJTIM’s focus is on research that brings out the best of technological world that is not only theoretical but is realistically practical. IJTIM makes sure that the research published in it, is genuine and new in the market to provide the academics, businesses and concerned audience the right track towards their growth and development. IJTIM’s mission is to deliver the advancement of technology, which is a never-ending road, to its readers.

The inaugural special issue1, volume1, of IJTIM includes six articles. In this issue, the implementation of enterprise resource planning (ERP) in the United Arab Emirates is discussed. The transformational leadership of the founding leaders of the United Arab Emirates: Sheikh Zayed Bin Sultan Al Nahyan and Sheikh Rashid Bin Saeed Al Maktoum also introduced. Impact of process visibility and work stress to improve service quality also highlighted. The issue shed the light on a cointegration analysis for the validity of purchasing power parity: evidence from middle east countries. As well as, the impact of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks. And finally, investigating the factors that influence students` choice of English studies as a major: the case of university of Nouakchott Al Aasriya, Mauritania is discussed.

This versatile range of articles being published in the first issue of 2022 is proof that IJTIM is aimed for high achievements. But the team of IJTIM is highly motivated to make sure that IJTIM achieves great results and reader and viewership within its first year. This can only be done, if the quality of articles is not being compromised at any cost.

IJTIM appreciates all the support that it is receiving from its members as well as from its readers.

### **Editors-in-Chief**

***Dr. Haitham M. Alzoubi and Dr. Taher M. Ghazal***

# THE IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING (ERP) IN THE UNITED ARAB EMIRATES: A CASE OF MUSANADA CORPORATION

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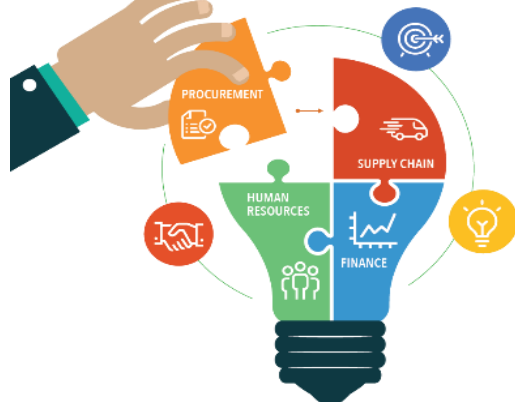
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## ABSTRACT

This study aims to examine the most significant factors that contributed to the system's success (ERP), how to implement it in the Musanada Corporation in the United Arab Emirates, and also the resistance of certain employees to this system. This study follows the qualitative methodology and data collection from company members (stakeholders in the company). A complete analysis of the study and submitted proposals to develop the system. This paper presents the study on the field so far and the results reached by the group's members and through data collection from stakeholders for the organization, providing the field study within analysis steps of implementation and application of the system in the institutions of the United Arab Emirates. It summarizes the advantages of the ERP system and the ability of companies in its implement it. Furthermore, it facilitates the external and internal processes (business processes and operations) and the internal development of the network in the company. ERP is significant in facilitating the task and reaching the desired goal (for the company's benefit). New technology has helped develop traditional systems and the presence of more security, ease of access to the desired goal, and the company's success to pass several actions in a short time.

**Keywords**—*Enterprise resource planning (ERP), Success factors, system implementation, cloud Enterprise resource planning, Mobile ERP.*

## 1. INTRODUCTION



Understanding the complexity of enterprise resource planning (herein denoted as ERP) is a vital framework that can enable both general initial framework that can enable both general and project managers in their daily endeavors. ERP is made about software developed by a business that facilitates the organization in automation as well as integration of a number of the business processes and typically enables the users to share common data as well as practices all across the enterprise hence production and accessibility of vital information throughout the

enterprise in a defined timeline [1]. The program enables accurate information is to be entered only once in a given system and becomes accessible to the users. Among the components that constitute the program are the software, the process flow, change management, and customer mindset [2]. Also, considering the elements of the program, the software is the most visible part of the program, and it is comprised of sub-elements such as finance, human resource, supply chain management, customer relationship management as well as business intelligence [3]. On the other hand, the process flow is concerned with the circulation of information amongst the different modules within the system [4].

Another component of the scheme, customer mindset, deals with how the information developed by the program is perceived or received by some people. This level consists of three tiers; user influence, team control as well as corporate power. The final component of the program is entailed a successful implementation of the whole system [5]. Change management, the last element, is managed at several stages, including user attitude, project changes, business changes, and user attitude, project changes, business changes, and user attitude, project changes, business changes, and business process changes. Initiation of the system in an organization follows various steps to ensure a smooth transition and hence adoption and further implementation of the program's purpose in a given business [6]. Therefore, the different stages followed include the following phases; pre-implementation, analysis, design, construction, and implementation. Therefore, the program's development sequence is vital since one step automatically leads to the next phase [7]. In the future works to be developed with regards to the system, there needs to be a focus on making a link to the program to the strategies of the organization as well as devising a framework that will enable the implementation of the system with the use of both portfolios as well as program management [8]. One major shortcoming of the scheme is that it entirely relies on the software [9][10].

In contrast, several components therein can be perfectly utilized to ensure the proper functionality of the program [11]. Overreliance on the software can be minimized through advocating for increased use of other components in the program. On the contrary, the program is beneficial since it ensures a requisite relay of information throughout the entire system in the shortest time possible, enabling easier accessibility to a broader population [12]. Similarly, the program allows easier management of changes in the course of the business institution, which are essential in adapting to newer changes in society and the requirements of the particular clients of the organization [13]. The journal is not requisite in how it handles the entire idea since its approach is wholesome. There is a limited step-by-step approach used in explaining the program; hence, the adoption of the people and the management becomes constrained in a way [14]. Future development on the same subject can, therefore, aim at developing a step-by-step scheme that provides requisite information and hence enables easier accessibility of the program and enhanced adoption and usage [15]. The goal of the research is to find the most significant factors that contributed to the system's success (ERP), how to implement it in the organizations of the United Arab Emirates, and how to resist certain employees and companies for this system. Plus, it is an opportunity for us to learn information and experience the system. This research focuses on the crucial elements, including the ERP system, implementation, and the main factors that helped change from the previous system to the new one [16]. Besides highlighting the successes factors and providing a study on the system used in the enterprise and comparing them with several studies of individuals who cared for this system because it is their view about the system's success and facilitate business processes and operations [15].

## 2. THEORETICAL BACKGROUND

ERP stands for *enterprise resource planning*, which is software used to manage the business process and enable an organization to use integrated applications to manage the business and computerize many back-office functions related to services, technology, and human resources [17]. ERP software combines the facets of an operation (product planning, manufacturing, development, marketing, and sales) in the application, database, and user interface. Considering the elements of the program, the software is the most visible part of the program [18]. It comprises sub-elements such as finance, human resource, supply chain management, customer relationship management, and business intelligence [3]. On the other hand, the process flow is concerned with the circulation of information amongst the



different modules within the system. Another component of the scheme, customer mindset, deals with how the information developed by the program is perceived or received by several people [8].

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ERP software usually consists of multiple enterprise software modules, and software modules are purchased individually, depending on the organization's technical capabilities and what best meets and fits the specific needs [22]. Each module of ERP software modules is focused only on one area of business processes, such as product development, planning, sales, or marketing [23]. A business can use ERP software to manage the activities of the back-office and tasks that include: supply chain management, Distribution process management, services knowledge base, prices, configuration, facilitate better project planning, improve the accuracy of financial data, automate employee life-cycle, accounting, and financial applications, standardize critical business procedures, reduce redundant tasks, assess business needs, lower purchasing costs, manage human resources and payroll [23].

The most common ERP modules include product planning, inventory control, material purchasing, accounting, distribution, marketing, finance, and HR. As ERP methodology has become more prevalent, software applications have emerged and are used to help business managers implement ERP into other business activities and may merge modules for business intelligence and CRM, displaying it as a single unified package [22]. Initiation of the system in an organization follows various steps to ensure a smooth transition and hence adoption and further implementation of the program's purpose in a given business. Therefore, the different

stages followed include the following phases; pre-implementation, analysis, design, construction, and implementation [24]. Therefore, the program's development sequence is vital since one step automatically leads to the next phase. In the future works to be developed with regards to the system, there needs to be a focus on making a link to the program to the strategies of the organization as well as devising a framework that will enable the implementation of the system with the use of both portfolios as well as program management [25]. One major shortcoming of the scheme is that it entirely relies on the software. In contrast, several components therein can be perfectly utilized to ensure the proper functionality of the program [11].

Overreliance on the software can be minimized through advocating for increased use of other components in the program [26]. On the contrary, the program is beneficial since it ensures a requisite relay of information throughout the entire system in the shortest time possible, enabling easier accessibility to a broader population. Similarly, the program allows easier management of changes in the course of the business institution, which are essential in adapting to newer changes in society and the requirements of the particular clients of the organization [27]. The journal is not requisite in how it handles the entire idea since its approach is wholesome. There is a limited step-by-step approach used in explaining the program, hence adopting explaining the program; hence, the adoption of the people and the management becomes constrained in a way [14]. Future development on the same subject can, therefore, aim at developing a step-by-step scheme that provides requisite information and hence enables easier accessibility of the program and enhanced adoption and usage [28].

### **3. LITERATURE REVIEW**

#### *3.1 Top 4 ERP Trends*

The last couple of years has released forces that are shifting the entire area. Four continuing and new trends have affected the enterprise ERP software: mobile ERP, cloud ERP, social ERP, and two-tier ERP [22]. Mobile ERP, employees, and administrators want real-time access to information regardless of where they are. Businesses are expected to adopt mobile ERP for the dashboards and reports and to conduct key business processes. Cloud ERP, although the cloud has been advancing steadily in the enterprise for some time, many ERP users have been unwilling to place data cloud [29].

Those reservations have been little by little disappearing as the benefit of the cloud become more visible. There was much hype about social media and how it is essential to add to ERP systems. Vendors have been adding social media packages to their ERP systems with much fanfare [30]. However, some are amazing if there is much gain to integrating ERP with social media. Two-tier ERP, Enterprises take care of every aspect of organizational systems once they attempt to build an all-encompassing ERP system. Adopting two tiers of ERP is brought by a change in strategy because of some expensive failures [22].

#### *3.2 What is Cloud ERP?*

Cloud computing or on-demand computing is one of the leading technology topics in the modern world. Cloud is the use of the internet to store records and documents and to provide shared computing resources. The cloud term covers anything shared on a commercial service such as Google to hosting the whole computing infrastructure of a global corporation from



remote data centers [31][32][33]. For more understanding, the National Institute of Standards (NIST) provides a formal US government computing. The cloud is mainly valuable for medium-sized and small businesses (SMBs) since it provides access to applications for full function at a reasonable price, without massive operating expenditure for software and hardware [34]. The company can quickly scale as its business grows or a new company is added if used by the correct cloud provider. Clouds ERP empowers the company's accounting, operations management, and reporting to run in the cloud. As one would expect, the vendors of Cloud ERP differ significantly in their service, technology, and functionality [5]. After researching the vendors of ERP cloud, it becomes clear that vendors have few everyday things beyond hosting an employment and application the internet to offer connectivity (ibid.) [35].

### 3.3 Brief history of ERP

In the 1960s, the designed and implemented enterprise information system (EIS) was a centralized computing system that automates inventory control systems using inventory control packages (IC) [36]. In the 1970s, material requiring planning (MRP) was developed. MRP involved the parts required for the production and planning of the product. In the 1980s, they introduce (MRPII) with a focus on improving the processes [37].

Manufacturing by synchronizing the materials with production requirements. ERP surfaced in the late 1980s and the beginning of the 1990s and targeted big complex companies (Revolv, n.d.) [38]. Companies were forced to arrange. Their business again to adapt the logic of the new software. In the 1990s, Gartner Group used ERP for the first time because ERP was seen or expected to extend the capabilities of material requirements planning (MRP), computer integrated manufacturing, and manufacturing resource planning (MRP). Previously, a vendor of ERP assembles separate packages for human resources, accounting maintenance, and others (you can add whatever module you want) [39]. However, in the mid of the 1990s, the ERP systems included all core enterprise functions, and governmental organizations started to use this system. In 2000, a problem with the euro disrupted the old systems, which gave the companies chances to install ERP systems instead. In consequence, ERP systems rapidly grew Throughout the 1990s [40].

The focus of the ERP system in the 1990s was on the functions of automating back-office that did not directly affect the public and customers. The Front office function that affects customers were integrated later, such as supplier relationship management (SRM), customer relationship management (CRM), e-business systems like e-government, e-commerce, e-telecom, etc [41].

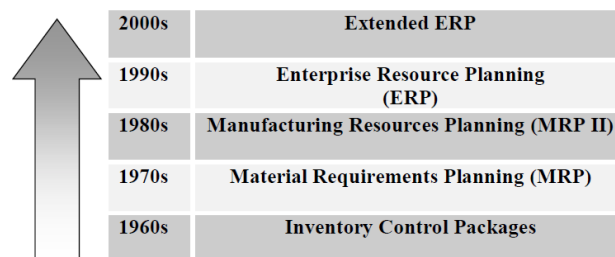
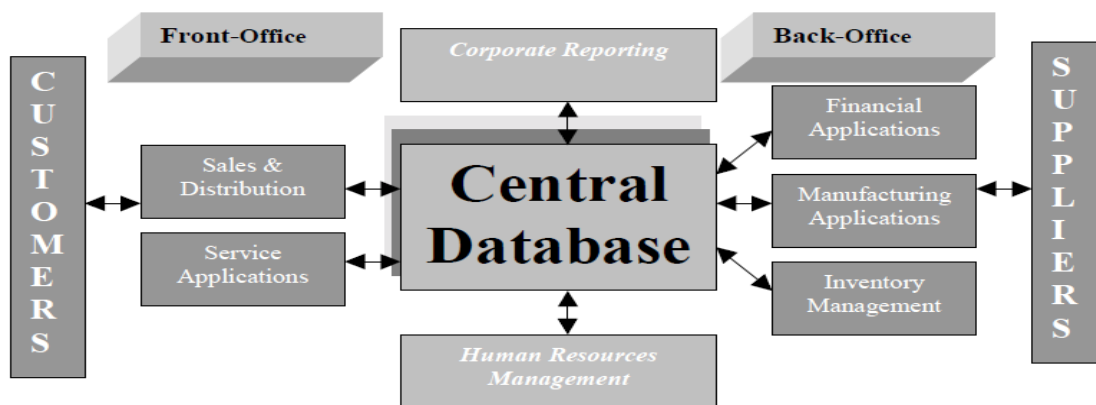


Exhibit 1-1 The evolution of ERP

### 3.4 Studies of ERP

There are continuous studies in the field of enterprise resource planning, and one of the newest studies was titled (A study of enterprise resource planning (ERP) system performance measurement using the quantitative balanced scorecard approach) that written by Yung-Chi Shena and Pih-Show Chenab (Department of Bio Business Management, National Chiayi University, No. 580, Simin Road, Chiayi 600, Taiwan, ROC), Chun-Hsien Wang (department of Business Administration, National Chiayi University, No. 580, Simin Road, Chiayi 600, Taiwan, ROC) [42]. The main topics are discussed under this title are a review of the relevant ERP and performance literature and how ERP is implemented and the benefits of this system, the Derivation of a balanced scorecard for ERP performance measurement, methodology, and finally, an empirical study: post-implementation ERP performance measurement [43].



*Rashid, M. A., Hossain, L., & Patrick, J. D. (2002). The evolution of ERP systems: A historical perspective.*

On the other hand, project disappointment could, in a risky case, cause an organization to go out of business. Planned in contrast to the existing literature on ERP critical success features, this paper studies environmental factors that affect the adoption of ERP by The Oman Telecommunication Company (Omantel) [44]. This paper highlights the specific issues of large organizations that work with disparate legacy systems. National differences and ERP implementation: issues and challenges by Chwen Sheu, Bongsug Chae (Department of Management, College of Business Administration, Kansas State University, Manhattan, KS 66506, USA), and Chen-Lung Yang (Department of Industrial Management, Comprehensive Research Center, Chung-Hua University, Taiwan) [45]. Multinational ERP implementation presents another measurement of difficulty—national differences—in the already complex nature of ERP operation in global information management. This study revised some issues critical to the success of international ERP implementation. Using two case research and secondary data, they examined ERP implementation at some multinational companies in the US, Taiwan, Europe, and China [46].

## 4. RESEARCH METHODOLOGY:

The approach used in the research writing is the qualitative approach by using studies information and analysis through discussion among the group members in the case study. The

collection of information was through the managers of the enterprise, such as the quality manager, IT department employee, and an employee of the Department of Human Resources, through the interview and emails. I started to search for information about the company, including using the enterprise resource planning system. I then were studied the steps of the application and implementation of the system in the enterprise and the factors that helped to change, and the elements of success in the company and also made suggestions from members of the group about the development of the enterprise resource planning to cloud enterprise resource planning. After considerable diligence, the group members have found ten recent studies about the system and compared them with our company study.

#### 4.1 Case Description

Musanada enterprise started in December 2007; it is a government body that provides services to the government to improve the quality of services and save public money [47]. It plays an essential role in the vision of the Abu Dhabi Government to become one of the top governments in the world by supporting the public sector. Musanada provides many services, including buildings, technology, and business support (Musanada, n.d) [48].



#### 4.2 Musanada ERP System development

Before the company used ERP systems, Musanada Company did not use any systems or accounting software. All Accounts were calculated on paper and then put in the archive section. All financial tables and accounts were recorded in the papers [49]. I take each entry in the statement for the income statement, see how much they cost, and then record it. For example, if the company bought from a particular shop, the shop gives them the bill, and the company collects bills in files. From the invoices, they record all expenses; then, they collect them under the appropriate entry [50]. The process consumes considerable time and effort. Then they apply the ERP system. This facilitates a lot for them. An Enterprise Resource Planning (ERP) system is a highly combined enterprise information system that achieves all aspects of an enterprise's business processes, including production planning, purchasing, engineering design, manufacturing, marketing, distribution, accounting, and customer service. ERP has been positively presented to Musanada Company [51].

Over the years, ERP systems have grown and are progressive since the emergence of material requirements planning (MRP) and manufacturing resource planning (MRPII) systems [52]. The primary difference between an ERP system and its predecessors is that ERP distances the whole organization and business job processes, not only the production linked to operations [53]. ERP systems can be found back in the early accounting and inventory systems in the 1960s. The last systems have evolved during the 1970s into material requirements planning (MRP) systems. MRP systems have been intensely used within manufacturing companies in order to handle production and inventory planning processes [54]. During the 1980s, manufacturing resource planning systems (MRPII) came into the frontlines. MRPII is a stretched and more

comprehensive version of MRP, covering manufacturing companies' other jobs and business processes [55].

Further manufacturing planning handled financial, order handling, inventory management, distribution, and procurement processes [56]. MRPII can also handle business processes within and between several entities within large companies, like plants, warehouses, and distribution centers [57]. Although MRP implementations were nontrivial, MRPII consumed more time and resources and significantly impacted business processes and people. In the 1990s, ERP systems were introduced as an extension to their predecessors, MRPs. ERP systems span the whole organization but concentrate on required business function methods, not only the production-related operations [58]. Furthermore, ERP systems deliver central data storage and mixing center between the different subdivisions within organizations( Netsuite.,n.d) [59].

#### 4.3 Accounting systems used by Musanada

**Just in time (JIT)** An inventory accounting system is a management system, in this methodology for managing inventory has become increasingly popular in the early 21st century as suppliers and retailers cooperate to control inventory costs while still meeting customer demands [60]. The Purpose of Just in time inventory is planned to avoid situations in which inventory exceeds demand, and places increased weight on the business to manage the additional inventory. Producers using JIT processes want to use materials for production at levels that meet distributor or retailer demand but not in extra. Retailers only want to acquire and transfer inventory that meets direct customer demand [61]. Excess inventory requires storage and management costs.( chron.,n.d) [62].



**Gnu cash accounting system** A system records all company financial transactions and daily operations, such as recording expenses and various expenses and record revenues [63]. The company used this system for a certain period and was a free program [64]. Easy to use and provides all the accounting features they need, such as the ability to retail transactions, the possibility of referring the deal placed so that it was agreed upon or canceled, the ability to view multiple accounts in a single log window, view a summary of the bar for the account all the basic account information, such as account status shows is it owes or creditor, the program also includes the ability to customize the style and appearance of the display in the program [65]. This system allows scheduling financial transactions and creates reminders within the program, such as paying a financial boost to the creditors or catching a financial boost from debtors [66]. GnuCash program provides reports and detailed graphs of private accounts: such as pie charts, statistical terraces, curves, and the ability to customize various forms of graphs as well. This program provides them with the reports of accounting basics, such as the budget, profit and loss account, assessment investment portfolio and inventory, and other essential accounting reports, and they can customize the reports to their desired program being prepared [67].

Recording mode payments in the accounts, such as bank checks and the registration numbers of these checks or notes receivable and the date of receipt and numbers, help match accounts with creditors and debtors [68]. The possibility of creating lists of income also the possibility of creating bills. Simplify business management by establishing accounts for employees and jobs

and record every respect of the funds owed to them or deducted from their salaries [69]. Management of different budgets in the company. It gives them the possibility of using multiple currencies in the accounts and automatic conversion between the currency rates of exchange approved and the ability to print invoices and accounts, and the allocation of print and pattern printing manner desired by the user (Musanada,n.d) [70].

**Phenix accounting system** A Comprehensive and integrated accounting system Used by *Musanada* company is specially designed to facilitate the accounting work for companies, and its large number of features and a set of tools to understand and manage the financial aspect for companies in all sectors, making it the best accounting and warehouses versatile program in the Arab world [71]. It is an integrated billing system to generate, manage and send custom invoices with the possibility to attach all types of files [72]. It provides The Company with comprehensive reports. Create multiple dynamic quality reports., easy to use and effective to help their growth, compatible with Windows & a comprehensive accounting program multilanguage. They manage financial and administrative work in Arabic and English simultaneously [73]. It provides copies to reserves and Also performs backup operations manually or automatically to provide maximum information security. The company does not use the cloud [74]. They do not apply it because of Cloud Disadvantages. In addition, the Abu Dhabi government prevents companies from using the cloud. There is control on this system .also, most cloud programs are challenging to use, and they cost high (*Phenixuae,n.d*) [75].

## 5. CASE ANALYSIS

### 5.1 Musanada Enterprise & ERP



Exhibit 2-1, Steps to implement the ERP

The Musanada Enterprise supports administrative innovation such as ERP implementation after intensifying the competition in the marketplace to improve profitability and customer satisfaction. It implements the enormous software and consolidated database by unusual operations to coordinate and integrate all the information, recourses, and activities to complete each process in all departments [76]. Before three years, the Musanada Enterprise transformed the software application into large-scale applications like an ERP system [77]. Then it is taken care of all the components of the business because the alteration will cover overall and challenging function (Quietly Manager, Musanada Company) [78]. There are many comprehensive plans and methodologies must the enterprise keep track of them when changing the system. The Musanada Enterprise follows the six approaches to implementing the system: planning, design, configuration & development, training, go-live, and evolution (Nuvision Technology Solutions, n.d) [79]. The primary step is strategy planning by setting the subjective and the methodology of the change. Also, must understand the business operations for each employee will be done before and after implementing the new system and depend on the time of strategy planning and identify the resources and the scope and the results



will be attained after changing the system and using the ERP System and forecast the risks [63] [80].

Moreover, the planning step chose the team for the change project to new programs, so the Musanada Enterprise chose the scientists group from the United Arab Emerita and abroad to prepare the study and strategy about how can enter the system in a professional way without less negative impact (Quietly Manager, Musanada Company) [81]. After that, the second step is designed. The enterprise must understand the business requirements and processes and explain what it will achieve after applying the new software. Also, choose the employees team from Musanada Company to analyze the current operations to help the scientists and produce a more robust strategy for the new software [82]. In this step, the management structure would do several meetings with the staff in different departments to provide information about what is the project strictly and how can deal with the enormous change, so the Musanada Enterprise takes care of this part and provides the information and future strategy such as future changes, how can deal with new business operation and processes, the time for change and how can use the ERP System [83]. In the meeting, the Musanada management gives the unique opportunity for the employees to share their ideas and suggestions because the employee is a significant segment of the company's structure and clean data is a critical element in the implementation. After providing information and details of the strategy so will start with configuration and development like adoption and specification. The studies and analysis of each one then choose the best one to help the enterprise achieve the objectives (Nuvision Technology Solutions, n.d) [84].

The proper training is vital key to succeed the highest rate of productivity and efficiency in the company. The Musanada Company always provides the proper training for all the users, which all the users [85]. This is vital for anyone joining all the users, which is vital for anyone joining the company. The training helps the employees advance their skills and capacity to use the system correctly (Human Resources Manager, Musanada Company). After ending the training, the company transferal to the next stage, like going live. This stage will test the planning and the project to know if the organization will adopt the new system [86]. The last stage is to evaluate the implementation of the ERP system or if the change project has any problems that must solve by a technical approach. Moreover, the enterprise adjusts the precise roles and responsibilities of all the departments defined within the processes of the company (Nuvision Technology Solutions, n.d) [87].

At the same time, the Musanada Enterprise builds a strong team of functional, technical consultants and administrators. They have to be experts in the solution being implemented. Moreover, the group always controls and monitors all operations of the ERP system weekly and reports all the weekly operations [88]. For example, each week, control the work time of the employment. If some employer always comes late and he entered by footprint, the data like time camping register on the ERP system so the manager can control the labors. Also, the footprint connects with the ERP System to save the information of timework for the employers. The human resource department can control the employers and transform the finance department to deduct some amount due to non-attendance on time. Now all the operations of the company are more accessible with an ERP system. The Musanada Enterprise prepares the strategy for the future, not just the current, so evaluation of the business operations and processes after implementing the ERP System and the strategy include solving a problem such as some time the

system has some problem so the strategy has explained how can solve and choose the best alternatives to achieve a better result [89]. Also, give the training for the employees about the solving problem to keep the business operation on better way (Human Resources Manager, Musanada Company).

In addition, the ERP System is the more robust tread to support the principal segment in the company, as employees. The ERP System helps the employee achieve the task quickly and spend time in the correct way. For example, the employee used papers and printers before the system, so the task took more time. Likewise, the system develops and improves the skills and capabilities of the employees like now they have a large amount of knowledge of the technology. Also, the work movements begin faster and more effectively because the information flow in all departments and has used the same database around the company. Moreover, after implementing the system, the employers follow the roles and work with ethical strategies like integrity and honesty with ERP System (Quietly Manager, Musanada Company).

## **6. DISCUSSION**

### *6.1 Factors and reasons for the change*

Change in the systems used to help achieve the gains and profits for the company, so many years later, we see some significant changes in the regulations for companies to facilitate the performance of tasks and maintain a competitive advantage. Choosing the new system is a significant interest of the company, but we will also find some of the problems that confront us in the change. One factor that helped to look for change is the lack of efficiency of 100%, so the company relied on manual methods such as files in the archive repository. Furthermore, the fear of the loss of files and taking longer to search for dates prior or previous documents that contracted with the company because wasting time leads to losses for the company and the difficulty of business operations and the lack of data collection in a perfect way. Moreover, the lack of Integrated Information and data is distributed randomly in several sections, such as the engineers' department, human resources, etc. Each section can also maintain the data and particular department. Also, difficulty in reporting leads to delays in the completion of the reports. The difficulty of the reports leads to the non-easy solution to the complex issues and always resort to the IT Department, leading to pressure and not to accomplish tasks with high efficiency. The difficulty of customer service quickly, the completion of service of medium quality, and the lack of flexibility in the interaction between the employee and the customer. And security is an essential factor in the company because when you lose security in the company is equivalent to lose. The competitive advantage of local markets or the global information and lack of accuracy and high quality led the company to select a new system to maintain the information in a fixed place with historical dates. Wasting time leads to increased operational processes. For example, engineers at the company care about the specific dates of the projects when the delay of one month over an operating process of the employee causes a delay in another project and causes legal demands such as monthly profit losses (Quietly Manager, Musanada Company).

### *6.2 Resistance to Change*

No matter the new system for the company, the fear, and uncertainty among the staff and the company to be its presence in the new change, though there are several other relationships

wholly linked to the issue of resistance to change as some employees fear losing their jobs and not being able to interact with the new system, fear of Lack of control over business operations and Lack of clarity in the system in detail with the staff, and the lack of the skills they have and also not to the company's ability to meet the demands of the ERP system (Human Resources Manager, Musanada Company). Moreover, resistance to change is based on the fear of the lack of positive results because when resistance to change has to be having some difficulties and challenges faced by the company, and also the difficulties, they are based on the employees and the company to use the new system, such as the non-acceptance of staff with less new system experience because they keep the information. The new system will be information available to all [90].

### *6.3 Factors helped implement the system.*

Factors for success are the groups of essential ideas or facts required to accomplish or achieve in a particular period to continue with this approach to succeed and get a competitive advantage between local and international companies. Moreover, the achievement of the company members' main and desired goal (Quietly Manager, Musanada Company). The 'organization's dependence on the various factors that have helped to reach success, and the most important of these factors are executive sponsorship and discipline, training and knowledge transfer, and having clear expectations of the outcome of the implementation and the reporting requirements (Employee Department of IT, Musanada Company).

Firstly, training and knowledge transfer Staff training on the new system helps facilitate the transfer of information in an expeditious manner between the institution branches. Staff is also trained through the establishment of courses to make them aware of using the system because it reduces the costs and expenses of the institution and offers high-quality work. The organization relied on the acceptance of staff with experience in the system; therefore, we find an essential factor in the project's success in the organization. Secondly, the clarity and accuracy of the information were some of the reasons for the success of the enterprise resource planning. Clarity of information is helpful for employees to take advantage of the time and not indulge more time to review the data. Also, staff and employees know about the system in a Precise and accurate ways. Thirdly, Executive sponsorship and discipline care about 'the organization's strategies and procedures that build on projects and cannot be determined financial commitments by functional leads alone. It is the responsibility of the individual and the group. For example, it will approve the financial expenses of equipment and software and the division of tasks to employees, and discipline in delivering projects on specific dates.

Must be disciplined in the use of the system correctly and use it effectively like the Musanada organization has committed to deliver projects on time, and after the end of each step of the project, the employee can be placed at the site, then the administration can find out what is new in the completion of The project helps get information quickly in a short time, and the director can monitor the work and write some suggestions. Moreover, encourage the administration to use the new system and use the skills of staff. They have clear expectations of the outcome of the implementation and the reporting requirements. Expectations proper budget and enterprise resource costs through the use of the system in the budget account and changes indirect costs and indirect measures or costs. Reporting faster and transmitted between relevant officials and reviewed in a short time. Fifth, having a solid team of functional, technical



consultants and administrators Teams of engineers are interested in infrastructures such as schools, hospitals, and buildings. For example, Al Ain Hospital developed a good team for the changes and infrastructure for electricity and water in order not to be interrupted. The establishment of a new team of the company's partnership with the Abu Dhabi Education Council in educational projects. Also, robust project and change management processes are the company's successful management helped to facilitate smooth project management. Other contributing factors to the system's success include understanding business processes and industry best practices and OEM Support and having expert partners onboard (Employee Department of IT, Musanada Compay).

#### *6.4 How they improved from the old system*

The change from the old system to the modern system is considered the jump profitable for the company, but if used correctly. The company's beginning used traditional methods but did not last long because it is of considerable corporations in infrastructure for the state. I started to use the system (ERP). Executive management decided to write new strategies with experts and consultants group. Furthermore, it began training employees on the new system and their knowledge of it, so there was no strong resistance from employees. With an internal network and has data retention in a secure manner, get rid of complex reports and link all activities with a single system to facilitate task completion. The system depends on all activities on a consistent system, such as procurement, finance, and sales. So are the simplification of business processes and the ability to real-time consumption and find out what is happening in the company, such as construction works on several projects. Also, now the company can focus on opportunities for new business, such as major projects. These projects support infrastructure, and through the system, reduced costs and profits began to increase from year to year. Work efficiency has become a high quality, increased customer satisfaction and delivery of engineering projects on time, and the lack of mistakes in the delivery and invoicing (Quietly Manager, Musanada Company).

From the point of the group members, the company can change the system to a new system called Cloud ERP because the company is one of the major companies interested in infrastructure projects. In addition, there have a lot of activities and departments and administrative functions, and business operations. The system will be low-cost, but earnings will be good when you use this system, and we can use the information in any place and expeditiously transfer information. However, we must not forget the security property because there might not be some privacy if it was hacked software. In addition, it takes a long time in the implementation process, but this depends on the ' 'company's ability to identify needs and demands. This software will help facilitate commercial transactions between companies and global institutions [91].

In conclusion, the application software is not complex. However, some challenges are facing the company. The company began building strategies and positive outcomes to achieve the desired and the target, then succeeded in the application software, resulting in increased effectiveness and efficiency in the performance of tasks in a short time. In addition to the presence of some difficulties and challenges such as the resistance to change in the company and employees. The biggest challenge is to accept the staff of the new system and knowledge of the company to meet the demands and needs. Several factors or elements have helped in the success

of the application software, such as staff training, executive sponsorship, discipline care, and having a solid team of functional, technical consultants, and administrators teams. The change from the old system to the new is a successful step in the company's vision because 'it has helped reduce costs and facilitate operations and activities. The company may choose another system called (Cloud ERP), but it is challenging to accept this system because the Abu Dhabi government rejects this system for the lack of security.

### *6.5 Comparison of scientific studies and our case study*

Most of the enterprises beforehand implement a new software system like Musanada Enterprise did many of the research using previous studies. However, not all of the studies can fit with the nature of the work in companies, and the significant point when preparing the research should choose the perfect study to help in the implementation process. This study fits with Musanada Enterprise strategy because the study discussed the methodology and approach of ERP implementation. The Musanade Company applies the same six steps of ERP implementation methodologies.

Moreover, the study describes the benefits of ERP, and the Musanada Company takes advantage of these benefits, such as the ERP System controlling the time with little cost. Also, it organizes the business operations and achieves a high level of communication between the departments in the company, so the similar of this study will assist the Musanada Enterprise in the future. Feng Tian wrote another study that explains the effects and risks of ERP implementation. This study will be more beneficial for the company because it will support the managers to know how to measure the effects and how to solve them. At the same time, the study described how the company could exceed all risks by the most vigorous plan, so the Musanade Enterprise also put a risks plan to deal with any risks in the company, and the plan constantly changes each year. Adel M. Aladwani wrote the third study about the management's change to achieve the main goal, such as a successful system, using the ERP and described the resistance to change between the old and new system. The study is not very useful and 'does not fit with the Musanade company; for example, the study said the employees are will be lousy effect in the resistance to change and maybe the resistance to change, fail before the end it but the Musanade company takes care of the all part for the resistance to change because they always think the employee's requirement the training and support to achieve the goals of the company.

Moreover, before providing any training, the company knows about the level of each employee, so provide the employee the best training to improve the level and start on resistance to change step so the Musanade can skip any crashes by employees. However, the study was written by H. Chang, M. K., Cheung, W, Cheng, C. H, & Yeung, J [92], so the study provides that social factor is crucial to implementing the system. The Musanade Enterprise also focuses on the social factor. It is always keen to provide a comfortable working environment and solve any employee problem to skip any enmity.

They have the study fit closely with the strategy of Musanade Enterprise. The study (Centralization and ERP implementation success) was written by Madhavi Latha Nandi & Ajith Kumar [93]. There are many points in this study that fit with the enterprise, for example, the distribution of the decision on the different authorities to succeed when implementing the system. There are other studies in the corporate environment, such as the study about the ERP in Omantel. Omantel is the first wireless communications company in Oman, so maybe this study does not fit with the ERP system in Musanade Company because the two companies are working in different areas. However, the study can be helpful to know the main effect of ERP on employees.

On the other hand, the study written by Chwen Shea, Bongsug Chaea& Chen-Lung Yangb about the issues and challenges in National differences and ERP implementation. The study provides the essential issues and challenges. However, in different national, for example, the companies in different countries deal with ERP systems in the same way. If they make any contract between them, they can skip any issues, but each emirates differently in the ERP System in the UAE. Musanade

The company follows the ERP System of Abu Dhabi, so if the contract with another emirate can pound a small problem but they can solve by easy way. The other study, " Extending the ERP system: considering the business relationship portfolio, is a study that could benefit Musanada to develop The ERP system and Expand it in the company to expand its functions to include customers and suppliers to reach their full potential. Also, it can help Musanada to puts forth business relationship portfolios as an important factor to consider when extending the ERP system functionality in the supply chain and toward customers. Another study was titled "The effects of transformational leadership and ERP system self-efficacy on ERP system usage." This study's purpose is to identify the external factors that affect the acceptance of the ERP system, users, and the company. In our opinion, the company will not need this study because they have accepted the study and are using it now. Musanada sees that self-efficacy is the most important factor in the acceptance of ERP systems. "Factors affecting ERP system implementation effectiveness" is a study that aims to is Enhance productivity and quality of work by providing integration, standardization, and simplification of multiple business transactions. The study fits the company because it aims to reach an effective ERP system through effective communication, conflict resolution, and knowledge transfer.

## 7. CONCLUSIONS

The study concludes that different lessons learned about the ERP system and Musanada Company. Firstly, ' we have learned that the ERP System helps the employee achieve the task in a short time and spend time in the correct way, and all the operations of the company are easier with an ERP system. The study concludes that the ERP history that started in the 1960s when most organizations implemented enterprise information systems (EIS). However, this system was developed over the years to end up with the extended ERP nowadays. Secondly, we realized how Musanada ERP System development makes their business much more accessible. This is because an ERP system is a highly combined enterprise information system that achieves all aspects of an enterprise's business processes, including production planning, purchasing, engineering design, manufacturing, marketing, distribution, accounting, and customer service. ERP has been positively presented to Musanada Company. The most important and exciting thing that we have learned is how the company implements an ERP system. The study found the answer after analyzing an ERP of Musanada Company. The implementation process consists of six steps starting from planning and ending with evaluation. We can summarize these steps in the following:

- **Planning:** set the subjective and the methodology of the change and choose the team for the change project to new programs.
- **Design:** understand the business requirements by holding several meetings with the staff in different departments.
- **Configuration and development:** Adopting and specification of the studies and analyzing each one, then choosing the best one.

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- **Training:** advance the skill and capacity to use the system accurately and solve problems.
  - **Go live:** test the planning and the project.
  - **Evaluation:** if the change project has any problem must solving with a technical approach.

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# THE TRANSFORMATIONAL LEADERSHIP OF THE FOUNDING LEADERS OF THE UNITED ARAB EMIRATES: SHEIKH ZAYED BIN SULTAN AL NAHYAN AND SHEIKH RASHID BIN SAEED AL MAKTOUM

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## ABSTRACT

Transformational leadership is the leader's ability to communicate and behave in ways that elevate the interests of their followers and stir them to look beyond their self-interest for the benefit of the group. Transformational leaders achieve these results by having four characteristics, i.e., idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. This paper explores the transformational leadership of the UAE founders since 1971, mainly, Sheikh Zayed bin Sultan Al Nahyan and Sheikh Rashid bin Saeed Al Maktoum. The UAE leadership is the main success story of the transformation of the seven Arab Emirates from the sporadic emirates into one country from the last 50 years, the most developed and influencing country among Arab and the middle east countries. Also, the country achieved many initiatives at the global level, including becoming a global business hub. The UAE leaders set an efficient Arab leadership model for the Arab lands to rise to the global level. This leadership model is worth prising and evaluating for leadership values, lessons and being global with human concerns.

**Keywords:** *Leadership, Transformation, UAE, Sheikh Zayed bin Sultan Al Nahyan, Sheikh Rashid bin Saeed Al Maktoum*

## 1. INTRODUCTION

Leadership is a rising discipline in management because leadership significantly accounts for a successful and satisfactory run of business organizations. If anything, in the highly globalized and competitive business atmosphere of the 21st century, leadership appears to count more. The new business and development environment calls for transformational leaders who appeal to the global community and should be of the global reach and concern. Leaders in different fields and from numerous countries has lasting reputations and leadership imprints. The United Arab Emirates (UAE) is a rising international Arab star, which is a unique case and model created by the efforts of many leaders, mainly H.H. Sheikh Zayed Bin Sultan Al Nahyan, the founding

president of the UAE, and H.H. Sheikh Rashid bin Saeed Al Maktoum, the former ruler of Dubai, and Sheikh Khalid bin Mohammed Al Qasimi, the former ruler of Sharjah and others.

Life in the Arab Emirates was tough. [1], in his book “From Rags to Riches: A Story of Abu Dhabi”, described his terrible childhood life between the 1940 and 1950, which could be generalized to all people at that time. He said the houses of his family and neighbors were made of mud or clay and were excruciatingly hot most of the year [2]. On some nights, the humidity was so high, and I felt as if I was sleeping rolled up in a wet blanket, and sure I could hear the lapping sound of water every time I turned over on my mat" [3][4]. There were no indoor toilets or running water, no cars, trucks, busses, or vehicles of any kind, people clothed in rags and barefoot, and camels were the only means of transport [5]. The people were undernourished, seldom seeing fruit, vegetables, or milk, and there were no doctors or dentists [6][7]. Al Fahim witnessed his family undertaking a terrible two-day journey across the desert to find a doctor to treat his little sister, who suffered and then died of burns [8][9].

Although oil was discovered in many Arab countries in the west of Asia and North Africa, many of those countries failed to build success stories, make their people happy, diversify their economies, and achieve development like the UAE [10][11]. On the contrary, oil is a dam to some Arab countries as many Arab leaders misused this resource leading to many conflicts and wars. Also, the UAE leadership is acknowledged globally [12][13]. For instance, the Indian Prime Minister Narendra Modi, during a discovery, appreciative, or learning visit to the Emirates [14][15], had fulsome praise for the country for its foresighted and forward nature and its founding and present-day UAE leadership [16][17][18][19]. Therefore, the paper argues that leadership is another critical factor in driving the success story of the UAE [20], mainly the transformational leadership styles that clearly could be seen by examining the leadership styles of H.H. Sheikh Zayed Bin Sultan Al Nahyan and the others [21][22]. The authors believes that the credit for the global heights of the nation should go to the transformational founding leadership of the country [3][22].

Few peer-review academic papers attempted to analyze the leadership styles of the founders of the UAE union, e.g., [23][24] presented Shaikh Zayed as a charismatic and transformational leader, [25][26] claimed that Sheikh Zayed was a transformer, and [27][28] argued that the leadership style of UAE founders was charismatic. Nevertheless, those papers need to be extended and a deeper analysis to be conducted [29]. Accordingly, this paper aimed to address the transformational leadership of the founding fathers or the architects of the UAE as a learned lesson in transformational leadership [30][31], specifically, the highest order, and draw leadership values and lessons. The Methodology is to examine the leadership practices of the UAE leaders based on the four attributes of the transformational leadership styles [32][33], i.e., idealized influence (charisma) [34][35], inspirational motivation, intellectual stimulation, and individualized consideration [36][26]. This paper is one of few peer-review academic attempts at unraveling the transformational leadership stood for the Arab renaissance [37][38]. They appear to have set an Arab leadership model, which is valuable for the Arab lands to rise to the global level. This leadership model is worth purring and evaluating for leadership values and lessons[39][40].

In the sections following, there is a literature review about the transformational leadership, then present the study methodology, discussion, conclusion, limitations, and recommendations for future research.

## **2. LITERATURE REVIEW**

Among other things, the leadership factor has been brought to the fore by the financial crisis of 2008 [41][42], with many calling the crisis a leadership crisis, particularly the leadership of the big banks in the premier United States of America going astray [43][44][17][45][46]. Thus, leadership appears to become an increasing factor of importance [47][48], and the performance of companies and their public standing is explained in terms of their leadership, represented by CEOs, Presidents/Chairman and Boards, and the workforce [49][50]. They are all comrades in –in-arms- for public service and the people. National and Business and leaders like, Sheikh Khalifa bin Zayed Al Nahyan [46][51], Bill Gates and Warren Buffett are national and international iconic figures in social and human concerns as they formed with others the elite group of billionaire philanthropists [52][53]. They have many business, life, and social lessons to convey, especially Buffett, who is known, in addition to wealth creation [54][6], for the personal non-ostentatious use of the wealth. Buffett is a master at communicating effectively and inspiring others to perform, especially in 2008 when things went badly [55][14]. Buffett believed that his wealth should belong to society, and he motivated more than 160 billionaires to give away at least half of their wealth for philanthropic causes [55][56].

But leadership appears to be a scarce factor [57][58]. The exercise indulged in finding a replacement to Steven A. Ballmer in 2013 at the Microsoft is too well known to be recounted here, and finally Gates [59], Ballmer, and Board went from 100 candidates to one, and they selected Satya Nadendla, an Indian resident of the USA for the position [60][61]. The literature highlighted that leadership has no national boundaries. What is needed is creativity and catholicity of outlook in the age of globalization and borderless on and off-line business [62][63]. The literature review revealed that scholars proposed many definitions and theories for leadership. The word or the concept of leadership, quite understandably, is a wide and complex one liable to many interpretations [64][65]. There are different grades and leadership, from the ordinary to the sublime, and the most lasting category or legacy and the leadership dealt in the note is of sublime and heroic level or historical or history creating [66][67].

[68][69] proposed one of the earliest simple and matter-of-fact definitions of leadership as the leader is an individual in the group, who directs and coordinates task-relevant group activities, or who, in the absence of a designated leader, automatically performs these functions in the group [70][71]. Later, [72][24] proposed that effective leadership depends on the leader's ability to solve complex social problems in an organization [73][15]. Furthermore, in the 21st century, [74] provided another definition of leadership as the ability to build teams or improve the performance of established ones and get results [75][76]. One leadership concept is the heroic or great man leadership, which appeared in a series of lectures by Thomas Carlyle in 1840 [77], in which he tried to remove the myths about the concept of the heroic leader who has supernatural qualities [78]. Other scholars, e.g., [79] found in an experiment three leadership styles that are autocratic [80][81], democratic, and laissez-faire, [82][83] found in a literature review several traits that could be standing behind the quality of leadership, e.g., risk taking, self-confidence, drive for responsibility and task completion [84], persistence in pursuit of goals, Weber listed in his book

“Economy and Society” published in German for the first time three types of authority, i.e., 1) rational or legal authority or transactional leadership, which enable those who are elevated to authority to issue commands, 2)[2][85] traditional authority, which rest on a belief in the sanctity of immemorial traditions and the legitimacy of those exercising authority under them, and 3) the charismatic authority, which rest on devotion to the exceptional sanctity, heroism or exemplary character of a person, and of the order revealed by him [86][87], and [68][10] proposed the contingency leadership model, which state that the leader is effective in some circumstances and ineffective in other circumstances based on the leader and member abilities [88], which are among the most significant predictors of group performance and reflects the level of leader influence over the task itself.

These definitions are right within their perspectives of leadership. Weber argued that no one of the three leader types described above occurs in an ideal form [86]. However, leadership appears to be a great thing, a rare human quality not to think of just the self but of others and the story at large, and it evokes complete trust, faith, safety, security, and well-being. [36] defined the transformational leadership theory, one critical theory in leadership, as a superior leadership performance that occurs when leaders broaden and elevate the interests of their followers, when they generate awareness and acceptance of the purposes and mission of the group, and when they stir their employees to look beyond their self-interest for the good of the group [89][90]. Furthermore, Ruiz (n.d) claimed that achieving and sustaining true transformation is essential for organizations, but it is complex and rare as it takes a long time for organizations to find transformational leaders and cultivate fruitful environments. [36] described four ways for transformational leaders to achieve transformation results in their followers, i.e., 1) being charismatic (or idealized influence) to their followers, 2) inspiring them, 3) individualized consideration, and 4) intellectual stimulation. According to [36][91], charisma help leaders provide vision and sense of mission, instill pride, and gain the respect and trust of their followers, inspiration is the communicating high expectations, using symbols to focus efforts, and expressing important purposes to followers, intellectual stimulation is promoting intelligence, rationality, and careful problem solving, and the individualized consideration is giving personal attention, treats each employee individually, coaches, and advise. [36] claimed that transformational leaders could be directive or participative, authoritarian, or democratic [92][93].

On the other hand, [36] defined transactional leaders as those who engaged in a classic transaction with their employees, e.g., explaining the requirements and the compensation for fulfilling these requirements [94][95]. Transactional leaders comprise two factors, i.e., the contingent reward factor, which represents the constructive and positive exchanges with followers for effort, promises rewards, and recognizes accomplishments, and the active management-by-exception, which is watching and searching for deviations from rules and standards and taking corrective action. Furthermore, [36] claimed that transformational leadership does not substitute for transactional leadership. On the contrary, the best leaders are both transformational and transactional. In conclusion, transformational leadership generates follower commitment, loyalty, involvement, and performance, while transactional leadership does not go far in building trust and developing motivation, and it increases stress [96][36]. Among these transformational leaders in the 20th century, Mahatma Gandhi, who was the founder of the colonial free, independent, democratic republic of India, Nelson Mandela of ‘color’ free new South Africa, Martin Luther King Jr of the U.S. civil rights movement Martin Luther King Jr, Ayatollah Khomeini of the Iran Republic, and the like [97][98]. To this distinguished leadership must be added the founders of the

federation of the UAE, which within no time had made a name and fame in the ancient and historical and distinguished Arab countries and the world in general-all due to its visionary founders and their outstanding leadership [99][100], putting the UAE at the forefront of the nations (UAE, 2021) [95][42]. The UAE, in sum, seems to be a unique state, thanks to the unique vision envisaged for one country by its eminent founders. The formation of the new state of the United Arab Emirates is an important historical event that is very interesting to go through in these days of dissensions and breaking of many countries in the world (UAE, 2021)[101][5].

### **3. AIM AND SIGNIFICANCE OF THE STUDY**

Although many papers and reports were made, generally about the founders of the UAE and specifically about Sheikh Zayed bin Sultan Al Nahyan, the former president of the UAE union, this paper aimed to conduct an in-depth analysis of their leadership in terms of the four components of the transformational leadership style as proposed by [36][96], i.e., idealized influence (charismatic), inspiration, individualized consideration, and intellectual stimulation [102][103].

This paper is one of few papers that provides strong evidence for the transformational leadership style of the UAE union founders.

### **4. METHODOLOGY**

The in-depth analysis of the transformational leadership style of the UAE union founders is based on reviewing and analyzing literature and reports about those leaders and the past and current achievements of the country. The study will focus on founders whose leadership lasted longer than the others, e.g., Sheikh Zayed Bin Sultan Al Nahyan and Sheikh Rashid Bin Saeed Al Maktoum.

### **5. ANALYSIS**

This paper adopted [36][96] theory, including four components that are, idealized influence (or charisma), inspiration, individualized consideration, and intellectual stimulation for analyzing the leadership styles of the founders of the UAE union [104][105].

#### *5.1. The Idealized Influence (Charisma)*

The Idealized Influence (Charisma) was defined by [36][96] as the idealized influence help leaders provide vision and a sense of mission, instill pride, and gain the respect and trust of their followers. Charisma is idealized attributes and behaviors [106][107]. For example, charismatic leaders go for the good of the group, displays a sense of power and confidence, and talk about their values and beliefs [108] [109]. Initially, it is critical to highlight that the founders of the UAE union were born in the different Arab Emirates, which share some common attributes, such as the religion, language, economy, and the tribal system [110]. According to the tribal system, the tribe leadership stays within one family and is transferred from one member to another over generations. One advantage identified in the tribal system was that the leader of the tribe was preparing his children for the potential leadership position from their childhood. The preparation of children for the tribal leadership position included physical, mental, and psychological preparation [111][112].

In this paper, focus is on both the mental and psychological preparation of the little Sheikhs (or children of the Sheikh), including several traditional approaches, such as allowing children to

attend the Sheikh (father) daily meeting (called in Arabic the Majlis) [113][12]. In the Majlis, the Sheikh, with other senior members or experts of the tribe, holds an open discussion forum to listen to people's concerns and complaints and discuss the tribe's daily and strategic challenges, e.g., scarcity of food and relationship with other tribes and it was allowed for any individual to attend and put forward views for discussion and consideration [114][29]. The role of the Sheikh was to make the final decisions after listening to all people around him. This approach allowed the little Sheikhs to develop their charisma [115][116]. For example, the little Sheikhs learned early to stay and live with people, keep their doors open for people, listen carefully, talk simply, and live humbly with them. Furthermore, the little Sheikhs used to hear interesting stories about people's generosity, heroism, courage, and wisdom. In the Majlis, the little Sheikhs also learned to be responsible and committed to people's needs and protection [117][118]. What the little Sheikhs learned in their childhood was reflected later, when they became the actual leaders, in their strategies, such as walking in streets with minimum guarding, visiting people in their houses, and keeping access to them easy.

The inspiration of the founders of the UAE could be seen by examining some quotes featured in a book prepared by the [119] titled "Eternal legacy-100 quotes by UAE founder Sheikh Zayed" that reflected the glimpses of his impressive insightfulness and vision. For example, Sheikh Zayed said, "I love the desert. Whenever I feel tired, that is where I go to restore my energy and vigor. I get to meet my Bedouin brothers, whom I love with all my heart because their notions are still pure and clean, and they still hold on to their customs and traditions that stem from Arab authenticity and from the teachings of Islam," which reflects his purity, ethics, and his love of his people [120]. Also, he said "tolerance is an essential principle for people who consider themselves civilized," which was translated by the current UAE leaders in 2018 as the year of tolerance (or year of Zayed) by initiating thousands of projects for the benefits of people [119].

On the other hand, Sheikh Rashid Bin Saeed Al Maktoum, the Former Ruler of Dubai, was called the first visionary of the modern UAE as Dubai grew from a small town into a major trading and business city during his time and he played a significant role in forming the union with his brother Sheikh Zayed Bin Sultan [117]. Furthermore, the distinguished leadership, which within a limited time put the UAE at the forefront of the nations by undertaking a massive development plan, including building schools, houses, universities, hospitals, airports, and roads, and stood as a for-ever headstone for the Arab unity and renaissance and marching forward of the Arab identity, uniquely, not coming into conflict or confrontation with other equally prominent global identities of culture, language, and religion, East and West [121].

### *5.2. Inspiration*

The inspiration is communicating high expectations, using symbols to focus efforts, and expressing important purposes to followers [36][96]. For example, the inspiring leader talks optimistically about the future, articulates a powerful future vision, and expresses confidence that goals will be achieved [108]. The inspiration of UAE founders could be seen by examining some quotes said by them. For example, Sheikh Zayed said, "the pre-union era is a history now long gone. We must draw from it enough lessons and wisdom to prove that our faith and determination were harder than all the trials and tribulations thrust upon us," which reflects the significance of the union for him and presents how smartly he communicated his vision about the transformation from the tribal system to a new era for his people. On another occasion, he said, "The union tree



is bearing more fruit, its roots are extending, and its goodness is overflowing; and this tree shall remain for future generations,” which also presents his positive perception of the new union and his vision for the future [122]. Also, he clearly expressed his high expectation from youth when he said, “we are expecting from our youth more than we have ever expected from others to achieve such great accomplishments and deliver such great services that would make this nation an eminent, modern State, keeping pace with the modern world” [119].

On the other hand, the founder of the UAE inspired the next generation. For example, they inspired and motivated the next generation of leaders toward building a great nation, which can be seen by reviewing the current achievement of the country, such as becoming a trail-blazer and pacesetter with a superb macro and microeconomic, business and development performance, not all due to oil [16] [123] without any dissensions, disturbances, violence, bloodshed, coups, agitations and strikes, and terror. The table-1 shows the decadal transformation and table-2 significant achievements of UAE in terms of People, Environment, Economy, States and Markets.

Table 1: Transformation of United Arab Emirates from 1990-2020

World view, People & Environment, Economy, States and Markets	1990	2000	2010	2020
Population, total (millions)	1.83	3.13	8.55	9.89
Population growth (annual %)	5.8	5.5	7.7	1.1
Surface area (sq. km) (thousands)	98.6	98.6	98.6	98.6
GNI, PPP (current international \$) (billions \$)	..	323.33	554.59	659.55
GNI per capita, PPP (current international \$)	..	103,170	64,860	66,690
Life expectancy at birth, total (years)	72	74	76	78
Mortality rate, under -5 (per 1,000 live births)	17	11	9	7
CO2 emissions (metric tons per capita)	30.3	26.97	19.04	20.80
GDP (current US\$) billions	50.7	104.34	289.79	358.87
GDP growth (annual %)	18.3	10.9	1.6	-6.1
Exports of goods and services (% of GDP)	..	49	82	97
Imports of goods and services (% of GDP)	..	41	62	71
Merchandise trade (% of GDP)	69	81	138	152
Time required to start a business (days)	-	19	15	4
Mobile cellular subscriptions (per 100 people)	1.8	45.6	127.8	185.8
FDI, net inflows (BoP, current US\$) millions	-116	-506	8,797	19,884

Source: World Bank Country Profile- United Arab Emirates, retrieved on May 5, 2022

In addition, according to world bank, the UAE GDP increased from \$50.7 billion in 1990 to \$358.87 billion in 2020, merchandise trade increased more than the double from 69 % of GDP in 1990 to 152% of GDP in 2020, with the GDP per capita of US\$ 40,711.4, which is one of the highest GDP per capita among the developed countries in the world, and the mortality rate under <5 years has dropped from 17 in 1990 to <7 in 2020. Furthermore, the UAE, based on the Global Competitiveness Report 2019 (Schwab, 2019), ranked 25th in the world. Some most significant achievements of the UAE are presented in table 2.

Table 2: Most significant achievements of UAE

Index Component	Score (0-100)	Rank/141
Security	92.8	7
Social capital	58.6	25
Public-sector performance	80.0	4

Transparency	70.0	23
Checks and balances	61.3	30
Property rights	75.6	21
Corporate governance	73.9	16
Future orientation of government	73.8	9
Transport infrastructure	84.1	8
Utility infrastructure	92.9	44
ICT adoption	91.9	2
Macroeconomic stability	100.0	1
Health	72.2	92
Skills	70.6	39
Product market	71.7	4
Labor market	66.2	34
Financial system	73.8	31
Market size	70.3	32
Business dynamism	69.3	31
Innovation capability	52.3	33

Source: *The Global Competitiveness Report (2019)*

At last, we should mention that the UAE to establish a space exploration program and is the fifth to reach Mars [124], coinciding with the 50th anniversary of the United Arab Emirates' formation.

### 5.3. Intellectual Stimulation

Intellectual stimulation is promoting intelligence, rationality, and careful problem solving (Bass, 1990 & 1995). For example, the intellectual stimulation leader examines the appropriateness of assumptions, seeks differing perspectives, sees the problems from different sides, and come out with new solution [108]. The intellectual stimulation of the UAE founders could be seen by examining some quotes said by them. For example, Sheikh Zayed said, “the optimal way to build a strong society is to build educated citizens, and everyone is responsible for getting appropriate education to participate effectively in the Union’s journey.” Also, he said, “educating people is a great wealth on which we pride ourselves, and we are building the future based on knowledge,” and “wealth that is not managed by informed, enlightened minds, based on rigorous planning, is destined for waste and loss” [119].

Accordingly, and based on the vision to provide education to all citizens, the early government implemented the first and largest initiatives by building schools, universities, and learning centers across the UAE and recruiting teachers from other Arab countries. A few years after this initiative, the UAE was able to meet all requirements for education, and, in sequence, the UAE became a home for many local and international private universities and schools [118]. Today, Emirati businessmen manage the most successful business empires, and Emirati managers lead most public organizations, e.g., universities, hospitals, and others.

### 5.4. Individualized Consideration

Individualized consideration gives personal attention, treats each employee individually, coaches, and advises [36][96]. For example, the individualized consideration leader treats people as unique individuals, considers their needs, and helps them to develop their strengths [108]. The philosophy of the UAE founders was that the resources of the country should be used for the benefit of the people. The individualized consideration of the UAE founders could be seen by

examining some quotes said by them. For example, Sheikh Zayed said, “in assuming the tremendous responsibility entrusted to us, we work for every individual without discrimination, as we do with our children; we do not distinguish between a relative and a nonrelative. We’re counting on all of them, each with their level of generosity, capability, and expertise. We count on them, just as we trust ourselves to press ahead on the path of progress and success for our nation.” On one famous occasion, Sheikh Zayed got annoyed when they told him that some citizens were suffering from the wages of their homes. He was angry because he wanted every citizen to own a house and have a job. Accordingly, he issued orders to the government to implement a new strategy (Sheikh Zayed, n.d.).

## **6. DISCUSSION**

The transformational leadership theory is the ability of a leader to elevate the interests of their followers, generate acceptance of the purposes and mission of the group, and stir them to look for the good of the group [36]. However, this leadership style is rare [125]. Transformational leadership has four components, i.e., idealized influence (charisma), inspiration, individualized consideration, and intellectual stimulation. On the one hand, the analysis of the leadership style of the UAE founders revealed many factors that contributed to making them transformational. On the other hand, their unique achievements provided evidence and supported our arguments about the transformational styles of those leaders. One critical factor was the traditional education system that allowed those leaders to learn a lot in their early childhood by attending the Majlis of the Sheikh (the father) [8]. There, they learned to communicate with people, be responsible and commit to their needs, find solutions to challenges, and protect them. Therefore, they developed a great vision and mission, rooted in history and still guiding the consecutive generations of the UAE leaders for the people's welfare. This vision was developed later by the current leaders of the UAE, e.g., Sheikh Mohammad Bin Rashid Al Maktoum, to make the country the number one among all globe countries [126].

Furthermore, the above analysis included many unique initiatives achieved by the UAE, including becoming a country of luxury, prosperity, and happiness for its residents and the land of gigantic projects. According to [126], his father, Sheikh Rashid, used to describe new projects, time after time, which later proved right as Dubai grew more and more. Accordingly, hard-working for the benefit of the people was another critical factor of the leadership style of the founders of the UAE. On the other side, [36] claimed that transformational and transactional leadership complement each other without any contradiction. Therefore, it is significant to say that the founders of the UAE are also recognized as transactional leaders through their achievements in organizing the formal procedures of the country and building and maintaining structures. For example, Sheikh Zayed initially established, based on the Arabian Bedouin traditions of consensus and consultation, the supreme council of the union, and he, as the elected president of the UAE, formalized the consultation process and established the Federal National Council, the Emirates parliament (Embassy of the United Arab Emirates - Washington, DC, n.d.). Also, the founders succeeded in establishing an effective governmental system at each emirate level and the union level.

At last, the authors believe the success of the UAE story was related to the transformational leadership of the founders of the UAE, not only to oil. The UAE, the number one country at least in the Arab and middle east region, is looking forward to further achievements. In his book

“Flashes of Thought”, Mohammad Bin Rashid Al Maktoum, the prime minister of the UAE and the ruler of Dubai, talked about the country's future and explained some future initiatives. For example, the UAE government will adopt the Smart city concept of using technology to make citizen's experiences simple, convenient, and efficient [126]. Furthermore, [126] talked about the Smart government of the future, which will be service-oriented, e.g., the government will be available and open for service 24/7, all year round, competes with and surpasses the private sector, and citizens will be able to complete any government transaction at any government service center (connected), and innovative.

## **7. CONCLUSION**

The paper is about a case of transformational leadership of nation founding, building, and giving it forever direction [127]. Its principles are service and the good of the people. Its lessons are human concerns. According to the analysis, the UAE founders have met the four components of transformational leadership, i.e., the idealized influence (or charisma), the inspiration influence, the intellectual stimulation, and individual consideration. Also, they met the components of transactional leadership, which is considered significant in building and maintaining structures and organizations. The authors believe that, based on the UAE's achievements, the leadership model of the UAE founders is beneficial and could add value to the regional and global leadership if it is properly framed and implemented in several aspects of life, such as business, politics, and social life.

## **8. LIMITATION**

The paper is based on reviewing the literature found on the topic. Little information was found about some leaders (founders) who did not live long after establishing the UAE.

## **9. RECOMMENDATION FOR FUTURE RESEARCH**

Although the paper extended the discussion about the transformational leadership styles of the founders (leaders) of the UAE in 1971, future research could use a stronger research design, such as interviewing senior Emirati citizens who experienced the foundation of the UAE to get more details about those great leaders. Also, examining the leadership practices of the UAE founders could end with a unique, universal model of leadership rooted in the Arab and Islamic cultures.

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# IMPACT OF PROCESS VISIBILITY AND WORK STRESS TO IMPROVE SERVICE QUALITY: EMPIRICAL EVIDENCE FROM DUBAI RETAIL INDUSTRY

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## ABSTRACT

Service quality improvement is the biggest challenge faced by many organizations in the era of competition. Due to the advancement and customers' knowledge about product and services organizations are facing many challenges to satisfy them. In this research study we have discussed how service quality effected by process visibility and work stress. Qualitative study was conducted and over the phone interview approached helped us in collecting primary data. The results show that retail industry has become very modernized due to best utilization of technology and easy to access customers, but this brought challenges also.

**Keywords:** *Process visibility, work stress, service quality, retail industry*

## 1. INTRODUCTION

Retail industry has seen many changes since beginning. Due the advancement in technology and modern tools this industry has become very modern and utilizing more methods of facilitating customers effectively [1]. In this regard it is very important that what techniques are used by companies to make the operations smooth, effective, and speedy. Transparency in the operations is another biggest challenge faced by retailing industry [2]. It increases work stress if it is not managed adequately. Service quality is another important question which has become the challenge and shows the competitiveness of the organization because it is very difficult to manage service quality due to its intangibility nature [3].

Service quality is highly dependent on the process visibility and work stress [4]. If these two variables are adequately defined and implemented, then the quality of the services can be measured in more effective terms otherwise results will become drastic. Service industry is highly visible [5]. The operations in service industry are easy to see which have strong impact on overall quality. The same issues we have addressed in our research report and tried to conclude the service quality in retail industry because of work stress and process visibility [6].

## 2. THEORETICAL FRAMEWORK

In this section we have explained and built theoretical framework which is based upon three important variables that consist of this research.

### 2.1 Process Visibility

In retail industry, process visibility, additionally called process perceivability, is the capacity to see the procedures, exchanges and different exercises working precisely and totally inside an undertaking [7]. The principal objective is to empower perceivability into each business procedure, especially where there are issues of execution. Perceivability is basically a route for the business side to screen IT tasks and guarantee that IT usage are lined up with business objectives [8]. The process perceivability is significant with the end goal for associations to decide how well procedures are running, and whether they are conveying greatest incentive to the business [9]. As such, process perceivability can show whether

exchanges and different exercises are handling precisely, and it can likewise show whether procedures are predictable with key business objectives [10]. That information assists with improving business proficiency [11].

According to the definition provided by [7] Procedure Visibility gives perceivability into forms that run in the cloud, on-premises or in half and half conditions [12]. Without productive procedures, we commit errors, lose clients and bring about avoidable expenses [13]. Surprisingly more terrible, we can open ourselves to superfluous hazard if we neglect to agree to guidelines [14]. By and large, poor procedures are, best case scenario, a formula for average quality [15].

## 2.2 Work Stress

In service industry it is very important to address work stress [16] because the most reliable - and insufficient - intends to really get quicker is to work quicker. Why is completing it quicker so significant [17]. It's not what the vast majority think, so they can complete more. That mistakes Service Quality for action, or what I call schedule time and clock time [18]. Schedule time is to what extent it takes between the solicitation and the consummation. Clock time is how a lot of work went into completing it [19]. We have discussed work stress as an independent variable which has impact on improve service quality [20].

Work stress is a mental and physical state where employees going through the strain at workplace [16]. With approaching cutoff times, testing objectives and targets, and complex group elements, the work environment has become a significant stressor for most of representatives [21]. Obviously, constantly significant levels of worry in the work environment aren't useful for your representatives or your association all in all [22]. Be that as it may, when cutoff times should be met and objectives should be fulfilled, trying to wipe out worry in the working environment through and through is an unreasonable objective [23].

## 2.3 Service Quality

Regardless of whether it's an assembling firm creating equipment or a product organization offering types of assistance to customers, quality administration is the very quintessence of persistent improvement and business development [2]. We can follow back the causes of present-day quality administration standards which were procedure and quality administration rehearses that he utilized in the organization's creation lines [22]. Nonetheless, after the Second World War, it was Japan that rose as the most grounded defender of managing quality as they remade their economy with the assistance of incredible analysts and specialists [23]. Although the standards of improving item quality are material to administrations too, it's critical to know the center regions of progress concerning expanding consumer loyalty with regards to support quality administration [24]. This should be possible by estimating the hole between clients' desires and how they see the administrations offered to them. The bigger the hole size, the more enhancements to be made [25].

In the operations of retail industry service quality is the way toward dealing with the nature of administrations conveyed to a client as indicated by his desires is called Service Quality Management [4] It essentially evaluates how well an assistance has been given, in order to improve its quality later on, recognize issues and right them to build consumer loyalty [26]. The administration quality can either identify with the administration potential (capabilities of the people offering administration), administration process (briskness, unwavering quality and so forth.) or the administration result (meeting client desires). Get familiar with the various parts of overseeing administration quality with this course [27].

## 3. LITERATURE REVIEW

In the retail industry the process visibility is uncommonly critical to the achievement of any association [28]. Each entrepreneur realizes that without their procedures, this is not the same old thing [29]. Tragically, if your procedures are not productive, you risk making

blunders, estranging clients/sellers, and losing cash. Regardless of the essential job that procedure plays in each organization, a dominant part of associations strain to genuinely get a handle on the subtleties of their practices [30]. It is nothing unexpected that these equivalent associations additionally experience issues discovering achievement [31]. Absence of perceivability presents numerous issues for organizations, all coming from the utilization of harsh instruments crossing every division. Perceivability issues incorporate unshared data, divided procedures, and poor determining capacities [32]. All of which will bring about more hazard, expenses, and blunders. Procedures are imperceptible. What's more, this is one reason why associations have such a great amount of trouble in dealing with forms more proficiently and persistently improving them [33].

[7] evaluated that Before utilizing process displaying programming and different advances, the view of procedures was unique, with the utilization of a great deal of paper and printed archives [34]. That is the reason, today, numerous individuals despite everything like to print records and spreadsheets. They look to give more prominent substantial quality to the deliberations in which procedures have now become [35]. What's more, in spite of the considerable number of favorable circumstances of utilizing innovation in dealing with a procedure improvement plan, on the off chance that you don't take a particular methodology, it's hard for you to check whether things are working out in a good way and as planned, or if something incorrectly is going on and you have to address it [36]. Giving speedy, exact responses to catch up gatherings, for instance, can get precarious. This is on the grounds that all data is put away on a remote server, some place in the cloud. Organizations that are fruitful in dealing with a procedure improvement plan figure out how to make them unmistakable [37]. To do this, they contribute time and assets to report forms in a deliberate manner. They catch everything the organization has done, and the comparing went with measurements [1][38]. The fundamental advantage of documentation is that it gives greater perceivability to what's going on [39][40]. It makes a mutual and straightforward comprehension of the procedures and strategies utilized in an organization. Right now, conceivable to know where the organization is going, where it ought to be going and how to make a procedure improvement plan work appropriately to improve the way the organization conveys an incentive to its clients, making them increasingly fulfilled, and thusly[41], faithful to the brand. In this way, the association can, with each new procedure improvement plan, advance progressively towards adequacy and operational effectiveness [42][43].

[44][45] explained that the idea of improving service quality is basically extremely basic, identifying with the arrangement of merchandise or administrations that meet the desires for those accepting them[46]. Quality in the conveyance of merchandise or administrations is currently acknowledged as a basic part of business the board in all fields since it is understood that just by fulfilling its clients an association can like to hold its client base and undoubtedly extend it for what's to come [47][48]. It ought to be comprehended that it isn't simply in business settings that the idea has meaning because in those establishments offering types of assistance to people in general, the issue of conveying quality is similarly significant [49][50]. Subsequently, in examining the idea of Service Quality and the different ways to deal with guaranteeing this, the possibility that it applies to both the private and open part is incorporated, even though in talking about the starting points of the idea it is especially on business where the center falsehoods [51]. Administration Quality as a perfect created far and wide after a need was recognized to build up and keep up administration benchmarks for associations that wished to accomplish and hold a significant piece of the overall industry in their given fields [52]. Nonetheless, somewhat, the idea has consistently been available in the business and assembling parts, although it was uniquely in the twentieth century that quality benchmarks started to be founded on logical standards and precise factual estimations of value [53]. Measures appear to

be the key element in the idea of value, it being proposed that consistency or greatness of gauges in items or administrations is what is comprehended by the term 'quality' [54].

Client Focus includes investigating what clients or end clients need from items or administrations [55]. This data is gathered in an assortment of ways including center gatherings, client interviews, as well as nitty gritty client determinations. Without a doubt, this information is important with regards to arranging how to shape the administration or item to satisfy the needs (and desires) for its potential clients [56]. There is an accentuation right now the conviction that the clients are the focal point of the association as these are the people who will buy the made merchandise or administrations being offered by that association, and consequently, their desires must be met [57]. Quality based client support is one of the most significant parts of TQM because in any client situated business the clients are the association's primary partners [4][58]. This leads into the Planning Process where the structure of the task is spread out utilizing data that has been assembled from the full scope of potential clients [59][60]. Successfully, this can be viewed as the structure stage since any potential obstructions that may keep it from meeting the determinations are recognized, and the association is urged to investigate various strategies for dissolving any such deterrents [61][62]. This is additionally that component of the cycle, which considers creation strategies as far as the accessible assets, materials required, and the area of creation [63].

### *3.1 Research Gap Problem Statement*

Transparency in business operations is very important. It makes the operations visible and left less room for errors due to visibility. In service industry transparency has its own place and difficult to determine [45]. In this research we have proposed to discuss the relationship between process visibility, work stress and improve quality service [64]. The stated problem would be that in retailing industry it is vital to address process visibility and work stress to improve the service quality.

It is important because customers demand efficient delivery without compromising on the quality. If the service quality is not up to the mark, then customers will not wait for a while to switch to other brand [41][65]. This is the reason in this research report we have addressed the issues of process visibility and work stress which leads improvement in overall the quality of the services offered to the customers [66][67]. The study has been conducted in UAE so this will increase the knowledge of many practitioners and students in the context of operational strategy of retail industry.



### 3.2. Research Model

In our research, we have developed the following model for the better understanding of the concept used in the research.

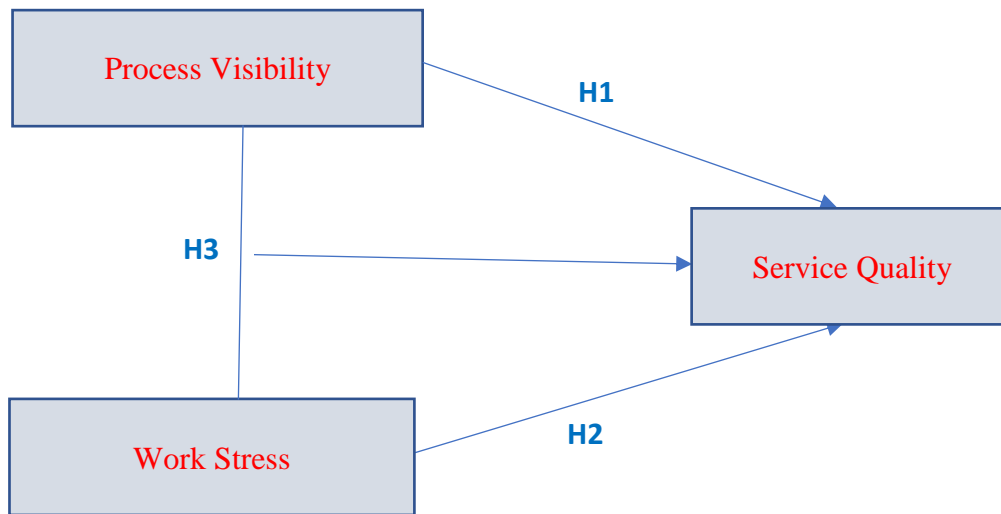


Figure 1: Proposed Research Model

### 3.3. Variables Identification

In the research study there were three variables used for the purpose of analysis. Two variables namely process visibility [7] and work stress [16] were the predictors and taken as independent variables. Improve Service quality [2] was the variable of interest and taken as dependent variable. We have researched in the light of service quality improvement that how service quality is affected by the process visibility and work stress in retail industry.

### 3.4. Research Hypothesis and Questions

We have developed the following major questions for the research and based on these major questions have developed the questionnaire to address the issues in hand.

**H<sub>01</sub>:** Process Visibility has no statistical impact on Service Quality at Dubai Retail Industry at ( $\alpha \leq 0.05$ ).

**H<sub>02</sub>:** Work Stress has no statistical impact on Service Quality at Dubai Retail Industry at ( $\alpha \leq 0.05$ ).

**H<sub>03</sub>:** Process Visibility and Work Stress have no statistical impact on Service Quality at Dubai Retail Industry at ( $\alpha \leq 0.05$ ).

### 3.4. Research Methodology

The chosen research methodology for this research is quantitative. Self-administrative questionnaire was used for data collection. The primary advantage of questionnaire survey is that it is easy to gather a lot of information through asking a series of questions for analysis. We developed the relationship among variables and tested for results and discussion.

### 3.5. Population and Sample

Population for this research is considered the Retail industry. We chose Dubai Retail industry as a population. Primary data was collected through empirical survey. There are 59 Retail companies in Dubai. 155 valid questionnaires were returned from Dubai Retail companies. All employees from operations departments participated in the survey.

### 3.6. Data Collection Method

There are two major sources of data collection. We utilized both sources for the completion of research study. Primary data was collected through questionnaire survey

whereas secondary data collected through previous literature on the process visibility and work stress, as well as the service quality at the retail industry.

## 4. DATA ANALYSIS

### 4.1 Reliability

One of the important requirements in statistical analysis is the uniqueness and independence of the factors under study. Another important requirement is the uniqueness of the variables that are being tested. Drost (2011) reported that values of Cronbach's alpha of 0.7 or higher are sufficient. A Cronbach's alpha of greater than 0.7 is acceptable. Values above 0.8 are considered highly creditable. Here, all the alpha values for constructs were above 0.8, indicating a high degree of internal consistency in the responses.

The reliability of the survey instrument was assessed utilizing the values of Cronbach's Alpha to test the degree of consistency between the multiple measurements of a variable. Variable reliability reflects the extent to which a group of measurement items are internally consistent in measuring the concept that they are supposed to measure. Undoubtedly, Cronbach's Alpha assumes that all utilized elements in a scale are reliable and load equally on their construct. A reliability test is basically a stable and consistent results that can be produced through assessment tool over the time. A study can be measured to be reliable if its result produced under comparable methodology, which means study tool can be applicable and repeatable over the time. Hence, this research has used Cronbach's alpha tool, and the minimum reliability score to be accepted is 0.60. As shown in below table 1, the reliability tool has been tested three variables (dependents and independent variables), and each variable and its dimensions through the measurement instrument. The reliability scores for Process Visibility, Work Stress and Service Quality that showed strongly significant, where Cronbach's alpha value were above (0.60) for all variables, which indicates that the items are internally consistent for each dimension.

Table 1 Cronbach's Alpha Coefficient for Study variables

Construct	Cronbach's Alpha
Process Visibility	0.817
Work Stress	0.924
Service Quality	0.873

The questionnaire of the study, which was distributed to 59 Retail companies in Dubai, has been given to several academic and industrial experts to review, then all comments have been take into serious consideration and adapted before it distributed. All received questionnaires were checked for validity. A data from 155 valid questionnaire were used for investigating and examining through statistical and analytical package (SPSS), in order to test the relationship and the impact of Information System Capabilities, Work Stress on Service Quality, descriptive statistic, correlation and regression analysis and ANOVA analysis were conducted to obtain the results.

### 4.2 Descriptive Analysis

Descriptive analysis and statistic are a way used on studying of data and responsiveness of respondents about research variables that help in describing and summarizing the information into a meaningful. As showed in Table 2 the importance for each construct of the study indicating significant value, as all means and standard deviation refer to accepted values.

Table 2 Descriptive Statistics for Study variables

Construct	Mean	Std. Deviation	Variance
Process Visibility	3.753	.9814	.978

Work Stress	3.647	.8832	.686
Service Quality	3.598	.9641	.842

#### 4.3 Hypotheses Testing

Table 3 illustrate the results of Correlation, ANOVA and Regression analysis to Service Quality in Process Visibility, it described significant relationship between Service Quality in Process Visibility where the correlation ( $r$ ) is (0.599). The determinant coefficient is (0.359) which means that (0.359) changeability in the Service Quality is explained by the changeability in Process Visibility.

**Table 3** Correlation, ANOVA and Regression analysis to Service Quality in Process Visibility

	$r$	$r^2$	F	DF	Sig*	$\beta$	t	Sig*	
Service Quality	.599	.359	18.376	$\frac{1}{154}$ 155	.000	Process Visibility	0.435	2.912	0.002

\* level of significance ( $\alpha \leq 0.05$ ) \*\* Critical t (df/p)=1.64

ANOVA analysis results indicate that there is impact of Process Visibility on Service Quality as beta is (0.435) confirmed by (t) is (2.912) and (f) is (18.376) and all values are significant at ( $\alpha \leq 0.05$ ) level. This evidence supports the first hypothesis which prove the impact of Process Visibility on Service Quality.

Table 4 illustrate the results of Correlation, ANOVA and Regression analysis to Service Quality in Work Stress, it described significant relationship between Service Quality in Work Stress where the correlation ( $r$ ) is (0.545). The determinant coefficient is (0.297) which means that (0.297) changeability in the Service Quality is explained by the changeability in Work Stress.

**Table 4** Correlation, ANOVA and Regression analysis to Service Quality in Work Stress

	$r$	$r^2$	F	DF	Sig*	$\beta$	t	Sig*	
Service Quality	.545	.397	16.443	$\frac{1}{154}$ 155	.000	Work Stress	0.294	2.972	0.001

\* level of significance ( $\alpha \leq 0.05$ ) \*\* Critical t (df/p)=1.64

ANOVA analysis results indicate that there is impact of Work Stress on Service Quality at beta is (0.294) confirmed by (t) is (2.972) and (f) is (16.443) and all values are significant at ( $\alpha \leq 0.05$ ) level. This evidence supports the second hypothesis which prove the impact of Work Stress on Service Quality.

Table 5 illustrate the results of Correlation, ANOVA and Regression analysis to Service Quality in Process Visibility and Work Stress, it described significant relationship between Service Quality in Process Visibility and Work Stress where the correlation ( $r$ ) is (0.611). The determinant coefficient is (0.373) which means that (0.373) changeability in the Service Quality is explained by the changeability in Process Visibility Work Stress.

**Table 5** Correlation, ANOVA and Regression analysis to Service Quality in Process Visibility and Work Stress

	$r$	$r^2$	F	DF	Sig*	$\beta$	t	Sig*	
Service Quality	.611	.373	31.141	153	.000	Process Visibility	0.382	2.263	0.002
						Work Stress	0.462	3.299	0.003

\* level of significance ( $\alpha \leq 0.05$ ) \*\* Critical t (df/p)=1.64

ANOVA analysis results indicate that there is impact of Process Visibility and Work Stress on Service Quality as beta is (0.382/ 0.462) confirmed by (t) is (2.263/ 3.299) and (f) is (31.141) and all values are significant at ( $\alpha \leq 0.05$ ) level. This evidence supports the third hypothesis which prove the impact of Process Visibility and Work Stress on Service Quality.

## 5. RESULTS AND DISCUSSION

Quality improvement is a teamwork where investment of time, energy, and commitment by everybody over the association is basic to the accomplishment of any quality improvement venture [68][69]. Line laborers are frequently the first to perceive process issues that add to low quality. They play out the tasks every day and are the best hotspot for distinguishing and executing upgrades [70][71]. Augmenting the capability of line laborers necessitates that they're very much prepared and taught on the whole procedure, not simply their individual employments [72]. Upper-administration support is additionally basic. Executing quality improvement extends frequently requires noteworthy time and assets [70]. The executives must be happy to endure potential momentary profitability misfortunes for long haul improvement [37][73]. For instance, in retailing industry assembling offices, line laborers can pull a rope and stop the mechanical production system on the off chance that they watch low quality [74]. This would never happen if the board were increasingly worried about the volume of day by day creation than the end nature of the items [75] [76].

Process visibility is possible only when there is top level involvement to keep every phase visible for everyone to serve the purpose of accountability [77]. Without the moto of accountability service improvement goals can never be attained. Retailing industry is vast and dynamic, customers always look for change and demand beyond the expectations [78]. Technology has changed the way of customers think and it has become more than facilitation [79]. All this cannot be achieved without teamwork, involvement which sometimes bring work stress, but results are marvelous and hoping the employees career development opportunities through quality services [80] [38].

## 6. Conclusion and Recommendations

Dissatisfaction from the customers is perhaps the best obstruction your organization will look in its business lifetime [81][82]. If your organization benefits and keeps up items for your clients, at that point you are very much aware of the special difficulties administration-based organizations face [50][83]. From uncertain issues to badly educated assistance experts to broken parts and inconsiderate professionals, the explanations behind client disappointment are many.

- A. Adopt the portable strategy. Cell phones interface you with the business office, however they likewise associate you with your clients [84]. Profoundly evaluated administration organizations utilize portable innovation to help their administration specialists interface with back-office programming so they can settle on increasingly educated choices with regards to parts, materials, and employments [40][85].
- B. Use measurements to decide your advancement against business targets. Each help activity ought to set objectives they wish to accomplish and measurements that desire to keep up [86]. If your organization highly esteems quick occupation fruition time, observing the time it takes to finish each activity would be shrewd [87][88].
- C. Mechanize administration the board. In all actuality, most of your administration the board difficulties are the consequence of not having a mechanized help the executives arrangement [89][90].

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## A COINTEGRATION ANALYSIS FOR THE VALIDITY OF PURCHASING POWER PARITY: EVIDENCE FROM MIDDLE EAST COUNTRIES

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### **ABSTRACT**

This paper examines the validity of Purchasing Power Parity between Jordan and its major trading partners namely, Turkey, Qatar, Iraq, United Arab Emirates and Saudi Arabia. Unit root tests, Johansen cointegration test were employed to test the data covering the period of 2000Q1-2020Q4. The unit root tests demonstrated that all variables are integrated of order one. The results of cointegration tests showed that there exists a cointegrating relationship between exchange rate, domestic and foreign price levels for the selected countries does have a cointegration relationship. This suggests that whenever there is a deviation from the equilibrium cointegrating relationship, exchange rate interacts in a dynamic fashion in adjusting to restore long-run equilibrium. As a conclusion, these results provide evidence on Purchasing Power Parity model hold in the long run and the Jordanian economy is integrated with these countries.

**Keywords:** *Purchasing Power Parity; Johansen Cointegration.*

### **1. INTRODUCTION**

Purchasing power parity theory (PPP) has been discussed widely in the literature and has a long history but really came to the prior during discussions concerning appropriate exchange rates in which countries should rejoin the Gold Standard after the First World War. The theory still commands considerable respect in certain quarters and some financial institutions, such as the Swiss Bank Corporation [1], regard it as a useful guide to long-term currency movements. In recent times, there has been an explosion of empirical research on the validity of PPP in the real world. [2] argue whether PPP hold with the geographic region or based on trade volume. [3] point out, these studies may be categorized according to whether: price and exchange rate levels based on absolute PPP or changes in prices and exchange rates according to relative PPP. The second issue purely traded goods' prices or non-traded as well as traded goods' prices are considered. The agreement aims to deepening the trade integration and promoting mutual investments between the member of countries, to increase investment opportunities between these countries and to facilitate trade movement between the countries and double taxation avoidance [4][5].

A special topic to be taken into consideration by investors and monetary authorities is the integration of the international market. This topic is not discussed very widely ranging between the Middle East and North Africa (MENA) Countries, and not much research has been done on the topic of market integration of MENA. But this topic has been investigated for the market of United States of America (U.S.A.) [6][7]. Moreover, the issue of the symmetry and proportionality condition on PPP (strong version of PPP), which has also been the object of considerable research. One implication of unit root tests is that the restrictive conditions of

proportionality and symmetry restrictions are satisfied in PPP [8][9][10][11][12]. That is, nominal exchange rates and aggregate price ratios move together in a one-to-one fashion in the long run. However, transportation costs, and differences in the composition of price indexes may each lead to violations of proportionality and symmetry in PPP, leading to the looser definition of so-called “weak” PPP [10][13], the weak version of the PPP hypothesis states that nominal exchange rates and aggregate price ratios may move together in equilibrium, but the relationship need not necessarily be one-to-one [14][15]. Testing for weak PPP is typically facilitated by the technique of cointegration [16]. The advantage of the cointegration test for PPP is that it relaxes the restriction of symmetry or proportionality imposed by unit root tests of real exchange rates. Therefore, this study will use the Johansen cointegration test as it serves the purpose [17][18].

The puzzle of PPP based on the empirical evidence shows that international price differences for individual goods (in the case of the law of one price)[19] or baskets of goods appear highly persistent or even non-stationery and fluctuations in the real exchange rate are very volatile and very persistent [20] [21]. The objective of this paper is that it examines the somewhat under-researched issue of what determines the validity of PPP? Does trade and geographic contribute towards the validity of PPP?[22] This paper tries to link these characteristics, namely, trading partners, and geographical regions with the validity of PPP [23]. Therefore, it is appropriate to investigate PPP among countries with similar characteristics, but it is not appropriate for studying PPP among a more diverse group of countries [24][25]. This paper contributes towards reducing the gap in the literature by providing new empirical evidence on the impact of PPP characteristics in developing countries [13][26][27].

The rest of the paper is organized as follows. Section two discusses the PPP theory and section three a brief of literature review. Section four is a review on the methodology and data employed in this study[28][29]. Section five reports the empirical results of this study, and the last section provides the conclusion and overview of this study[30].

## 2. THEORY OF PURCHASING POWER PARITY

PPP stated that, the exchange rate between two currencies is in equilibrium when their purchasing power is the same in each of the two countries that is ‘the law of one price’, that identical goods should sell for identical prices in different countries’ markets[31]. That means the exchange rate between countries should be equal to the ratio of the countries’ price levels of a fixed basket of goods and services [32]. When the country’s domestic price level is getting increased more rapidly than its major trading partner that tell us a country experiencing inflation [33], that country’s exchange rate must depreciate to return to purchasing power parity [34]. There are two types of purchasing power parity theory, absolute and relative purchasing power parity. Absolute purchasing power parity theory states that the exchange rate between the currencies of two countries should equal the ratio of the price levels of the two countries and the basket of goods should be the same domestically and abroad if the goods prices are converted into a common currency[35], in other words [36], absolute purchasing power parity theory postulates that the purchasing power of money should be equal between countries [2][37][38].

$$S = P/P^* \quad (1)$$

Where  $S$  is the nominal exchange rate measured in units of domestic currency per unit of foreign currency,  $P$  is the domestic price level and  $P^*$  is the foreign price level [39]. The relative PPP hypothesis, on the other hand, states that the exchange rate should be proportionate to the ratio of the price level and does not compare domestic and foreign levels of purchasing

power [40][41], but rather focuses on changes in this purchasing power [42][43]. Relative purchasing power parity theory [44][45], therefore, states that the inflation rate differentials between two countries are offset through inverse changes in the nominal exchange rate so that the purchasing power ratio between the two remains constant [46][47].

$$S = k (P/P^*) \quad (2)$$

Where  $k$  is a constant parameter, since information on national price levels normally is available in the form of price indices rather than absolute price levels, absolute PPP may be difficult to test empirically [48].

### 3. LITERATURE REVIEW

The PPP theory has been tested for several countries using various statistical methods, sample periods and frequency of data [49]. Despite the extensive research on PPP, to our knowledge, there are only a few analyses for the Middle East countries [50]. In particular, [51][52] for Jordan, and [37] for different panels of countries including Jordan [32]. [14] test two forms of purchasing power parity (PPP), specifically the strong form of PPP and the weak form of PPP between Jordan and its major trading partners [33] namely, Japan, United Kingdom, Turkey, and United State, based on data covering the period of 2000M1-2012M12 [53]. The found evidence for weak PPP but not for strong PPP [54], hence, the conditions of proportionality and symmetry restrictions may be one of the reasons that PPP does not hold when being tested empirically. [52] examined PPP between Jordan and Japan, and between Jordan and Germany using unit root method and found no evidence of PPP. [37] apply panel cointegration techniques to test the PPP for different panels of countries, such as the OECD, the countries in Africa, Asia, Middle East, and North Africa (MENA), Latin America and Central and Eastern European [55][56]. They reported favorable evidence of PPP in the OECD panel while weak PPP in MENA panel. For the remaining panels, their study shows that PPP does not seem to characterize the long-run behavior of the real exchange rates [57][58].

Previous empirical studies on Asian countries have found mixed results. [51],[59], [60],[26] and [5] found evidence to support long-run PPP for Asian economies. However, [61] found mixed evidence of PPP from thirteen Asian Pacific economies. On the other hand, the results of [62], [63], [64], [27], [1] and [65] failed to show evidence in supporting PPP for Asian Pacific countries. There are numerous studies on PPP conducted on developed countries. Some recent studies that supported exchange rate stationarity for developed countries are Oh (1996) for the G-6 and OECD countries, [66] for the industrial countries, [67] for the OECD countries, [68] for the OECD, Coakley and [69] for the G-10 countries and [70] for 17 developed countries. On the other hand, some studies have also shown that the real exchange rate of non-stationary. These are done by [71] for the OECD countries, [38] for 65 developing countries, and [72] for eight Pacific countries and 15 developed countries.

Recently, there are some studies conducted beyond the developed/developing country dichotomy to investigate the role of individual country characteristics on PPP. [14]; [12] test two forms of purchasing power parity, specifically the strong form of PPP and the weak form of PPP between Jordan and its major trading partners [73]. The results show that the real exchange rate in each country is nonstationary. This implied that the long-run PPP fails to hold for all countries [74][75]. The results of cointegration tests showed that there exists a cointegrating relationship for all the countries between exchange rate, domestic and foreign price levels. They conclude that the evidence of weak PPP is found between Jordan and its major trading partners. The unit-root tests of real exchange rates-imposed proportionality and symmetry restrictions that nominal exchange rates and aggregate prices move together in a one-to-one fashion [76][77]. The weak form of the PPP states that the nominal exchange rate

and aggregate price ratios may move together in equilibrium, but the relationship need not necessarily be one-to-one [78][79]. This paper found evidence for weak PPP but not for strong PPP, hence, the conditions of proportionality and symmetry restrictions may be one of the reasons that PPP does not hold when being tested empirically[80][81].

Based on the above literature, it is noticed that few studies have been conducted for the developing countries in particular Jordan, Turkey, Qatar, Iraq, United Arab Emirates and Saudi Arabia [82]. Although, these countries are expanding their businesses and a high volume of trade among them[83]. Therefore, it is important to discuss this issue with these countries [84].

#### 4. METHODOLOGY AND DATA

In this study, we first examine the time series properties. The unit root test of ADF test issued to examine the stationarity of the data. The unit root tests were first implemented on level, and then on first difference of the data[85][86]. If the series are of first order, then we may proceed to test the existence of the long-run relationship among these variables using Johansen cointegration test [87]. If the Maximum Eigen statistic and trace statistic greater than 5% critical value, then we rejected the null hypothesis. EViews provides a variety of powerful tools for testing a series (or first or second difference of the series) for the presence of a unit root [88]. In addition to the existing Augmented Dickey-Fuller, (1979) and Phillips-Perron, (1988) tests, EViews now allows you to compute the GLS-detrended Dickey-Fuller (Elliott, Rothenberg, and Stock, 1996) [89], Kwiatkowski, Phillips, Schmidt, and Shin (1992), Elliott, Rothenberg, and Stock Point Optimal (1996), and Ng and Perron, (2001)[90] unit root tests [91]. All these tests are available as a view of a series. In this study, some selected countries chosen due to the high trade among them i.e. between Jordan and its major trading partners namely, Turkey, Qatar, Iraq, United Arab Emirates and Saudi Arabia [92]. Unit root tests, Johansen cointegration test were employed to test the data covering the period of 2000Q1-2020Q4 by using EViews software the following discussion outlines the basic features of ADF unit root tests. Consider a simple AR (1) process:

$$y_t = \rho y_{t-1} + x_t' \delta + \varepsilon_t \quad (1)$$

Where  $x_t$  are optional exogenous regressors which may consist of constant, or a constant and trend,  $\rho$  and  $\delta$  are parameters to be estimated, and the  $\varepsilon_t$  are assumed to be white noise. If  $|\rho| \geq 1$ ,  $y$  is a nonstationary series and the variance of  $y$  increases with time and approaches infinity, if  $|\rho| < 1$ ,  $y$  is a (trend-) stationary series, thus, the hypothesis of (trend-) stationarity can be evaluated by testing whether the absolute value of  $\rho$  is strictly less than one [93].

The unit root tests that EViews provides generally test the null hypothesis  $H_0: \rho = 1$  against the one-sided alternative  $H_1: \rho < 1$ . The test of weak PPP consists in testing the existence of a cointegration relationship between the nominal exchange rate and the price ratio. Let,

$$E = k (P/P^*) \quad (2)$$

Where  $k$  is a constant parameter  
Rewrite equation 2 in log form

$$\log e_t = \beta_1 \log p_t - \beta_2 \log p^* \quad (3)$$

Estimation cointegration regression

$$\log e_t = c + \beta_1 \log p_t - \beta_2 \log p_t^* + \varepsilon_t \quad (4)$$

$$\log e_t - c - \beta_1 \log p_t + \beta_2 \log p_t^* = \varepsilon_t \quad (5)$$

Where  $e_t$ ,  $p$  and  $p^*$  are the exchange rate, the domestic price, and the foreign price respectively,  $t$  denoted for time subscript and  $c$  is constant,  $\varepsilon_t$  is the error term, if  $\varepsilon_t$  is a stationary process with zero mean then PPP holds in the long run [94]. However, if  $\varepsilon_t$  is non-stationary implying that deviation from PPP are cumulative and not ultimately self-reversing, then PPP fails in the long run [95].

Let  $X_t = (e_t, p_t, p_t^*)$ . If all components in  $X_t$  are integrated of order 1, ( $I(1)$ ), if the cointegration vector satisfies the restriction of proportionality, i.e.,  $\alpha = (1, -1, 1)$ . Hence, testing the cointegration among  $e_t$ ,  $p$  and  $p^*$  examining the proportional restriction of the cointegration vector are ways of testing the validity of PPP [96][50].

Then, the test of cointegration between the nominal exchange rate and the national price levels by estimating the following regression:

$$\log e_t - c - \beta_1 \log p_t + \beta_2 \log p_t^* = \varepsilon_t \quad (6)$$

Where  $e$  is the nominal exchange rate,  $P$ ,  $P^*$  the domestic price, and the foreign price respectively and  $c$ =constant,  $\beta_1$ ,  $\beta_2$  = coefficient.  $\varepsilon_t$  = error term. For strong PPP to be valid  $\beta_1$  should be positive and equal to one,  $\beta_2$  should be negative and equal to one for PPP to hold. For relative PPP  $\beta_1$  and  $\beta_2$  does not need to be equal to 1 [97] [98].

#### 4.1. Cointegration Test

In this study, cointegration procedure developed by Johansen, (1988) and Johansen-Juselius, (1990) is employed to examine long-term relationship between the different models within economics, as proposed in the coming parts [99]. Cointegration refers to the possibility that non-stationary variables can be a linear combination that is stationary [100]. From a statistical perspective, a long-term relationship means that the balance variables move together in time [101], so that any short-term deviations from long-term trend will be corrected. These series are said to be cointegrated and therefore a common root stochastic trend. Johansen-Juselius, procedure again, in the  $n$ -variable first order given by VAR Engel, and [102][103]

$$\Delta X_t = A_1 X_{t-1} + \varepsilon_t \quad (7)$$

By subtracting  $X_{t-1}$  from each side of the equation, equation (7) can be rewritten as:

$$\begin{aligned} \Delta X_t &= A_1 X_{t-1} + X_{t-1} + \varepsilon_t \\ &= (A_1 - I) X_{t-1} + \varepsilon_t \\ &= \pi X_{t-1} + \varepsilon_t \end{aligned} \quad (4)$$

Where  $X_{t-1}$  and  $\varepsilon_t$  are  $(n \times 1)$  vectors;  $A$  is an  $(n \times n)$  matrix of parameters;  $I$  is an  $(n \times n)$  identity matrix; and  $\pi$  is defined as  $(A_1 - I)$ . The rank of  $\pi$  equals to the number of cointegration vectors, also, the model in equation (8) can be generalized to allow for a higher-order autoregressive process [104]. Which is

$$\Delta X_t = \sum_{i=1}^{m-1} \pi_i \Delta X_{t-i} + \pi_m X_{t-m} + \varepsilon_{ct} \quad (9)$$

And the most important function is still the grade as equal to the number of independent cointegration vectors [105]. As we know that the rank of a matrix is equal to the number of its characteristics which are different from zero, so the number of individual cointegration vectors in this model may be determined by checking whether the significance of the characteristic roots  $\pi$  [106]. The test for the number of cointegration vectors can be accomplished with the help of two like hood ratios (LR) test on the track of statistics and maximum eigenvalue statistics [107] as shown below:

$$\text{Trace Test} \quad : L_{\text{trace}(r)} = -T \sum L_n (1 - \lambda_i) \quad (10)$$

$$\text{Maximum Eigenvalue test} \quad : L_{\text{max}(r,r+1)} = -TL_n (1 - \lambda_{r+1}) \quad (11)$$

Where  $\lambda_i$  the estimated eigenvalues and  $T$  is the number of valid observations, the null hypothesis of traces of statistical tests that the number of individual cointegration vector is smaller than or equal to  $r$  against a general alternative which gives the result of not more than  $r$  cointegrating vectors the last  $\lambda$  max statistical tests the null hypothesis that there is vectors  $r$  cointegrating against the alternative of  $r + 1$  cointegrating vectors. In general,  $\lambda$  max statistics is preferable, because it represents the result of exactly  $r$  cointegrating vectors. Critical values for both tests are in a table [108][109].

## 5. RESULTS AND DISCUSSION

The ADF unit root tests are conducted, and the results can be seen in Table 1. The result of ADF test clearly shown that for all the countries the null hypothesis of unit root cannot be rejected at 1% significant level when all the variables are in the level but can be rejected when they are tested at first difference [110]; this means all the variables are stationary at first difference. However, the null hypothesis of stationary cannot be rejected when all variables are tested in their first differences [111][112]. Thus, we concluded that all the series are  $I(1)$  process.

Table 1: The Augmented Dicky Fuller Unit Root Test

Variable	At Level		First Difference	
	Constant	Trend	Constant	Trend
CPI Jordan	-1.510(0)	-2.902(0)	-8.642(0) ***	-8.678(0) ***
ER J-Qatar	-2.201(3)	-2.365 (3)	-5.130(2) ***	-5.443(2) ***
ER J-Iraq	-3.436(3)	-2.322 (3)	-6.120(2) ***	-6.154 (2) ***
ER J-Turkey	-2.436(3)	-2.397 (3)	-4.150(2) ***	-4.113(2) ***
CPI Qatar	-2.345(4)	-3.361(2)	-3.112(3) ***	-10.27(0) ***
CPI Iraq	-0.015(4)	-3.434(2)	-3.334(3) ***	-11.43(0) ***
CPI Turkey	-2.195(4)	-3.361(2)	-3.112(3) ***	-12.23(0) ***
ER J-UAE	-1.337(0)	-1.589(0)	-6.6769(0) ***	-6.687(0) ***
CPI UAE	-0.0037(5)	-2.940(5)	-3.6115(4) ***	-6.304(2) ***
ER J-Saudi Arabia	-2.304(0)	-0.108(0)	-5.634(0) ***	-5.952(0) ***
CPI Saudi Arabia	-2.499(1)	-1.948(1)	-4.339(0) ***	-4.908(0) ***

Notes: Figures are the t-statistics for testing the null hypothesis that the series is nonstationary. \*\*\* and \*\* denotes significance at 1% and 5% levels. Figures in parenthesis are lag length.

Table 2 above shows all the series are  $I(1)$  process; the cointegration test can be implemented to examine the long-run relationship among these variables [113]. Table 2 displays the results for the Johansen cointegration test.

Table 2: The Johansen-Juselius cointegration tests

Null Hypotheses	Eigenvalue	Trace	Critical Value (1%)	Max-Eigen	Critical Value (5%)
<b>Jordan-Turkey</b>					
( $r = 0$ )	0.424347	42.864***	35.65	35.896***	25.52
( $r \leq 1$ )	0.092794	6.9681	20.04	6.3300	18.63
( $r \leq 2$ )	0.009769	0.6380	6.65	0.63808	6.65
<b>Jordan-Qatar</b>					
( $r = 0$ )	0.345423	32.645***	24.65	32.696***	17.52
( $r \leq 1$ )	0.076763	6.7856	20.55	6.3434	22.63
( $r \leq 2$ )	0.008887	0.4543	6.65	0.68787	6.65
<b>Jordan-Iraq</b>					
( $r = 0$ )	0.317323	44.213***	34.25	32.712***	26.22
( $r \leq 1$ )	0.123672	9.0713	20.04	8.58098	24.13
( $r \leq 2$ )	0.002416	0.3334	6.65	0.34234	6.65
<b>Jordan-United Arab Emirates</b>					
( $r = 0$ )	0.347410	36.813***	36.65	27.742***	25.52
( $r \leq 1$ )	0.123672	9.0713	20.04	8.58098	18.63
( $r \leq 2$ )	0.007516	0.4903	6.65	0.49036	6.65
<b>Jordan-Saudi Arabia</b>					
( $r = 0$ )	0.35225	45.990***	35.65	27.792***	25.52
( $r \leq 1$ )	0.24703	18.197	20.04	18.159	18.63
( $r \leq 2$ )	0.000603	0.0386	6.65	0.03861	6.65

Notes:  $r$  indicates the number of cointegrating vectors. \*\*\* and \*\* denote significance at 1% and 5% levels.

The results showed that there exists a cointegrating relationship between exchange rate, domestic and foreign price levels for Jordan and five countries namely, Turkey, Qatar, Iraq, United Arab Emirates and Saudi Arabia [114]. The existence of a long run relationship between the exchange rates of Jordan and its trading partner, CPI Jordan and CPI trading partner supports the theory of PPP, indicating that it will hold over the estimated periods[115].

## 6. CONCLUSION

The main purpose of this study is to examine the validity of Purchasing Power Parity and to investigate the market integration between Jordan and its major trading partners namely, Turkey, Qatar, Iraq, United Arab Emirates and Saudi Arabia based on data covering the period of 2000Q1-2020Q4 [116][45]. The results of cointegration tests showed that there exists a cointegrating relationship between exchange rate, domestic and foreign price levels. Hence, lending support to the validity of PPP. The findings of PPP hold between Jordan and its major trading partners implied that the Jordanian economy is integrated with these countries [117][118]. Hence, these had important policy implication on cross-border agreement for international trade and investment with these countries. It is promising the efforts to promote trade with these economies and further removal of barriers with these countries[119][120]. Given the goods and services markets appeared quite integrated, future liberalization will be likely pronounced in financial markets. If we envision this process of integration continuing, in the Middle East region, and to the extent that this process requires even more political engagement, we believe the prospects for cooperation along a variety of dimensions are good [121][122][123][124][125][126][127][128].



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# **THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE EFFECTIVE APPLYING OF CYBER GOVERNANCE IN JORDANIAN COMMERCIAL BANKS**

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## **ABSTRACT**

This study aims to examine the impact of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks. The objectives are divided into identifying the impact of expert systems on cyber governance in Jordanian commercial banks, identifying the impact of neural networks on cyber governance in Jordanian commercial banks, identifying the impact of genetic algorithms on cyber governance in Jordanian commercial banks, and identifying the impact of smart agents on governance cyber in Jordanian commercial banks. The current study population includes (13) Jordanian commercial banks listed on the Amman Stock Exchange and the study sample includes all employees in the accounting departments, internal auditors, and programmers. The researchers distributed (208) questionnaires to the study sample members electronically, at a rate of (16) questionnaires in each bank and retrieved them in the same way. Then, 208 questionnaires were retrieved, including (7) questionnaires that are not valid for analysis, due to following the pattern method in answering all paragraphs, so that the researcher has (201) questionnaires valid for statistical analysis. This indicates the interdependence between artificial intelligence techniques and applications (expert systems, neural networks, genetic algorithms, and smart agents) on the effective application of cyber governance in Jordanian commercial banks, as these technologies and applications contribute to enhancing the effectiveness of cyber governance. Thus, it is necessary for commercial banks in Jordan to rely more on advanced systems, so that banks can use modern computer equipment and software, and thus increase the dependence of these banks on the effective application of cyber governance to follow up the progress of business and tasks in accordance with its strategies.

*Keywords: Cybercrime, Commercial banks, Stock exchange, Artificial Intelligence.*

## **1. INTRODUCTION**

The existence of an effective and integrated system for managing all accounting work considering the use of modern computing techniques is considered a key factor in establishing a good system for cyber governance within companies and banks. To achieve progress and improve performance, technology and innovation must be exploited. Uncertainties, transformation of information technology, rapid progress in science and complexities in the business environment



are among the most important factors of change that have resulted in new business models and different economic values, leading to enhanced competition at the local and global levels. Therefore, the accounting profession is not isolated from these developments. If these developments are not considered, this will limit and diminish the accountancy profession and make it not meet the needs and aspirations to keep pace with these developments. So, the accounting profession must understand these changes that would reorganize the work of the economic units it serves. Hence, the accounting profession is also working on keeping pace with all these developments and tending to exploit them by introducing an artificial intelligence model.

Artificial intelligence continues to develop rapidly, as it contributes to understanding the nature of human intelligence by making computer programs capable of simulating human behavior that are intelligent and able to process operations electronically [1]. Artificial intelligence also participates in providing internal and external users with the data and financial information they need in different decisions quickly and in a timely manner [2]. The most important contemporary trends in information and communication technology is the development of its strategic role, as information systems have become an integral part of the fabric of management in companies [3] and banks and a basic resource on which they depend in activating the administrative and financial process, enhancing decisions, and improving the quality of performance [4].

The amazing development has provided opportunities for banks to enhance the level of services they provide to customers by opening new innovative channels away from the traditional channels that banks are accustomed to, to provide banking services to their customers [5]. Thus, this contributed to a radical transformation in the way the banking sector operates; the technical development has contributed to banks providing banking services through electronic transactions [6], which has led to saving time, money, and effort through these innovative new channels. At the same time, security and protection risks have increased since ineffective use can disrupt the necessary financial services, and these are cyber attacks that threaten the entire financial system and thus accumulate huge losses when these attacks occur [7]. This led to the emergence of cyber governance and cyber security strategy as each financial institution develops its own cyber security strategy in accordance with principles-based risk management practices [8]. Moreover, regulators review these strategies as part of their assessment of the overall risk management practices of banks [9][10].

Therefore, artificial intelligence is considered a new topic of great importance, as it changes the performance of the accounting and governance profession [11], since cyber governance is a fertile environment for applying the artificial intelligence considering developments in information technology [12]. The accounting profession is subject to great challenges because of scientific progress and technological development and the emergence of artificial intelligence technology [13][14]. Consequently, Jordanian commercial banks are facing difficulty in making the accounting system keep pace with these new technologies due to the need to provide ready-made programs and provide accountants who have the necessary skills to deal with these programs and train them [15][16], in addition to the need to continuously update and maintain these programs and provide them with the material requirements of devices and storage means, which is often costly and exposed to risks [17] [18]. Also, there is a difficulty on the part of these banks to know the reality of the impact of artificial intelligence on the effective applying of cyber governance in commercial banks [19][20].

## 2. PROBLEM QUESTIONS

The questions of the study problem revolve around the following:

1. Is there an impact of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks?
2. Is there an impact of expert systems on cyber governance in Jordanian commercial banks?
3. Is there an impact of neural networks on cyber governance in Jordanian commercial banks?
4. Is there an impact of genetic algorithms on cyber governance in Jordanian commercial banks?
5. Is there an impact of smart agents on cyber governance in Jordanian commercial banks?

Therefore, this study aims to know the impact of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks. These objectives are divided into identifying the impact of expert systems on cyber governance in Jordanian commercial banks, identifying the impact of neural networks on cyber governance in Jordanian commercial banks, identifying the impact of genetic algorithms on cyber governance in Jordanian commercial banks, and identifying the impact of smart agents on governance cyber in Jordanian commercial banks.

## 3. STUDY HYPOTHESES:

Based on the questions and objectives of the study; the study hypotheses were formulated as follows:

The first main hypothesis H0: There is no effect of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks.

The following sub-hypotheses are branched from this hypothesis:

H01: There is no effect of expert systems on cyber governance in Jordanian commercial banks.

H02: There is no effect of neural networks on cyber governance in Jordanian commercial banks.

H03: There is no effect of genetic algorithms on cyber governance in Jordanian commercial banks.

H04: There is no effect of smart agents on cyber governance in Jordanian commercial banks.

## 4. LITERATURE REVIEW

The idea of this study came due to the advantages provided by artificial intelligence in various fields that facilitates access to financial data and information at any time and from anywhere and enables it to easily keep pace with updates and developments in international standards and its advanced programs, to know its impactful role in the effective applying of cyber governance in Jordanian commercial banks.

A study by [21] aimed to identify the effect of expert systems and neural networks on the property of relevance in Jordanian commercial banks. The study showed several results. The most important result was a high level of appropriateness of accounting information in Jordanian commercial banks [22][23]. The study recommended the need for banks to keep pace with the progress and development taking place in the process and environment of experience systems by providing modern and developed devices to operate various programs and expert systems [24][25].

Whereas a study by [26] aimed at analyzing the reality of the applying artificial intelligence in the Indian banking sector [27]. The results showed that the applying of artificial intelligence in the

banking sector has many advantages, including increasing worker satisfaction, gaining their loyalty, and reducing costs [28][29]. The application of artificial intelligence also contributes to reducing the negative manifestations associated with banking work, such as cases of fraud, money laundering and the fading of human errors. The results also showed the presence of several determinants that prevent the applying of artificial intelligence, most important of which is unemployment [30]. Considering the results, the study recommended banks to benefit through continuous innovation with speed and scale, and reinvestment as necessary to extract the optimum value from technologies that support artificial intelligence [31][32].

Moreover, a study [33] aimed to know the impact of artificial intelligence applications on the performance of the accounting profession in Jordan [34]. The results of the study showed that there is a significant impact of artificial intelligence applications on the accounting profession from the point of view of Jordanian chartered accountants [35][36]. Considering the results of the study, the study recommended the need to those working in the accounting profession keep pace with technological developments, including the applications of artificial intelligence, to maintain their jobs [37][38].

Another study by [39] aimed to identify and study the applications of artificial intelligence that support administrative decisions, by defining the concept of the field of artificial intelligence, and the relative importance of each of its components that it includes [40][41]. The study concluded that artificial intelligence technology [7] is a strategic technique that works to obtain more efficiency and new opportunities to achieve the competitive advantage of many business organizations [42][43]. The most important recommendations that have been reached is the need to implement the capabilities of artificial intelligence on activities that have the greatest and immediate impact on revenues and cost [44][45].

Whereas a study by [46] aimed to shed light on the importance of cyber risks and attacks and the significant economic impacts resulting from them in the Gulf Cooperation Council, especially as these countries seek to transform into knowledge-based economies [47]. The study concluded that most of the attacks that Gulf Cooperation Council were exposed to target the oil sector and the financial sector mainly [48][49]. It also concluded that Oman ranked first in the Arab world for cyber security, as it has a strong organizational structure and the presence of a high-level strategy for cyber security [50][51]. Qatar ranked second in the Gulf and third in the Arab world in 2017. The study recommended the need to measure the risks cyber security legislation and cybercrime legislation it also recommended the need for training in the field of cyber security and the level of risks faced by these countries [52][53].

Another study by [54] aimed to adapt to cyber risks and learn about cyber security governance in order to protect companies, their business and economic activity in line with developments, techniques and legal requirements [55][56]. The study found that the commitment of financial, credit and technical companies to cyber governance works to regulate the work of these companies. The study recommended applying the cyber security policy and applying cyber security programs to be integrated with the general framework for managing information technology risks and to continue to update and develop it [57][58].

Also, a study by [59] aimed to clarify the International Monetary Fund's estimates of the cost resulting from cyber-attacks in the financial sectors, based on the losses incurred as a result of actual attacks in 50 countries around the world [60][61]. The study found that the financial services sector witnesses cyber-attacks that outweigh other sectors by 65 percent, according to estimates

by the World Bank. It also found that the cost of cyber-attacks in the financial services sector may reach an estimated 270- to 350 billion dollars annually if its spread expands, according to the estimates of the Financial Services Fund. international monetary [62][63]. The study recommended that the need to include cyber risks within the framework of operational risks for financial institutions alone is considered insufficient as banks must adopt reliable strategies that enhance cybersecurity [23][64]. Also, the supervisory instructions of Arab central banks obligate banks to develop a list of instructions to secure electronic applications [65]. The most important of which is the installation of protection programs Against penetration, and the necessity of Arab banks' commitment to conduct a stress test to determine the extent of the effects of the success of any piracy operations against their electronic systems [66][67].

A study by [21] aimed to examine the impact neural network on an efficient accounting information system on the Jordanian commercial banks. It is found that the neural networks used by Jordanian commercial banks contribute to increasing the efficiency of its accounting systems and providing management with basic accounting information [68][69]. Moreover, the neural networks used by Jordanian commercial banks are distinguished by their ability to analyze contribute to raising the efficiency [70] and ability of workers to develop and progress, and provide management and stakeholders with information that is consistent with the needs of customers [71].

Also, a study by [72] aimed to demonstrate the impact of cybersecurity governance on the efficiency of big data implementation in Jordanian commercial banks. The study showed many results, the most important of which was that there is an impact of cybersecurity governance on the efficiency of big data implementation in Jordanian commercial banks, on big data implementation in commercial banks in Jordan [73][74]. The study recommended that the need of the Jordanian commercial banks' departments for paying attention to restructuring their organizational structure in a way that supports the flow of data between the different departments through ways of creating solid cyber governance that has its own inputs which is related to big data technologies [75][76].

Another study by [77] aimed to identify the impact of cyber governance on reducing the risk of cloud accounting in the Jordanian commercial banks. The study showed the presence of a statistically significant impact of cyber security governance (cybersecurity security governance requirements, cybersecurity program, cyber security policy, cyber information management, evaluating and managing cyber risks) in reducing cloud accounting risks in Jordanian commercial banks [78][79]. The most important recommendations of the study were the need for Jordanian commercial banks to adopt the cyber governance as a basic reference to their banking policy to address the risks associated with the use of cloud accounting [80]. It also recommended that the need to establish a special department for human resources management within the bank which would have a pioneering intellectual orientation to cope with modern trends in cyber governance [81].

Also, a study by [82] aimed to examine the effect of artificial intelligence on the performance of accounting operations among accounting firms in South East Nigeria and its significant effect on the performance of accounting function of accounting firms in South East Nigeria. It was concluded that the application of artificial intelligence positively influences the performance of accounting functions [12]. The researchers recommended that accountants and accounting firms should continually improve their knowledge regarding artificial intelligence as this will enhance the performance of accounting functions, thereby eliminating certain accounting cost [83].

## 5. METHODOLOGY

To achieve the objective of the study, we adopted the descriptive analytical approach, to track the relationship between the variables of the study, and to identify their trends and their impact on the problem of the study, to reach the best solutions that consolidate and clarify the relationship between the variables. Where the descriptive approach is based on describing the phenomenon or problem under study to reach its causes and the factors that control it, by applying a series of procedures to the facts and data collected from the study community. While the analytical method is based on analyzing the data and arriving at the results for generalization [84].

The reliance on these two approaches came due to the multiplicity of dimensions that need a lot of description and clarification of the justifications for their use in the current study, and the prevalence of them in many studies and research literature like them [85], in addition to the inference from the analysis of these variables in finding relational links between the variables related to the study environment [86][87].

In the current study, the descriptive approach was represented in describing the main study variables (artificial intelligence, cyber governance), and identifying the level of their achievement in Jordanian commercial banks. While the analytical approach represented in exploring the impact of artificial intelligence on the Effective Applying of Cyber Governance in Jordanian commercial banks [88][89]. Where the researchers relied on the study tool on the questionnaire to collect information about the members of the study sample, and to obtain data that express their point of view about the dimensions and variables in the study environment [90], in order to understand and clarify the supposed relationship between the variables in the light of the study problem and its objectives, and then these questionnaires were analyzed on a software (SPSS) which was distributed to 13 banks [91].

The current study population includes (13) Jordanian commercial banks listed on the Amman Stock Exchange and the study sample includes all employees in the accounting departments, internal auditors, and programmers. The researchers distributed (208) questionnaires to the study sample members electronically, at a rate of (16) questionnaires in each bank and retrieved them in the same way. Then, 208 questionnaires were retrieved, including (7) questionnaires that are not valid for analysis, due to following the pattern method in answering all paragraphs, so that the researcher has (201) questionnaires valid for statistical analysis, with a recovery rate of (96.6%) of the total distributed questionnaires, which is a statistically acceptable percentage.

### 5.1 Instrument Stability Test

The stability test of the study tool aims to ensure the accuracy and objectivity of the study instrument, the extent of coherence and cohesion between its paragraphs, and the ability to obtain relatively stable answers. To achieve this, the Cronbach Alpha Coefficient was applied. This measure indicates that the result is statistically acceptable if the value of Cronbach's alpha coefficient ranges between (0.80) or greater than it, and the closer the value of the coefficient is to the value (100%), this indicates higher degrees of stability for the study tool [92]. The following table shows the results of the stability test of the study tool.

**Table 1: Results of the Study Instrument Stability Test**

Variables	Dimension No.	Alpha Value
Independent variables		
Neutral Networks	1	0.765
expert systems	2	0.863
genetic algorithms	3	0.774
Smart Agents	4	0.831
Dependent variables		0.831
cyber governance	5	0.846
Study instrument	6	0.879

It is clear from the results of the table (1) that the study tool has high stability coefficients, and ability to achieve the goals and objectives of the study. Thus, the possibility of relying on it to conduct statistical analysis, as the values of Cronbach's alpha coefficient ranged between (0.765 - 0.846), and the value of the coefficient for the study tool as a whole was ( 0.879), both of which are greater than the value (0.80).

### 5.2 Description the Demographic Data

The following tables 2, 3, 4, and 5 are the description of sample of the study and educational qualifications, year of experience where the questionnaire were distributed and their specialization in work. Finally, the job title for each employee is shown in Table 6.

**Table 2: Description of the study sample according to the variable of age**

Variables	Category	Repetition	Percentage
Age	Under 25 years old	40	19.9 %
	From 25 years to less than 35 years	95	47.2%
	From 35 years to less than 45 years	44	21.8%
	From 45 years to less than 55 years	11	5.4 %
	55 years and over	11	5.4 %
<b>Total</b>		<b>201</b>	<b>100%</b>

**Table 1: Description of The Study Sample According to The Educational Qualification Variables**

Variables	Category	Repetition	Percentage
Qualification	Bachelor	139	69.1%
	Higher Diploma	9	4.4%
	M.A.	33	16.4%
	PHD	20	9.9 %
<b>Total</b>		<b>201</b>	<b>100%</b>

Table 2: Description of The Study Sample According to The Variable of Years of Work Experience

Variables-	Category	Repetition	Percentage
<b>Year Of Experience</b>	less than 5 years	88	46.8%
	From 5 years to less than 10 years	50	24.8%
	From 10 years to less than 15 years	29	14.4%
	From 15 years to less than 20 years	12	5.9%
	20 years and over	22	10.9 %
<b>Total</b>		201	100%

Table 3: Description of The Study Sample According to The Variable of Scientific

Variable	Category	Repetition	Percentage
<b>Scientific specialization</b>	Accounting	109	54.2%
	Business Administration	30	14.9%
	Finance and Banking	23	11.4%
	computer information systems	39	19.4%
	Other	0	0.0%
<b>Total</b>		201	100%

Table 4 : Description of the Study Sample Members According to the Job Title Variable

Variable	Category	Repetition	Percentage
Job title	Branch Manager	29	14.4%
	Banking Operations Officer	70	34.8%
	Customer Service Officer/Executive	82	40.7%
	Information Systems Officer/Administrator	20	9.9%
<b>Total</b>		<b>201</b>	<b>100%</b>

## 6. RESULTS AND DISCUSSIONS

It is clear from the table (7) that there is a positive correlation between the neural networks and cyber governance, as the value of the correlation coefficient was ( $R = 0.459$ ), and the value of the coefficient of determination was ( $R^2 = 0.211$ ). This indicates that the neural networks interpreted a percentage of (21.1%) of the change in cyber governance, and that the value (78.9%) is due to other factors. The value of the modified coefficient of determination  $Adj.R^2$  was (0.209), and the difference between it and the coefficient of determination was (0.002), which is a very small value. This indicates to the ability of the accepted model variables to predict the values of the cyber governance variable.

**Table 7: Model summary and regression variance analysis**

Variable	Summary Model				ANOVA Analysis of Variance		
	R correlation coefficient	R <sup>2</sup> coefficient of determination	Adjusted R <sup>2</sup> coefficient of determination	SD	Degrees of freedom	calculated F value	Sig F*
DV- cyber governance	0.559	0.211	0.209	0.503	1	62.545	0.00

The table also shows the significance of the model, since the calculated F value was (62.545) and the significance level (SigF = 0.000) is less than 0.05, which indicates that there is a statistically significant effect of neural networks in cyber governance at the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom.

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: at the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom. "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for neural networks in the cyber governance in Jordanian commercial banks."

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for neural networks in the cyber governance in Jordanian commercial banks."

**Table 5: Regression Coefficients**

Variable	B coefficient	Standard Error	Beta value	Calculated T Value	Sig T* Sig. level
Neural networks	0.541	0.059	0.449	7.299	0.00

*The effect is statistically significant at the level significance ( $\alpha \leq 0.05$ ).*

Table (8) shows the values of the regression coefficients for neural networks. It is found that the value of B at the dimension (neural networks) reached (0.451), which indicates that an increase in neural networks by one unit leads to an increase in cyber governance by (45.1%) unit. Also, the calculated T value at this dimension was (7.299) and at the significance level (SigT = 0.000), which is less than 0.05. So, this indicates a positive significant effect of neural networks in cyber governance.

It is clear from the table (9) that there is a positive correlation between the expert systems and cyber governance, as the value of the correlation coefficient was ( $R = 0.459$ ), and the value of the coefficient of determination was ( $R^2 = 0.213$ ). This indicates that the neural networks interpreted a percentage of (21.3%) of the change in cyber governance, and that the value (78.7%) is due to other factors. The value of the modified coefficient of determination Adj.R<sup>2</sup> was (0.205), and the difference between it and the coefficient of determination was (0.002), which is a very small value. This indicates to the ability of the accepted model variables to predict the values of the cyber governance variable.



**Table 9: Model summary and regression variance analysis**

Variable	Summary Model				ANOVA Analysis of Variance		
	R correlation coefficient	R <sup>2</sup> coefficient of determination	Adjusted R <sup>2</sup> coefficient of determination	SD	Degrees of freedom	calculated F value	Sig F*
DV- cyber governance	0.459	0.213	0.205	0.503	1	61.515	0.00

The table also shows the significance of the model, since the calculated F value was (61.515) and the significance level (SigF = 0.000) is less than 0.05, which indicates that there is a statistically significant effect of expert systems in cyber governance at the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom.

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for expert systems in the cyber governance in Jordanian commercial banks."

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for expert systems in the cyber governance in Jordanian commercial banks." At the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom.

**Table 10: Regression Coefficients**

Variable	B coefficient	Standard Error	Beta value	Calculated T Value	Sig T* Sig. level
expert systems	0.441	0.059	0.449	7.289	0.00

*The effect is statistically significant at the level significance ( $\alpha \leq 0.05$ ).*

Table (10) shows the values of the regression coefficients for expert systems. It is found that the value of B at the dimension (expert systems) reached (0.441), which indicates that an increase in expert systems by one unit leads to an increase in cyber governance by (44.1%) unit. Also, the calculated T value at this dimension was (7.289) and at the significance level (SigT = 0.000), which is less than 0.05. So, this indicates a positive significant effect of neural networks in cyber governance.

It is clear from the table (11) that there is a positive correlation between the genetic algorithms and cyber governance, as the value of the correlation coefficient was ( $R = 0.556$ ), and the value of the coefficient of determination was ( $R^2 = 0.225$ ). This indicates that the genetic algorithms interpreted a percentage of (22.5%) of the change in cyber governance, and that the value (77.5%) is due to other factors. The value of the modified coefficient of determination Adj.R<sup>2</sup> was (0.201), and the difference between it and the coefficient of determination was (0.000), which is a very small value. This indicates to the ability of the accepted model variables to predict the values of the cyber governance variable.

**Table 11: Model summary and regression variance analysis**

Variable	Summary Model				ANOVA Analysis of Variance			
	DV- cyber governance	R correlation coefficient	R <sup>2</sup> coefficient of determination	Adjusted R <sup>2</sup> coefficient of determination	SD	Degrees of freedom	calculated F value	Sig F*
		0.556	0.225	0.201	0.503	1	60.545	0.00

The table also shows the significance of the model, since the calculated F value was (60.545) and the significance level (SigF = 0.000) is less than 0.05, which indicates that there is a statistically significant effect of genetic algorithms in cyber governance at the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom.

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for genetic algorithms in the cyber governance in Jordanian commercial banks."

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for genetic algorithms in the cyber governance in Jordanian commercial banks." At the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom.

**Table 12: Regression Coefficients**

Variable	B coefficient	Standard Error	Beta value	Calculated T Value	Sig T* Sig. level
genetic algorithms	0.414	0.059	0.449	9.279	0.00

The effect is statistically significant at the level significance ( $\alpha \leq 0.05$ ).

Table (12) shows the values of the regression coefficients for genetic algorithms. It is found that the value of B at the dimension (genetic algorithms) reached (0.414), which indicates that an increase in genetic algorithms by one unit leads to an increase in cyber governance by (41.4%) unit. Also, the calculated T value at this dimension was (9.279) and at the significance level (SigT = 0.000), which is less than 0.05. So, this indicates a positive significant effect of genetic algorithms in cyber governance.

It is clear from the table (13) that there is a positive correlation between the Smart Agents and cyber governance, as the value of the correlation coefficient was (R = 0.555), and the value of the coefficient of determination was (R<sup>2</sup> = 0.250). This indicates that the Smart Agents interpreted a percentage of (25.0%) of the change in cyber governance, and that the value (75.0%) is due to other factors. The value of the modified coefficient of determination Adj.R<sup>2</sup> was (0.215), and the difference between it and the coefficient of determination was (0.000), which is a very small value. This indicates to the ability of the accepted model variables to predict the values of the cyber governance variable.

Table 13: Model summary and regression variance analysis

Variable	Summary Model				ANOVA Analysis of Variance		
	DV- cyber governance	R correlation coefficient	R <sup>2</sup> coefficient of determination	Adjusted R <sup>2</sup> coefficient of determination	SD	Degrees of freedom	calculated F value
	0.555	0.250	0.215	0.503	1	72.745	0.00

The table also shows the significance of the model, since the calculated F value was (72.745) and the significance level (SigF = 0.000) is less than 0.05, which indicates that there is a statistically significant effect of Smart Agents in cyber governance at the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom.

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for Smart Agents in the cyber governance in Jordanian commercial banks."

Accordingly, the second null hypothesis is rejected, and the alternative hypothesis is accepted, which states that: "There is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for Smart Agents in the cyber governance in Jordanian commercial banks." at the significance level ( $\alpha \leq 0.05$ ), 1 degree of freedom.

Table 14: Regression Coefficients

Variable	B coefficient	Standard Error	Beta value	Calculated T Value	Sig T* Sig. level
Smart Agents	0.432	0.059	0.449	10.199	0.00

The effect is statistically significant at the level significance ( $\alpha \leq 0.05$ ).

Table (14) shows the values of the regression coefficients for Smart Agents. It is found that the value of B at the dimension (Smart Agents) reached (0.432), which indicates that an increase in Smart Agents by one unit leads to an increase in cyber governance by (43.2%) unit. Also, the calculated T value at this dimension was (10.199) and at the significance level (SigT = 0.000), which is less than 0.05. So, this indicates a positive significant effect of Smart Agents in cyber governance.

The results of the study showed a high level of applying of Artificial Intelligence on the Effective Applying of Cyber Governance in Jordanian commercial banks. the Artificial Intelligence, with a high relative importance [93][94]. This indicates the interest of Jordanian commercial banks in using modern methods, applications and technologies that contribute to achieving the efficient accounting information system in banks [95]. The results of the study also showed that there is a statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for Artificial Intelligence in the on the Effective Applying of Cyber Governance in Jordanian commercial banks individually [96][97]. The results of analyzing the answers of the study sample members indicated a high level of importance for the on the Effective Applying of Cyber Governance in Jordanian commercial banks, and this indicates that Jordanian commercial banks possess efficient accounting systems and the ability to achieve their organizational goals and

provide support and assistance to the bank in carrying out its various activities and that the application of Artificial Intelligence in the banking sector It has many advantages including increasing worker satisfaction, earning their loyalty, and reducing costs [98][99].

## 7. CONCLUSIONS

This study aimed to know the effect of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks [100]. It has been shown that there is a statistically significant effect of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks; Jordanian commercial banks carry out periodic maintenance operations for the devices used by them, and work to provide the necessary devices and equipment, when studying the dimensions of artificial intelligence individually [101]. This indicates the interdependence between artificial intelligence techniques and applications (expert systems, neural networks, genetic algorithms, and smart agents) on the effective application of cyber governance in Jordanian commercial banks [102], as these technologies and applications contribute to enhancing the effectiveness of cyber governance [103][104]. Thus, it is necessary for commercial banks in Jordan to rely more on advanced systems, so that banks can use modern computer equipment and software, and thus increase the dependence of these banks on the effective application of cyber governance to follow up the progress of business and tasks in accordance with its strategies [105][106].

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# INVESTIGATING THE FACTORS THAT INFLUENCE STUDENTS` CHOICE OF ENGLISH STUDIES AS A MAJOR: THE CASE OF UNIVERSITY OF NOUAKCHOTT AL AASRIYA, MAURITANIA

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## **ABSTRACT**

The primary purpose of this study was to explore the factors that affect students` choice of English studies as a major at the University of Nouakchott Al Aasriya in Mauritania. A quantitative research methodology was used, and the data were collected from 107 students from the English Department. To verify the five hypotheses of this study and whether there is a significant positive relationship between the dependent variable (students` choice of English studies major) and the independent variables (personal interest, program content, education facilities, employment prospect and media), SPSS was used to provide a descriptive statistical analysis. The Findings of the study showed that personal interest and employment prospect do have a significant influence on students` choice of English studies as a major, but the influence is negative. Additionally, the study revealed that education facilities and media had a significant positive influence on students` choice. On the contrary, data analysis indicated that program content did have a significant influence on students` choice. Thus,  $H_3$  and  $H_5$  are accepted; while  $H_1$ ,  $H_2$  and  $H_4$  are rejected since there is no significant positive relationship between the independent variable and the dependent variables. The findings of this study contribute to literature by focusing on the determinant factors that influence students` choice of English studies major at University of Nouakchott Al Aasriya.

**Keywords:** *Factors, Students, Choice, English Studies, Major, University, Mauritania*

## **1. INTRODUCTION**

In Mauritania, selecting a major after the accomplishment of the secondary school has always been a difficult path to take. This is a corollary of the fact that any selected major will have great consequences on the career path of the student. As a result, what the chosen major will lead to, is one of the underlying issues discussed by many researchers. For example, [1] stated, "choosing a college major is akin to choosing a path while at a crossroads. A chosen major, often a one-off decision, decides several aspects of a student`s career, leading them to a specialization in the areas of their professional interests" (p.54). Thus, the complexity of choosing major needs a thorough

scrutiny and students need to think very profoundly before making the decision if they are the ones to choose the major.

Clearly, the popularity or unpopularity of English studies major in Mauritania and the reasons that made students select this major is still an issue to be investigated [2][3]. Other researchers in the field have spoken about the driving force behind the popularity of certain majors [4]. Most of them argued that the main factors affecting the popularity of some majors remains a puzzling problem that disturbed and still disturbing academics across various streams who have been trying to decipher the roots of the problem [1][5][6][7][8][9][10][11].

In the context of University of Nouakchott Al Aasriya, the determinant factors contributing to students' choice in selecting English studies major is still an area of exploration [12][13]. Though many papers have been written on the most influential factors that compel students to choose their desirable majors, there is a lack of focus on English studies major [14][15]. Specifically, investigating the factors that influence students' choice of English studies major at University of Nouakchott Al Aasriya in Mauritania is the first of its kind [16].

English department—, which is a division of University of Nouakchott Al Aasriya that belongs to the ministry of higher education and scientific research—is open to all students who accomplished their high school requirements [17][18]. Students at University of Nouakchott used to choose any department that matches their specializations without any prerequisites, except in the scientific branches in which certain scores are required for some degrees' entry [19][20]. English department used to be chosen by students who finished their high schools and desire to specialize in English studies major without any restriction neither by the department nor by the ministry of higher education and scientific research [21][17]. However, students' specialization, scores, and achievement at the final stage of high school are among the determinant factors that may contribute to the selection of a specific major in Mauritania. Many researchers have dealt with students' choice for specific majors [22][23]. For example, [11][24] examined the main factors that influence students' choice of information system as a major, he argued that job availability, family and professors are important factors affecting students' choice [25][26][27].

Generally, this study tries to shed light on the major factors that nurture students' choice of English studies major [28], concentrating on variables such as personal interest, program content, education facilities, employment prospect and media. Specifically, the findings of this study will contribute to literature by identifying some of the determinant factors that influence students' choice of English studies major at University of Nouakchott Al Aasriya [29].

## **2. LITERATURE REVIEW**

Many researchers have discussed factors influencing students to choose their majors across the globe, dealt with the topic from different angles, and based on different contexts [14]. [30] who investigated the issue in the context of the United Arab Emirates came to the conclusion that most of their respondents enter the university with a very clear future prospect and personal interest as a factor was the dominant in comparison with other factors such as family influence, job availability and salary [31] [32]. In a similar study conducted in UAE on students' choice of accounting major at X University, [33] examined some of the factors that influence students' choice in choosing their desirable majors such as reputation of the university, personal interests, job prospect, family members and peers, and media [34]. Based on this study there is a significant

relationship between family members and peers and on the student's choice of accounting as a major [35].

Additionally, [36] argued that the factors that may influence the choice of a university in general encompasses many decisions that lay the basis of a successful life or career [37][38]. Furthermore, both authors claim that things have changed in the past half-century because of many other factors that people need to take into consideration while examining the reasons that led the students to choose a particular university [39][40]. Another study done on the choice of study of a particular major, is the one conducted by [41], which shows a significant relationship between students' choice of the study program and factors such as product and promotion. Additionally, [42] pointed out that the "recognition of qualification by employers were the top important factors that influence students' choice of university [43] [44].

### *2.1. Personal Interest*

One of the factors that may affect students' choice in selecting English studies as a major is the Fulbright scholarship program done by US. Embassy [45], which can be viewed as a personal interest. It creates an excellent opportunity of Mauritanian who speak English fluently to further their studies in America in each discipline for a specific duration [46][47]. It can be seen as a personal interest that may affect students' choice of English studies major as a result [48]. Some other researchers have discussed personal interest as a significant factor affecting students' choice [49] and [50]. On the other hand, in a research paper written by [51], it becomes clear that the personal interest is not the only reason that may drive student to select a specific major, rather the role that the instructors can play is very crucial in this process [52]. This point has been pinpointed by some other researchers who looked at the correction between students' choice of the major and the role played by the instructors [5]. Furthermore, [53] stated that "the choice is often described as a reflection of one's personal interest, which results in people to conclude their preferences by examining their selection" [54].

Studies have shown that family and relatives is a very significant factor that influence students' choice in choosing their majors [2]. In their study on factors determining the decision to pursue a university degree or a major in accounting, researchers pointed out that family influence was a very significant factor [55][33]. Similarly, [56] argued that their study has proven that there is a strong relationship between family, friends and students' choice of the major [57]. There were studies in literature in which researchers argued that there is no relationship between the family and relatives and students' choice of majors [58][59].

### *2.2. Reputation of Program Content*

Another important factor that researchers have discussed in relation to students' selection of a specific major is the reputation of the department, university, or program [60]. In business studies and more specifically in accounting majors, researchers found a significant relationship between students' choice of accounting major and the reputation of the department in general [61][62]. Additionally, [63] in their research paper on Angola, found that the reputation of university, department and staff may impact the students' choice: "the institution reputation, as well as institution staff, has major significance in the HEI selection [64]. However, parents' financial condition constrains a lot in the HEI selection". (p. 26) Furthermore, [65] pointed out in their study that institution reputation has a great significant influence on students' selection of business and engineering majors [66].

### 2.3. Education Facilities

Education facilities is one of the factors that may influence students' choice of a specific major [67]. Nowadays, student's satisfaction remains a priority for any academic institution. Universities that possess great learning resources are more attractive for the new generation [68]. [69] who dealt with this factor argued that education facilities play a considerable role in attaining and meeting the goals of the university [70]. Moreover, [56] pointed out that education facilities are among the primary reasons for major selection in higher education institute [71]. Others found out that institutions with high quality facilities seem to have a greater learning experience [49][72]. Additionally, the university environment or campus facilities have been seen as a significant factor may affect students' perception of the university [63] [73]. On the other hand, universities with less education facilities have been considered to reduce students' motivation and eagerness to learn [74].

### 2.4. Employment prospect

No doubt that the career path is a very important factor to take into consideration before selecting a major [75]. It does not only create a sort of motivation for student to excel, but rather it urges student to have a clear plan for his/her future [76]. Many researchers interested in the relationship between students' choice and the job prospect have examined this factor [77]. Those who investigated the employment prospect and its effect on students' choice, argued that there is a significant relationship between students' choice and the job prospect [62]. Additionally, [33] who examined the issue in relation to accounting major did not see any significant relationship; while other researchers who inspected the issue in relation to accounting major found a significant impact [78][51]. Furthermore, [79] argued that the employment prospect is one of the major factor influencing students' choice in selecting institutions [80].

### 2.5. Media

Giving students the possibility to get enough information about their future desirable major at the high school level—whether from friends, family, the counselors, internet, university website, television, advertisement, and media—is very important for student's career path [81]. This can happen through different channels and means of communication at the secondary school level [82]. Many researchers have discussed this factor and its relationship with students' choice of their desirable major in a specific context [83]. For example, in a study conducted on parental influence on a student's selection of a college major, [50] pointed out that media was a very important factor influencing students' choice [84]. In another study on how to choose a college major, it has been assumed that there is a very significant relationship between media and students' choice of their desirable major [85].

## 3. HYPOTHESIS DEVELOPMENT

The main purpose of this study is to examine the factors that affect students' choice of English studies major at the University of Nouakchott Al Aasriya, Mauritania [86]. The coming pages of this paper will concentrate on the primary hypothesis associated with the study factors, such as the personal interest, program content, education facilities, employment prospect, and media [87]. Below are the hypotheses that this study tries to investigate:

*Hypothesis 1:*

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H<sub>01</sub>: Personal interest does not have a significant positive impact on student`s choice of English studies major.

H<sub>a1</sub>: Personal interest has a significant positive impact on student`s choice of English studies major.

*Hypothesis 2:*

H<sub>02</sub>: Program content does not have a significant positive impact on student`s choice of English studies major.

H<sub>a2</sub>: Program content has a significant positive impact on student`s choice of English studies major.

*Hypothesis 3:*

H<sub>03</sub>: Education Facilities do not have a significant positive impact on student`s choice of English studies major.

H<sub>a3</sub>: Education Facilities have a significant positive impact on student`s choice of English studies major.

*Hypothesis 4:*

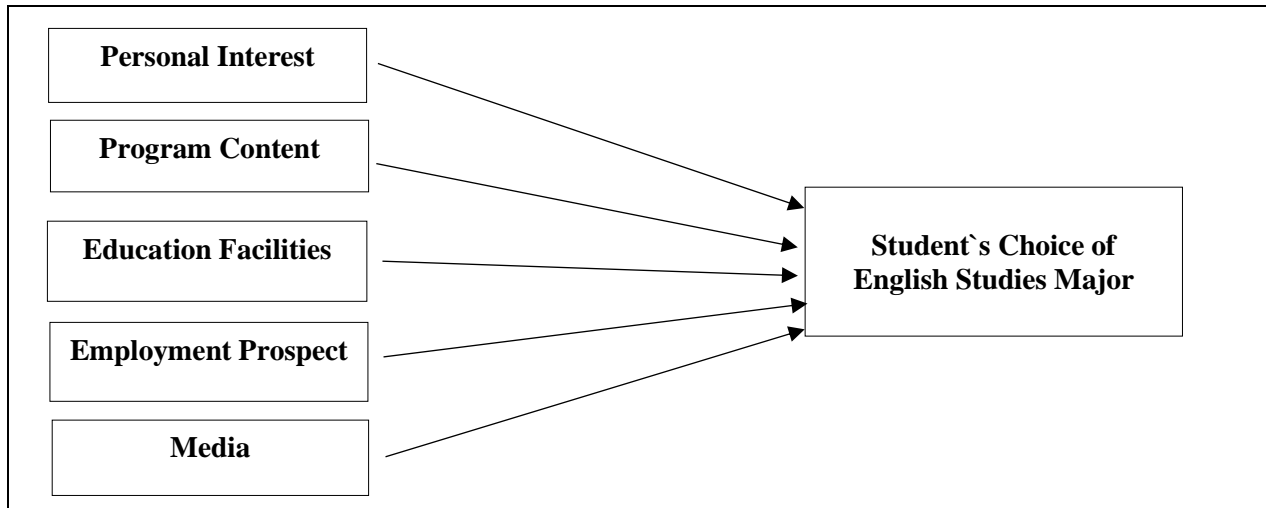
H<sub>04</sub>: Employment prospect does not have a significant positive impact on student`s choice of English studies major.

H<sub>a4</sub>: Employment prospect has a significant positive impact on student`s choice of English studies major.

*Hypothesis 5:*

H<sub>05</sub>: Media does not have a significant positive impact on student`s choice of English studies major.

H<sub>a5</sub>: Media has a significant positive impact on student`s choice of English studies major.



*Figure 1: Research Model*

#### 4. METHODOLOGY

In this study, a quantitative research design was used where data were collected as per the availability and convenience of the respondents [88]. Closed-ended questions were distributed to the students via google form document, which was the main instrument for the data collection along with some class representatives who were encouraging students to participate in the survey. After the deadline given to the data collection, 107 responses were collected. In the questionnaire, students were asked to read and give answers that best describe their opinions on the major factors that led them to choose English Studies as a major. Then, data were inspected using the software SPSS (Statistical Package for the Social Sciences). The questionnaire survey is divided into two parts:

*Part One-Demographic Profile:* Part 1 is mainly about the demographic of the participants such as age, gender, level of study, educational system and language of study.

*Part Two-Factors that Influence Students` Choice of English studies as a Major:* The factors under scrutiny have been tested by the regression analysis.

##### 4.1. Data Analysis

SPSS was used to provide a descriptive statistical analysis that can enable the researcher to measure both the demographic variables as well as the relationship between the dependent variable (students` choice of English studies major) and the independent variables (personal interest, program content, education facilities, employment prospect and media).

##### 4.2. Analysis of the Results

The demographic of the study sample

##### a). Students' Gender



Respondents were asked to identify their gender. Table 1 shows that a total of 61 (57.0%) of the respondents were males, while 46 of them (43.0%) are female students.

*Table 1: Respondents Gender*

R. Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	61	57.0	57.0	57.0
Female	46	43.0	43.0	100.0
Total	107	100.0	100.0	

*b). Students' Age*

Respondents were asked to indicate their category. Table 2 reveals that most of the respondents 100 (93.5%) belong the category (18-24) years old, and 7 respondents (6.5%) belong to the category (25-30) years old.

*Table 2: Students Age*

R. Age	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	100	93.5	93.5	93.5
26-30	7	6.5	6.5	100.0
Total	107	100.0	100.0	

*c). Level of the Study*

Participants were asked to tick their level of study. Table 3 tells about the fact that 45 (42.1%) of the respondents are from the 1<sup>st</sup> year; 31 (29.0%) are from 2<sup>nd</sup> year; and 31 (29.0%) are from the 3<sup>rd</sup> year.

*Table 3: Level of study*

R. Level of Study	Frequency	Percent	Valid Percent	Cumulative Percent
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1st Year (L1)	45	42.1	42.1	42.1
2nd Year (L2)	31	29.0	29.0	71.0
3rd Year (L3)	31	29.0	29.0	100.0
Total	107	100.0	100.0	

#### d). Educational System

Students were asked to indicate their educational system. Table 4 tells about the fact that 55 (51.4%) of the respondents are from the public education sector; 52 (48.60%) are from private education sector.

Table 4: Educational System

R. Educational System	Frequency	Percent	Valid Percent	Cumulative Percent
Public sector	55	51.4	51.4	51.4
Private sector	52	48.6	48.6	100.0
Total	107	100.0	100.0	

#### 4.3.Factors Analysis

The hypotheses under scrutiny were analyzed based on the regression analysis as an attempt to see the nature of relationship between the dependent variable (students` choice of English studies major) and the independent variables (personal interest, program content, education facilities, employment prospect and media) [89]. The regression analysis is shown in table 5:

Table 5: Regression Data Analysis

Independent Variables	B	Std. Error	Beta	T	Sig.
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<b>Employment Prospect</b>	- .279	.131	-.204	-2.132	.035
<b>Program Content</b>	.110	.116	.091	.952	.343
<b>Education Facilities</b>	.215	.120	.176	1.798	.075
<b>Personal Interest</b>	- .352	.094	-.353	-3.751	.000
<b>Media</b>	.263	.099	.246	2.652	.009

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Based on the above analysis one may say that:

1. There is a significant relationship between personal interest and students` choice of English studies as a major, where the value of (beta, T) reached (-.353, -3.751), and Sig. reached (.000); There is a significant relationship between IV and the DV, but negative one. Hence, the hypothesis is rejected.
2. There is no significant relationship between program content and students` choice of English studies as a major. The value of (beta, T) reached (.091, .952), and the Sig. is (.343). Thus, the hypothesis is rejected.
3. There is a significant positive relationship between education facilities and students` choice of English studies as a major. The value of (beta, T) reached (.176, 1.798), and the Sig. reached (.075). As a result, the hypothesis is accepted.
4. There is a significant relationship between employment prospect and students` choice of English studies as a major. The value of (beta, T) reached (-.204, -2.132), and the Sig. reached (.035). These is a relationship between IV and the DV, but negative one. Therefore, the hypothesis is rejected.
5. There is a significant positive relationship between education facilities and students` choice of English studies as a major. The value of (beta, T) reached (.246, 2.652), and the Sig. reached (.009). Therefore, the hypothesis is accepted.

## 5. DISCUSSION OF THE FINDINGS

Table 4 is very important to inspect since it deals with where the students came. Though, the study did not consider the background of the students as a factor; still the findings of the study shows that it should be taken into consideration [90][91]. This is an upshot of the fact that the educational system that the parents/students chose is very crucial in the selection of the future major [92][93]. The general view is that students from private sector tend to have a quality education which may help them in the mastery of languages [94]. Therefore, they have an advantage to select a major in language studies [95]. However, the table shows that 51.4% of the total respondents came from the public sector and 48.6% from the private sector [96][97]. This

gives an indication that the educational system does not have a significant influence on the students' choice [98][99].

Additionally, result in table 5 is very vital for this study. There are five independent variables that have been analyzed in table five. The table shows that education facilities and media have a significant positive relationship with the dependent variable (students' choice of English studies as a major) [100][101][102]. Additionally, personal interest and employment prospect have a significant relationship, but this relationship is negative as it can be seen through the table [103][4]. On the other hand, program content has no significant relationship whatsoever with the dependent variable (students' choice of English studies as a major) [27][20]. This latter is one of the alarming issues that need to be taken into consideration to improve English studies program at University of Nouakchott Al Aasriya [104][105][106].

## **6. CONCLUSION AND IMPLICATIONS**

This research paper is based on a distributed questionnaire to find out whether there is a significant positive relationship between the dependent variable (students' choice of English studies major) and the independent variables (personal interest, program content, education facilities, employment prospect and media) [107][108][109]. Based on the collected data, it becomes clear that students' choice of English studies as a major is driven by many factors [97][110]. Some are positively correlated such as the education facilities and media; and negatively correlated factors such as personal interest and employment prospect [111][112][113]. The factor that showed no significance at all with dependent variable is the program content [114][115]. To conclude, the findings of this study suggest that program content needs to be re-evaluated and the emphasis should be on quality. This will boost students' choice of English studies as a major [116][117].

## **7. RECOMMENDATION AND FUTURE RESEARCH**

The study came up with some insights for the future research and considerations. For example, this study dealt with a single department which is a division of a single university [118][119]. Hence, future research should be done on multiple departments in two or three university as an attempt to intensify the study and get variety of responses from different institutions [120][121]. Furthermore, further study can concentrate on the regional aspects that may have a great deal in influencing the students' choice especially in a context like Mauritania [122][123]. Also, the educational system adopted in the secondary schools can play a major role in relation to students' choice of a specific major [124][125][126]. Additionally, language of instruction in the secondary school may have a great influence in the selection of language studies major [127][26][128][129]. Therefore, researchers need to examine these factors.

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