

# GLOBAL JOURNAL

OF MANAGEMENT AND BUSINESS RESEARCH: A

## Administration and Management

Automated Queue Management

Impact of Electronic Documents

Highlights

Corporate Sustainability Factors

Roles of Human Resources Managers

Discovering Thoughts, Inventing Future

VOLUME 16

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A  
ADMINISTRATION AND MANAGEMENT

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# The Impact of Electronic Documents Management on Performance

By Dr. Khairymustaffa Said Kittanah, Dr. Saharfalehawadabujarour  
& Amman-Jordan

*Amman Arab University, Jordan*

**Abstract-** The aim of this research was to study the impact of electronic documents management on performance. To accomplish this objective, the researcher prepared a questionnaire composed of two parts. The first part concerned with collecting demographic data, while the second part was concerned with collecting data and information regarding the impact of electronic documents management on performance. The collected data were entered to the computer through the Statistical Package for Social Sciences (SPSS). The results showed positive attitude of the sample unit regarding electronic management of documents and performance. The results showed no correlation between electronic document management and performance, so the study recommended the enhancement of employees to learn more about electronic document management at their work.

**Keywords:** documents management, and performance.

**GJMBR - A Classification :** JEL Code : M15



THE IMPACT OF ELECTRONIC DOCUMENTS MANAGEMENT ON PERFORMANCE

*Strictly as per the compliance and regulations of:*



# The Impact of Electronic Documents Management on Performance

Dr. Khairymustaffa said kittanah<sup>α</sup>, Dr. Saharfalehawadabujarour<sup>σ</sup> & Amman-Jordan<sup>ρ</sup>

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**Keywords:** documents management, and performance.

## I. INTRODUCTION

There is no doubt that the information revolution, and communications that the new world is witnessing had an impact on the work of public organizations, In terms of management and the nature of the holdings and the services they provide, especially after intermingling that took place between computer technology and various administrative patterns. where the work of many business organizations has switched from manual to computerized method based on the use of computers and communication networks (as per the need) , databases and many other technological means to, process and analyze the data to get the output and the results. So we figured the importance of computerized information systems to improve decisions and benefit from the administrative function which contributes to improving management performance and which would improve the quality of services provided by the Organization, and contribute in achieving the organization's objectives.

The constant increase in the size of the organizations and what they contain of Documents, many showed a need and desire of these organizations to organize their data mechanism in a way to save time, effort and cost, which led to the escalation of the need for electronic documents that contribute to the management management systems and organization of all special operations to deal with the data automatically,

such as indexing, archiving, summary and search and retrieval.

And shows interest in electronic documentation systems, a growing number of organizations that adopted the use of these systems.

Hence, this study was to spot light on the importance of the usage of electronic document management systems and their relationship to performance in the Bank of Jordan.

## II. PROBLEM OF THE STUDY

After switching from manual archiving to computerized archiving cornerstone in the application of electronic document management at Bank of Jordan.

Because of the possibility that some of the contents of the files to the loss, and the potential damage to the paper documents makes it more complicated to use. Also, the urgent need for this paper files being concentrated in the administrative form a system in terms of information, so as to bring about complementary to these files with electronic records on the Bank of Jordan database. Despite the importance of electronic document management systems, however, there is a shortage in the number of international research and studies in Arabic and specifically in Jordan which dealt with the contribution of these systems to improve performance of the case.

## III. SIGNIFICANCE OF THE STUDY

In light of the lack of the presence of previous studies in the treatment of the relationship between the management of electronic documents on performance in Jordan, this study seeks to highlight the importance of the use of electronic document management systems in achieving the objectives of organizations, and through improved job performance of employees in these organizations to individuals, and try investment and better use of available technology and recruitment of human capacity in organizations are aimed at the advancement and development of business organizations, both at the local level, regional or international.

## IV. OBJECTIVES OF THE STUDY

1. Recognize the reality of electronic document management system at the Bank of Jordan.

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2. To identify the impact of the use of electronic document management systems on the performance of the Bank of Jordan.
3. Study the effect of the dimensions of electronic document management systems (information network specifications, the efficiency of workers, appropriate software) on the performance of the Bank of Jordan.

## V. THE STUDY QUESTIONS

Is there a statistically significant effect for the management of electronic documents on the performance of the Bank of Jordan?

## VI. HYPOTHESES OF THE STUDY

### a) *Homehypothesis*

No effect is statistically significant at the level of moral ( $\alpha = 0.05$ ) for electronic document management on the performance of the Bank of Jordan.

\* Independent variables

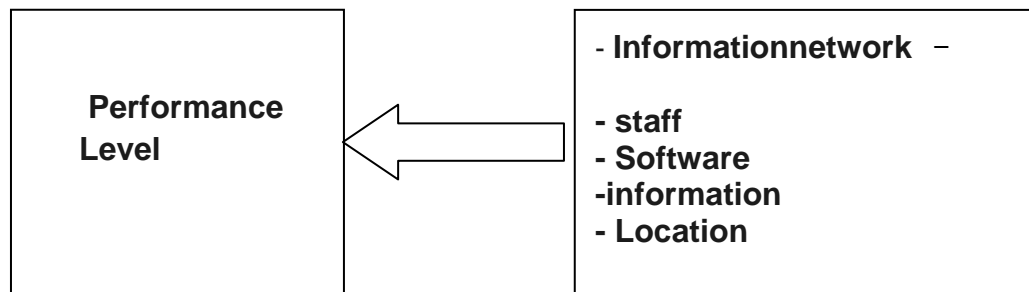
### b) *Bank of Jordan performance*

The following assumptions(hypothesis):

- No effect is statistically significant at the level of moral ( $\alpha = 0.05$ ) for the information network on the performance of the Bank of Jordan.
- No effect is statistically significant at the level of moral ( $\alpha = 0.05$ ) for workers on the performance of the Bank of Jordan.
- No effect is statistically significant at the level of moral ( $\alpha = 0.05$ ) for the software on the performance of the Bank of Jordan.
- No effect is statistically significant at the level of moral ( $\alpha = 0.05$ ) for information on the performance of the Bank of Jordan.
- No effect is statistically significant at the level of moral ( $\alpha = 0.05$ ) for a place on the performance of the Bank of Jordan.

\* The dependent variable

Management Style performance



## VII. PROCEDURAL DEFINITIONS

- Information Network: is the system which consists of a group of computers harnessed to exchange data with each other by the lines of communication with which it has with each other or linked with the mainframe. This will be variable measuring range paragraphs appear on the questionnaire study.
- Employees: Total personnel in Bank of Jordan, who have their opinions and determine the nature of the data and information related to operations and outputs of the bank. This will be variable measuring range paragraphs appear on the questionnaire study.
- Software: These are programs that can be used in the operation of the relevant data and information equipment, and dealt with. this is overseeing the software and how to operate it. This will be variable measuring range paragraphs appear on the questionnaire study.
- Information: as the data that have been processed so that became meaningful and become associated with a particular context. This will be variable

measuring range paragraphs appear on the questionnaire study.

- Location: humanitarian space containing the amount of the customs traditions of intellectual and formulas in addition to the time dimension, which is a real shift in the function of the place scale. This will be variable measuring range paragraphs appear on the questionnaire study.
- Performance: is what results from the effort to do events and activities for the conduct of the Bank's work in order to achieve organizational goals, whatever the nature and diversity of the latter. This will be variable measuring range paragraphs appear on the questionnaire study

## VIII. PREVIOUS STUDIES

- a) *Study of Shawaw 2013*, entitled: "The extent of the application of standards in keeping Archive Algeria in light of recent technological developments". The study aimed to identify the current reality of the Center for the state of Setif in Algeria archive.

It has been used the interview inhalers researcher for the required data collection to achieve the

objectives of the study, and included questions a range of themes represented in the legislation and save the archive, new technologies and save the archive, and material and human capabilities and the acquisition and application of modern technologies in the archive,

The most important findings of the study that center "Setif" province archive actually applied scientific and technical processing of the archive techniques well with the provision of appropriate to different blood conservation conditions, and the matching center to the conditions of national and international standards building,

The study recommended that the acquisition of modern means and equipment or the application of any new system and the creation of the regulatory environment, legislative, environment and conditions appropriate actions.

b) *Abu Ghazi study (2013), entitled: "National Archives Access to documents: the Egyptian experience,"* which aimed to examine the importance of archival documents as a source of knowledge sources and systems, and the right of others to be found, The study used descriptive and analytical method of access to the results, where showed that the modern archiving process and the use of scientific method in the archiving process facilitates access to the documentation process and save time & effort, the study also showed that the documents are part of the knowledge that the individual can get, that these documents are the right of all individuals found to gain knowledge through them

c) *"Ameen study" (2012), entitled: "Knowledge management and records management" (Similarities and integration) applied study the documents of the Faculty of Arts, Cairo University."* The study was aimed at outlining the similarities between the concept of knowledge management and the concept of records management from both theoretical and practical sides,

It is also seeking to create integration points between the two concepts theoretical and practical. The study has been applied in the Faculty of Arts - Cairo University, the results shows a relationship between records management and knowledge management, the results also showed documents contain the records available in the college archives on a large amount of historical, administrative, legal and research valuable information. The results showed that there is a kind of neglect in the method of storing documents. Results also showed that there is no regulation for archiving documents OF the college or university.

d) *Ammar study (2009), entitled "the possibility of the application of e-governance agency United Nations Relief and Works Agency Gaza Regional Office and its role in improving the performance of employees,"* the study aimed to find out the possibility of the

application of e-governance in the agency Relief and Works Agency Gaza Regional Office through the identification of the availability of its success requirements of financial, technical and human resources and the extent of the commitment and support of senior management, as The study aimed to enhance the knowledge workers proxy e-governance and the requirements of its success, as well as to provide requirements and financial requirements and technical and human and administrative necessary for the application of e-governance, as the study showed that the use of e-governance works increase the effectiveness of job performance and efficiency of degree Through the speed of completion of work and raising productivity, speed and, accuracy of delivery instructions, the provision of staff time and efforts also recommended the study:

1. Increase financial support, staff training and rehabilitation.
  2. Development of an effective incentive system for distinguished work in the mail.
  3. Follow-up and the development and modernization of the infrastructure of information technology.
  4. The need for senior management is working on electronic publishing
- e) *Ghammas study (2006), entitled "The impact of the use of information technology on the quality of service in the Jordanian ministries). And looked at other asthaddam information and dimensions of technology (software, hardware and management information systems, and Qguaaadalbaanat, convenient and the software used and training) on the quality of service in the Jordanian ministries. Included The study sample to (292) of the upper and central administrations in the Jordanian public sector and a number of the study showed the following results:*

There is a statistically significant positive relationship between the use of information and quality of service provided in the Jordanian ministries technology.

Jodalaqh positive and statistically significant differences between (the use of software and hardware and the use of management information systems, use of databases, the suitability of the software used and training (and the quality of service provided in the Jordanian ministries.

The absence of significant differences of the impact of the use of information technology on the quality of the service is due to demographic factors) personal and functional)

Shibli study and Eagles (2007) entitled "The success of the electronic document management system requirements", which aimed to identify the critical



success factors for the application of electronic documents in the Jordanian municipal management systems. Where the study developed a range of factors based on previous studies and the views of a group of experts have been testing these factors on a sample of 136 user of these systems in the Greater Amman Municipality and the Municipality of Salt. The study found that the most important of these factors are: Technological Readiness, assigning administration Supreme, and the perceived cost savings.

## IX. DOCUMENT MANAGEMENT SYSTEMS

Man now living in an age associated with advanced information technology through the joint use of the electronic systems of computers and modern communications systems, the information revolution. And that the information sources available to the beneficiaries are many and varied, but it is useless unless it is utilized. With what the modern world has witnessed tremendous growth in the volume of information produced or published, became only benefit from it by conventional means useless due to widening the distance between the source of this information and its beneficiaries "(proof 0.2003).

One of the most important challenges facing the business community talking is the management, conservation and retrieval of information from the vast amount of documents and paper files, which are increasing on a daily basis continuously, so modern-governmental organization of the importance of Archive was alerted Voolth attention it deserves, especially in developed countries; have developed theories and methods of keeping Archive result the process through which the experience over the past decades; and this was accompanied by qualitative and quantitative development of the evolution of legislation governing keeping the archive and its uses.

During the last decades of the twentieth century with the advent of computers and the development of new methods of non-traditional methods to save documents and necessary documents have emerged and archived by using the computer's memory) digital memory) and the evolution of this new method with the development of conservation machine and capacity digital memory and the evolution of shorthand, save and retrieve information and documents software.

With the emergence of e-government the need for digital preservation of the archive has evolved even become a necessity inevitable Ouellet and infrastructure are needed for the operation of e-government. Some governments have made great strides in this area in order to operate the electronic government and other governments activated and began active steps in this regard.

### a) Documentation

Since the dawn of history man felt an urgent need to events experienced by the proof of the cycle in participating and making those events and influence them closer, but not the documentation process carried out by the man over the centuries to what we were able to identify the different civilizations past and what reached us their news, we can say that the beginning of the documentation process currently known was with the initial civilizations where human use ways and different methods depending on the tools and ingredients available at that time, which depends on surrounding each period of time, environmental conditions, is reflected clearly in antiquities, coins and ancient manuscripts found, which included information refers to the periods of time that he was living out those effects that we know of in which the details of their daily lives their culture and their customs and traditions makers

Despite the presence of modern technology which facilitated the operations of research and analysis that were impossible in the past scientists surprises us every day a new discovery contributes to the identification of different civilizations and solves puzzles surrounding that are still under examination in the present era.

As a result, it appeared in this area Sciences contributed to the reading of history according to the chronology, and produced those sciences for the emergence of a group of scientists, researchers and specialists who were keen to use different methods and means to reach from which to explore the events that continue to involve between the folds of history documented, in addition to documenting all developments in the present era. The term documentation came originally from a Word document and if the word (document) was originally used in the legal meaning just any writing legitimate rights and defined in legal form, and word (document) recently to denote the material which have high fixed information published in the place and time appointed which shows that the documentation is intended to deliver information to the applicants also to the researchers, if the information did not reach the beneficiaries.

### b) Documentation science

Take note of the documentation is expanding spidery includes the whole world interconnected network with each other as never before in human history has begun with the human beginning, in the late nineteenth century, has issued two scientists Outlet and Lafontaine Bibliography for the purpose of publication intellectual production assembly, having felt that traditional libraries unable to provide services satisfactorily .

The bibliographic that done by scientists Outlet and Lafontaine above-mentioned first documented work



and opened to the activity which they have done to document, after that studies & researches interested in the knowledge of bibliographic and evolved until it reached what it is now? where we can get the information as soon as possible and less expensive effort, and this process itself is the achievement of mankind that compared to what was happening before that, with the development of modern science and its outputs become Specialization in such a science of the key and basic requirements.

There are a lot of definitions launched by the virtuous scientists know the documentation we will address some of them and that differed in their formulation linguistic, but it is consistent in its content and of these definitions as follows:

i. *"Mortimer Taube" definition*

Mortimer knows that documentation processes that includes the delivery of specialized information which include operations that are specialized office work as well as the initial numbers of special operations and copied material that subsequent distribute operations group.

ii. *"James Mac", Jams Mack definition and Robert Tablor*

The scientists knew James Mack and Robert Tablor documentation as a set of crisis operations for assembling, organizing and delivery of specialized knowledge for the purpose of providing the maximum possible use of information that contain them.

iii. *"Bradford" definitions*

Brad Ford sees if authentication is the process of collection and classification of all the knowledge and records of modern information which facilitate the use of those in need of researchers and inventors.

iv. *"Webster's" Dictionary definition*

Webster's Dictionary defines documentation as a compilation of knowledge recorded & coded and transmitted over the knowledge that this deal in a comprehensive manner and procedures with the integrated use of the knowledge of the meanings that means different methods of imaging mechanism and so gain the largest amount of information access and use.

v. *Definition of "Shubra"*

See Shubra The documentation is another form of office work for the advantage of being a more profound precedent in the handling and objective analysis and attention to universal coverage in the compilation of sources of information, in particular for specialists in the field of coverage of the Documentation Center.

It is the above definitions we see that it has provided a clear picture of what the documentation broad form, since the nineteenth century to now, since these definitions did not address the partial that we aspire to reach them and that gives us the ability to

differentiate between the documentation as a process procedural exerted on the same document, documentation, mechanical as a process to save it document, which gives the impression of confusion between the documentation and analysis, so we see that the documentation process is a process or procedure which allows us to analyze the document itself and draw keys that facilitate the process refer them without entering into mechanical saved.

Documentation is authorized artistic process that contributes to determine the initial elements in the heart of the document, which allows us to infer it from among the millions of documents with ease.

## X. WHAT IS THE DOCUMENTATION?

### a) *Language*

Notarize documents and relevance of thing, proven the forces which were an arbitrator, he is documenting a document, it said: documented command, and trusted the man in which he said that confidence and trust thing relevance, or the closest thing Aithaqa and Othaqa: the severity and tied up with rope so as not to get out. documents or bond Alaithaq name, which draws him captive, and combines the Alothag is like Rabat and connectivity, he says: "Vhdoa bond" (Surah Muhammad verse 04) and documentation source documented in the sense "Gmoukoy and proven", thus the meaning of three words combined science documentation "realization the truth of what the wisest, strong and proven".

Idiomatically: made up of several definitions of science documentation scientists, as defined by Hayman (Hymen): "is to collect, organize and transmit all types of data as known documentation" is a form of organization bibliographic supports indexing and classification or tab for ease of access to information of all kind.

Documentation is also known as: "the science collection, storing, organizing information sources Entries or documents to facilitate access to it to the fullest degree.

Through the above definitions we see that all the technical documentation is concerned with the provision of operations and the organization use of information, cataloging and classification, it analyzed is presented in accordance with rules and regulations for the purpose of scientific configured for retrieval to suit the requirements of researchers and beneficiaries.

Documentation is scientific in-depth study of the document and carried out by a specialist studying the documents through analysis, where dive into a binder between the folds of words to reveal to us what others cannot see a new work of art dictated by the sophisticated nature of modern scientific research.

### b) Why documentation?

Question traded between those concerned with the documentary because it represents the importance of Balbalgh in the modern era, after the expansion of knowledge and increased contact and communication between the various scientific instruments and development to the point where has been a Paperless Society knows any society without paper, and has become an urgent need to document whether it's a documentation of events technically documented documents events, and given the complexity of things and evolution amazing speed rushing of technological unprecedented necessitated We have to evolve with it and Nowakbh process documentation so we facilitate the retrieval of those events and documentation process, and here he moved documentation from the Stone Age to the paper to my film and to optical and then Documentation Automated or mail, creating an urgent need for the expansion of documentation extensively and in-depth, in order to get eventually to what we need from a particular piece of information among the millions of information contained in a bowl conservation, so it does not need to be documented as a first stage and then is saved bond or document on any of the modes of conservation known and archiving of documents circulating in the centers.

### c) Introduction to the documents

Aware of the basic documents for the study of history of science, scientists and researchers have agreed on a definition of the documents during the two meanings as follows:

1. General meaning of documents: that the documents came to be in the public meaning are all assets that contain historical information
2. precise meaning is the official writings or semi-official, such as orders and decisions and decrees, patents and agreements, political correspondence, documents legitimacy, and writings that dealt with economic issues or trade ,Ouida peoples or their systems and traditions or projects or various proposals issued for officials in the State or that offer them or personal notes or diary (Hammouda, 2003).

In the opinion of Dr. Kholi P Ictabh (Kholi, 2000) that the document is "every broker offers the reality of what, or help to confirm the truth of what is directly or indirectly. The book presents the facts directly impact indirectly any deductive. The document is divided in terms of the shape to Three types are (written document –Visual document–audio document), and overlap of these forms, you will find the document written & video and audio in that one, such as drawings, maps and documents computerized any electronic Abralohzh and regulations, (Almaekerovilm - Almaekerovic) and there are e-mail messages, There are props or electronic media (CD / DVD / DISK / FLASH DISK) (Shami 0.1967.

### d) Types of documents and forms

When our offer "Moabite stone" document significant to refute the claims of the Zionists, was intended to confirm that the document in whatever form it is different but consistent documentary content that changes from a certain point of view the idea and entrenched. Hence, we can enumerate the types of documents and forms that it is divided into four main types

#### i. Written document

There is no doubt that this kind which is significant, and reliable because it is based on a fixed reality does not require lengthy studies, or jurisprudence, or special expertise or penalties based on guesswork. It is intended to document written all ,or printed, the message and rotating in the science of authentication means each bulletin contains several topics of a number of writers, or editors and have a special name is the address that you know it, show sequential parts in specific periods, and time specific, and include usually

#### • Newspapers

"Newspapers" that are interested to pursue local or international news and dissemination, and in the scope of the magazines appear on multiple topics and interest.

#### • Memos

Memos which is, whether political, economic or social or a scientist or an artist or a man of letters, write down the thoughts and events that have lived reality, an interactive exchange and their memories

#### • Reports

A picture of scientific results, or administrative investigations or view of the reality of health, in other words everything that smells of it a recipe report.

#### • Data

Data which is what the points of special and particular consideration reveal something mysterious displays, try the publication of what illuminates people's thoughts about a single topic b which emphasize a particular point of view or denied, , although taken by some documents, especially after that become obsolete in the Covenant and become the subject of studies cash, the journal is not considered by the technical concept because they are not issued on a single form, and in a specific time weekly, or monthly, or quarterly, or semi-annually, and even around me. The cultural record that usually codifies intellectual activities and record seminars, literary debates, political debates, it is also statistically proven numerical investigations, as an official report deals with the intellectual life on aspects all was probably no doubt, for meetings conferences and meetings group, More precisely, the document written are all appointed by disclosure about historical fact to emphasize that the task of written documents, whatever

the value of what they contain but there is a difference between the experts about the book and booklet in terms of value of documentary, sees the majority of them that do not document unless it is rarely and missing and stresses the fundamentals of science and approved to reassure the mind.

- Pictorial document

This type of document in the degree of post-document written and which is considered in the science of documentation and help document the sense negligible alone and reliable because the substance in which the subject of weighting and questioned, nor seen only in the event were able to illuminate part of the search, and so help to the investigation, detection, and often: Draw the transfer of oil, or a pen, or coal, and the image, or engraved in stone, or stopped in the copper, or download wood, or configured in gypsum, and perhaps this document was to help photograph had to investigate, Personal Identity and Passport Travel does not count them as documents in personal identification in spite of their issuance for two circles official only if each of them is a picture of the person, and the picture certified by a legal reference and stamped with the seal of the public administration, solar picture came here to help the written document that is personal identity, or passport. In light of these documents of personal identity and passport, we find that they cannot deny that the identity and passport, not all of which the original document, and other assistance despite the fraud winning it, because this fraud discovered usually aware Alslogelgravea "Sigilligraphy" which he wrote and experts specialized schools graduates in the science of crime and fraud with solar image Vallouhh in whatever form, and the Mounted "cinema", or television which maintain and to generations facts about battles and wars in the event of a live recording, it is then videos and documentaries set to clarify a considerable part of the history of what he suffered, but if they are prepared in the laboratory do not reliable, especially that it shows the point of view consistent with the source, and then must be deductible from here that filming another contradictory, and the tapes can be reached with written documentation to assure himself, and trusted by the mind.

- Fine document

This document like its predecessor, is considered in the context of the documentation assistance and probably came in the status of the document soundtracks it was similar in many of the ingredients, and often have a significant financial value, especially when they have been drafted, however, a celebrity in Fine Sciences, The document Fine often include:

- Architectural monuments red palace in Granada, the Mosque of Cordoba, the Palace of Seville, and the University of villagers in Fez and the tomb of Sinbad

sea near Baghdad, and the pyramids of Giza, and a mosque Sher Shah in Delhi, and the Tower of Hassan II in Rabat, and the Church of Basil Blessed in Moscow and the Church of the Holy Sepulcher in Jerusalem and the Arch of Constantine in Rome and other timeless year. These features and strike around the globe is one of the documents to help, as help to the study of the civilizations of ancient nations, and identifies aspects of well-being, or the level of religiosity then perhaps reach archaeologists to reveal more about its history to amazing results in architecture management and learn its secrets, and materials used in the residence after Lost documentary written that planned this great monuments, if this is found in the original.

- Statues and the level of technical ability in carved and the amount of genius creators and energy creative you tourist standing at the Sphinx at Giza explores the attention of the ancient Egyptians to perpetuate their memory, as well as statues of General greats filed by states in public squares to mark them specifically for the dates of birth Swath, it that drives peoples to perpetuate their memory and perhaps embark on a study of their exploits in the fields creativity, and these monuments, statues and buildings scattered across the globe is one of the documents to help, as help to the study of the civilizations of ancient nations and determine the level of the manifestations of well-being or the level of religiosity and scientific level that they reached her and perhaps reach Scientists to an exciting and amazing results in the management architecture and learn its secrets and materials used .
- Coins of coins and medals and decorations and is of great cultural value in particular cut Romania coins and the Umayyad that hit for the first era of Arab freedom from the use of foreign money, the Umayyad Vdinar who coined gold or silver reveals the essence of the primary industry and the extent of its simplicity and lack of dinars agree all in shape if as measured by this dinars to coins contemporary Nations in gold Kallirh Ottoman gold, or pound the English king, and the peso Almkaski Iran and the lira, all of which are also the subject of criticism money men especially if missed writing the landmarks, or faded circular Tenaha Vidny then rate swap other for cash till we find that the lira English king there the first door, and the door completely second Like the Ottoman lira Alzhb. valencod old as medals, decorations and documents help is probably the false and true view of the large physical value, particularly dinars Arabic Romanian and money has been active counterfeiters rigging and take advantage of the value of the moral and historical, so there are attempts wide coverage in rigged a kind of steel, a chemical compound, so

that indicates that it is old, as well as on Vaiglo crushed in time for them many times, is that science will tell Alsagelgravea of false snob.

## XI. AUDIO OR VISUAL DOCUMENT

This document also enters as a kind of help documents which are often a voice or radio recordings, or record a cylindrical or celluloid spokesman.

Of course, the written documents and figurative and Fine have known and confirmed some facts and entrusted with the historical information Oomazahr civilized Ooukamh architecture for buildings and monuments appearances, the audio document that has entered into a series of documents to help with contemporary sophistication and after electricity emergence of innovations and industrial machinery, there is electronic which enriched This type of document to be adopted by the experts in the study of singing and the sound level and classes at the singers where standing up cash to their studies to make singers arranged and degrees in light of their ingenuity in performance, experience and culture of art, in what played by others studying rhetoric, or dialogue and debate style when politicians and leaders Visteon this world to study their character and the extent of their influence on the masses, or the amount of their ingenuity and their success in the dialogue, and in the light of all that and started to side effects left by these adults can reflect the realities of these extraordinary men through the audio document Ooualemriah. This document has entered the house all day as many families She enjoys that recorded the first words for their children, through multiple occasions and with their progress in life Thou shalt therefore keep them become so close Gnehbalarbar and sermons.

In light of the above, we emphasize that the documents, in essence, four types, the original, a document written, and help a pictorial documents, Fine or all Alsamaahoha either code of the pen or carved Balozmil, or carved in stone or recorded on magnetic tapes which are all multi-annual penchant for variation their names set on verification and investigation.

Hence we draw the forms and types of documents that they have a role humane and civilized great It helps in the documentation process, which aims to collect documents for the purpose of scientific research, or the organization, planning, management development, and the provision of information, and all the studies comparing expressed those types and configurations human and incident.

## XII. THE STUDY METHODOLOGY

The study relied on descriptive analytical approach in the presentation of concepts, experiences and results of Management Studies. The study was based on an exploratory survey and analysis of data

using appropriate statistical methods for the treatment and study relied on a questionnaire designed for the purposes of the study in the collection of data, which obtains the necessary information.

## XIII. SOURCES OF COLLECTED DATA

The researcher used the following sources:

- 1) *Secondary sources*
  - Documents and publications that are related to the subject of the search
  - Reference books, periodicals and journals.-
  - Previous studies and research related to the research topic
  - World Wide Web
- 2) *Primary sources*: One was in the questionnaire that was developed to collect data and information needed for the study population, treatment and statistical analysis and get results.

- The study tool

The researcher developed a questionnaire in order for these study data collection, consisted resolution of two parts, the first part was devoted to the collection of data on demographic characteristics, while comprised the second part of the paragraphs relating to the documents management has included areas: information used network, the efficiency of workers, appropriate specifications software in the document management system, and appropriate information

- The study population and appointed

The study population of workers in Jordan Bank, due to the difficulty of access to all employees of the Bank consists of the researcher took a sample of them consisted of (50) factor in the Bank of Jordan. Table (1) shows the demographic characteristics of the members of the sample, where the results indicate that the proportion of males in the study sample was 52% versus 48% of females, the results also indicate that the first age group were the most prevalent among respondents at 32.0%, followed by the third age group 30.0% in the fourth age group ranked last and was 10.0%. The results indicate that the most common age eligible bachelor was increased by 90.0%, Followed by postgraduate qualification 10.0%. With regard to experience, the results show that the first class experience was most prevalent among the respondents 42.0%, followed by the second category experienced by up to 32.0% and came in last place fourth category expertise by only 6%. :

Table (1) : Demographic data (frequencies, percentage of members of the case study

| property                | Repetition | Percentage |
|-------------------------|------------|------------|
| Gender                  |            |            |
| Male                    | 26         | 52.0       |
| Female                  | 24         | 48.0       |
| Age                     |            |            |
| Less than 25 years      | 16         | 32.0       |
| 25. less than 35 years  | 13         | 26.0       |
| 35. less than 45 years  | 15         | 30.0       |
| 45 years and over 6     | 6          | 12.0       |
| Qualification           |            |            |
| Bachelor                | 45         | 90.0       |
| Graduate                | 5          | 10.0       |
| Years of Experience     |            |            |
| Less than 5 years       | 21         | 42.0       |
| 5 - less than 10 years  | 16         | 32.0       |
| 10 - less than 15 years | 10         | 20.0       |
| 15 years and over       | 3          | 6.0        |
| Job Title               |            |            |
| Secretary               | 7          | 14.0       |
| Data entrance           | 9          | 18.0       |
| Helper                  | 15         | 30.0       |
| Other                   | 19         | 38.0       |

#### XIV. STABILITY STUDY TOOL

In order to test the degree of reliability, the researcher using Cronbach's alpha, in order to test areas separately, and test the degree of reliability on the tool as a whole. And he collected the questionnaires and analyzed using Cronbach's alpha, as is clear from the results that the value of Cronbach's alpha was higher than the 0.6 per fields and the tool as a whole and this acceptable result in this kind of research (Sekaran, 2008). Table shows (3-1) Cronbach's alpha testing results.



Table (2) : Cronbach's alpha test for different fields of study and the tool as a whole

|  |       |
|--|-------|
| used information network specifications                | 0.712 |
| The efficiency of workers                              | 0.684 |
| Appropriate software in the document management system | 0.752 |
| Appropriate information                                | 0.691 |
| Administrative performance                             | 0.713 |
| Tool as a whole  | 812   |

## XV. WORKERS' ATTITUDES TOWARDS DOCUMENT MANAGEMENT SYSTEM ELECTRONICALLY

### a) First, the information network

It is seen from the results in the table (3) that there is a positive trend towards the contribution of information network specifications in electronic document management systems, reaching the arithmetic mean of the field as a whole 3.78, which is

more than the middle premise 3.5, the standard deviation of 0.33, which reflects the consensus of the respondents to this view. And came in first place the support of respondents to provide speed to get information from the network reached a mean of 3.90, followed by the maintenance of the network on a regular basis with a mean 3.88, it came in ranked last contribution to save the information storage capacity with high efficiency with a mean 3.60.

Table (3) : Averages and standard deviations respondent's trends towards the information network

| Gateway   | Arithmetic Average | Standard Deviation | Relative Importance |
|---|--------------------|--------------------|---------------------|
| The devices used (Hardware) in the electronic document management systems are the best and latest available | 3.82               | 1.10               | High                |
| The storage capacity of the devices save information efficiently  | 3.60               | 1.18               | Medium              |
| Information used in the production of information network commensurate with the nature and size of the work | 3.70               | 0.94               | High                |
| Speed is available to receive information from the network  | 3.90               | 0.95               | High                |
| Are networks maintenance on a regular basis   | 3.88               | 0.96               | High                |
| Area as a whole   | 3.78               |                    | High                |

### b) Second: workers

Evaluating the sample came, up to the efficiency of workers where the arithmetic average of the evaluation 3.90 standard deviation 0.42, which refers to the meeting on this evaluation, has occupied the idea of resistance to some of the staff to change and update ranked first with a mean 4.10, and came in second place to own workers the ability to adapt to the requirements the new work and the need for the employee to skills in the use of computer arithmetic

average of 4.0. It came the lowest assessment and mediocre premise of the qualifications of workers in the electronic document management systems commensurate with the work assigned to them medical arithmetic average of 3.48 (Table 4).



*Table (4) : Averages, standard deviations, trends respondents towards workers*

| Gateway  | Arithmetic average | Standard deviation | Relative importance |
|--|--------------------|--------------------|---------------------|
| The qualifications of workers in the electronic document management systems commensurate with the nature of the work assigned to them. | 3.48               | 1.05               | High                |
| Workers has the ability to adapt to new requirements for work  | 4.00               | 0.73               | Medium              |
| Employee needs to skills in the use of computer  | 4.00               | 0.76               | High                |
| There is clear resistance from some of the staff to change and update  | 4.10               | 0.74               | High                |
| The Ministry work programs and training courses for staff on the devices used  | 3.92               | 0.72               | High                |
| Area as a whole  | 3.90               |                    | High                |

### XVI. THIRD: SOFTWARE

Appropriate software evaluation of the systems of electronic documents came where high arithmetic average of 3.86, the highest evaluation from the middle premise 3.5. The evaluation of preference and modern software used in electronic document management systems in the first place with a mean of 3.92, followed by allowing the software used to recover the data and

information when you need it with a mean 3.90 evaluate, and came in last place both from the provision of software used for information that will help in the development of future plans and enjoy evaluation high-powered system to respond to changing circumstances and new developments average of 3.80, the highest of the center-premise (Table 5).

*Table (5) : Averages, standard deviations, trends respondents about software*

| Gateway   | Arithmetic Average | Standard Deviation | Relative Importance |
|---|--------------------|--------------------|---------------------|
| Software used in electronic document management systems are the best and the latest available | 3.92               | 0.75               | High                |
| Software used to recover the data and information when you need it is allowed                 | 3.90               | 0.79               | Medium              |
| You can modify existing programs or develop easily corrected                                  | 3.88               | 0.77               | High                |
| Programs used to provide information to help in the development of future plans.              | 3.80               | 0.70               | High                |
| The system has a high ability to respond to changing circumstances and new developments       | 3.80               | 0.64               | High                |
| Area as a whole   | 3.86               |                    | High                |

## XVII. FOURTH: INFORMATION

Assessment of the appropriate information systems, electronic document management, up came as the arithmetic average of 3.93 and standard deviation of 0.49, which indicates that the sample consensus about this trend. And it came in first place assess the provision of information from electronic document

management systems in a timely manner with a mean of 3.98 and a standard deviation of 0.74. And it came in second place to assess the availability of information to suit the needs of citizens with a mean of 3.92 ranked last in the evaluation of the simplification of procedures and methods of use of the system as a result of a mean 3.92.

*Table (6) : Averages, standard deviations, trends towards the information respondents*

| Gateway  | Arithmetic Average | Standard Deviation | Relative Importance |
|--|--------------------|--------------------|---------------------|
| Provide information of electronic document management systems at the right time            | 3.98               | 0.74               | High                |
| The information provided by the system that simplifies the procedures and ways of working. | 3.90               | 0.71               | High                |
| The information available to fit the needs of citizens                                     | 3.92               | 0.72               | High                |
| Area as a whole  | 3.93               |                    | High                |

## XVIII. FIFTH PLACE

The mean was to assess the place in the area to facilitate electronic authentication process, with an arithmetic average of 3.91, where the results showed that the area contribute to the use of electronic authentication with a mean of 3.90, the results also

showed that the appropriate environment provides the possibility of using electronic authentication 3.97 process, the results also showed that place commensurate with the nature of the activity practiced by the volume of documentation and the arithmetic average of 3.89.

*Table (7) : The arithmetic means and standard deviations Trends respondents about the place*

| Gateway   | Arithmetic Average | Standard Deviation | Relative Importance |
|---|--------------------|--------------------|---------------------|
| Help the amount of space on the use of electronic documentation systems   | 3.90               | 0.70               | High                |
| Location provides a suitable environment for the exercise of electronic authentication process                      | 3.97               | 0.74               | High                |
| Place within the organization commensurate with the nature of the activity practiced by the volume of documentation | 3.89               | 0.71               | High                |
| Subdivisions place within the organization contribute to the application of electronic authentication process       | 3.91               | 0.72               | High                |
|   | 3.91               | 0.51               | High                |
| Area as a whole   |                    |                    |                     |

a) *Workers' attitudes towards performance*

It came administrative performance evaluation of high amid Account amounted to 3.76, which shows the performance using electronic documents quality, and came in first place assess the impact of electronic documents to provide the best high quality and increasing the speed of delivery a mean 3.94 service, followed by the evaluation of help electronic documents

system to facilitate the work procedures and increasing the satisfaction of citizens with a mean 3.90. The speed up the process of assessing and facilitating the process of administrative decision-making below the average of 4.44 with a mean premise, and in the last place to assess the impact of electronic document management to increase the transparency and clarity in the work with a mean 3.40 disease.

*Table (8) : Averages, standard deviations, trends respondents about performance*

| Gateway  | Arithmetic Average | Standard Deviation | Relative Importance |
|--|--------------------|--------------------|---------------------|
| Operate electronic document management systems to provide the best service and high quality                                    | 3.94               | 0.74               | High                |
| Helps electronic document management systems to facilitate the work procedures   | 3.90               | 0.86               | High                |
| Electronic document management systems increases the speed of completion of the work   | 3.94               | 0.68               | High                |
| Achieve electronic document management systems B   | 3.90               | 0.68               | Medium              |
| citizens<br>It reduces the electronic document management systems of the errors that occur                                     | 3.96               | 0.81               | High                |
| Cause system to accelerate and facilitate the process of decision-making and administrative                                    | 3.44               | 0.95               | High                |
| Helps information systems on transparency and clarity in the work  | 3.40               | 0.93               | High                |
| Help of electronic document management systems to delegate some of the tasks for the lower levels of administration before the | 3.60               | 0.95               | High                |
| area as a whole  | 3.76               |                    | High                |

b) *Research assumes*

There are no statistically significant effects on the performance of electronic document management system properties.

The results indicate that there is no correlation between the electronic document management system characteristics and the performance of employees reached a level where the correlation coefficient -0.133, which in addition to being a weak reflecting the adverse effect has reached the level of significance 0.321 which is higher than the level of significance ( $\alpha = 0.05$ ).

The results of multiple regression analysis.

No effect is statistically significant between the information used on the network performance in organizations specifications.

The results indicate that there is no correlation between the information used for network management and performance specifications where the correlation coefficient was -0.276, which in addition to being a weak reflecting the adverse effect has reached the level of significance 0.052 which is higher than the level of significance ( $\alpha = 0.05$ ).

No statistically significant effect of the quality of the electronic document management program performance.

The results indicate that there is no correlation between the software used administrative performance, reaching the correlation coefficient -0.120, which in addition to being a weak reflecting the adverse effect has reached the level of significance 0.408 which is higher than the level of significance ( $\alpha = 0.05$ ).

No effect is statistically significant between the efficiency of users of documents used between the management system and performance.

The results indicate that there is no effect between the efficiency of workers in the management of documents used administrative and system performance where the correlation coefficient was - 0.186, which in addition to being a weak reflecting the adverse effect has reached the level of significance 0.195 which is higher than the level of significance ( $\alpha = 0.05$ ).

## XIX. CONCLUSIONS

In light of the results of statistical analysis and findings of the current study, the researcher can provide the following conclusions:

1. The information in the documents network management systems contribute, where he was assessing the information network high at the arithmetic mean of 3.78.
2. considers the efficiency of workers and skills that they possess a positive sign in the document management, where he was employed to evaluate the use of technology to save documents high at the arithmetic mean of 3.9,
3. Assess software was high at the arithmetic mean of 3.86, and is an indication of the need to use and develop the latest software and techniques came positive evaluation of appropriate information reaching the arithmetic mean of 3.93.
4. There is a relationship between the quality of performance and electronic documents, where the study showed that the performance evaluation was positive by workers because of electronic documents system.
5. Results also showed that the place has an impact on the use of electronic documentation process and help facilitate electronic authentication process significantly.

## XX. RECOMMENDATIONS

Through previous results researcher offers a set of recommendations are:

1. The results showed that the efficiency of the bank staff on the use of electronic documents system is inadequate, hence the researcher recommends the need to hold training courses for workers in order to increase their ability to use electronic documents and systems activated in court as reflected with the performance.
2. The results showed that the nature of the electronic system available in the bank is not consistent with the amount of information handled by the system, hence the researcher recommends the need to increase readiness by improving the infrastructure of the systems the use of electronic documents.

3. Studies have shown that one of the reasons for the success of the use and application of electronic documents is the top management systems, hence the researcher recommends the adoption of senior management in the process of updating the bank system down.
4. enterprise culture plays an important role in the adoption of the use of electronic documentation systems, hence the researcher recommends that create competition between workers on the use of these systems by offering rewards, and the nomination of the courses on the subject, as well as creating suitable for the transfer of knowledge among employees environment.
5. Researcher need to provide the appropriate place to work is recommended to facilitate the use of electronic documentation.

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# Corporate Sustainability Factors that Promote a Positive Work Environment

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**GJMBR - A Classification :** JEL Code : M19



*Strictly as per the compliance and regulations of:*



# Corporate Sustainability Factors that Promote a Positive Work Environment

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**Abstract-** American firms continue to improve services/product lines in order to stay competitive within their respective industry. Unfortunately, expectations can be out of the norm, resulting in misguided organizational change. Studies have suggested that misguided organizational change initiatives trigger managers to mistreat employees. Consequently, most studies suggest that the lack of leadership is attributable to promoting a false sense of urgency resulting in a hostile work environment. Moreover, past studies have suggested that a highly emotional intelligent leader is able to deal with corporate sustainability factors that may have an effect on organizational change initiatives. At the end, recommendations will be offered for improved organizational change initiatives.

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## I. INTRODUCTION

American firms aspire to improve their quality of services/product lines to stay competitive within their industry standards. It is highly encouraged that swift organizational change initiatives are initiated to stay ahead of organizational competitors. However, certain organizations are promoting misguided organizational change initiatives. Consequently, studies have suggested that misguided organizational change initiatives trigger bullying by managers. In some cases, when allegations of workforce bullying are reported, management does not take corrective action. As a result, the work environment becomes deplorable, which will have an effect on work productivity in the long run. Most importantly, modern organizations should consider hiring a progressive leader who is suitable to deal with organizational change dilemmas, as it relates to corporate suitability issues. The hiring of a progressive leader will not prevent certain organizational behavioral issues, but will certainly make a difference.

## II. MISGUIDED ORGANIZATIONAL CHANGE

Progressive organizations throughout America continue to strive to improve services rendered to clients/customers due to fierce competition. Unfortunately, organizations are aiming beyond expectations to meet deadlines and are pressured to do more for less.

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In an effort to have a better understanding of misguided organizational change issues, a recent study suggested that employees are expected to perform beyond the norm without additional resources. According to Rivero (2013) ".....employees are pushed to perform at peak levels with unrealistic expectations, which has resulted in a counterproductive work environment" (p. 169). Although organizational change is critical to organizational sustainability, most have been unsuccessful. According to Kotter (2008), "....it is estimated that 70 percent of needed change either fails to be launched or completed" (p. 12). Tragically, misguided organizational change has triggered managers to mistreat employees. Hutchinson, Vickers, Jackson, and Wilkes (2005) point out that "...rather than accepting that processes and pressures of organizational change might be an 'accidental trigger' for bullying by managers who may be in over their heads" (p. 57). This being said, workplace bullying should not be tolerated in any organizational setting regardless of the circumstances.

As a result of staff reduction, scarce resources, and added pressure to complete deadlines, managers develop a "Siege Mentality" behavior to deal with added stress due to overbearing expectations. As Horstein (1996) further suggests, "Siege Mentality" exists when managers are forced to micromanage employees in an effort to stay abreast of day-to-day functions. Unfortunately, employees are then severely mistreated, which will eventually lead to counter productivity.

## III. WORKPLACE BULLYING

Several years ago, workplace bullying was not commonly known among researchers and practitioners. However, Adam & Crawford (1992) conducted a landmark study on the effects of workplace bullying and how it can have a direct impact on the overall workplace environment. This study has provided a foundation for other researchers to establish measures to explore this phenomenon in the workplace.

According to Namie & Namie (2000), workplace bullying occurs when an individual with authority within an organizational setting deliberately mistreats employees. Through the collaboration of several researchers, a survey was conducted to determine the severity of workplace bullying in the United States. The survey consisted of 3,461 respondents and the following results were revealed. Those who were currently being

bullied amounted to 12.6% of the respondents while 24% had been bullied in some sort of way and another 12% had witnessed workplace bullying, but did nothing to address the issue. The remaining of the totality did not experience or been targeted as victims. Unfortunately, 72% of the perpetrators held a position of authority. Also, the distribution of respondents who were either bullied or had been bullied during a certain period of time totaled 36.6%, rounded to 37% (Workplace Bullying Institute, 2007, p. 4; Namie & Namie, 2009, p. 205). Most experts suggest that mid-management should take an active role to reshape the organizational culture to prevent workplace bullying (Liefoghe, & Mac Davey, 2001). Doing so would allow the organization to minimize cost associated with the potential of work productivity loss, employee turnover, workers compensation, and court litigation (Hoel & Einarsen, 2010).

#### IV. THE LACK OF LEADERSHIP INITIATIVES

In certain instances, organizational leaders are faced with the challenge of meeting work expectations in an effort to increase work productivity with minimal resources. Unfortunately, this has led to misguided organizational change issues (Rivero & Theodore, 2014). Other studies suggest that the lack of communication between employer/employee is to blame for organizational change resistance (Ford, Ford, and D'Amelio 2008). On the other hand, it is understood that organizational leaders who promote trust in the workplace, (particularly when organizational change initiatives are taking place), are far more successful as opposed to other organizations that do not promote this philosophy. Rivero further states,

During organizational transition, employees are uncertain of the future, which can have an effect on the transitional stages of an organization. This is a critical stage that will determine how quickly the organization can transcend its business processes. This being said, it is important that an organization promotes organizational change readiness. This leads to successful change agents that promote a positive work environment (2014a, p. 2).

A seasoned leader should be emotionally stable in order to deal with uncertainties as the organization is transitioning. Moreover, other researchers have suggested that leaders with a high level of emotional intelligence (EI) are ideal for leading an organization. According to Goleman (2011), a leader with high emotional intelligence is one who is self-aware of his/her surroundings, portrays empathy among employees/staff members, and has good social skills. As Stein & Book (1999) point out, due to the complexity of organizational change, a highly emotionally intelligent leader is better equipped to make difficult decisions that may have an effect on others in the workplace.

According to Rivero (2014b), "Modern organizational leaders are placed in difficult situations to act upon due circumstances that are beyond their control. At times, expectations are unreachable/unrealistic and employers/employees are expected to perform despite the unlikeliness of reaching those expectations" (p. 12).

#### V. CORPORATE SUSTAINABILITY

Corporate Sustainability has continued to be an important part of organizational behavior discipline throughout America. As a result of organizational change initiatives, it is important that corporate sustainability be embraced to keep the organization right on track with its strategic objectives.

According to Heintz & Parry (2014), a corporation is considered to be a legal entity that is separate by its owners and administrative staff members (p. 7). As Theodore (2014) points out, United States Government corporations and private/business corporations represent approximately 90% of revenues produced in the United States and are economically powerful with close ties with local/state/federal government officials (p.23).

According to Dunphy, Griffiths, and Benn (2007), corporate sustainability is concerned with the ecological system, human survival and survival of other species, the development of a humane society, and the creation of a work environment that provides dignity and self-fulfillment for those parties involved.

This being said, from an external environment perspective, an organization should be concerned with ecological and sociological areas that are beyond its control. For example, an organization should be concerned with government legislations, economy, or physical environment that may have a direct impact on the overall organizational strategic plan. "Moreover, it is vital that organizations keep abreast of new government relations sudden changes to the environment. By doing so, the organization is better prepared to make sudden changes to the overall strategic plan" (Rivero, 2014b, p. 13).

Similarly, from an internal environment perspective, an organization should promote equitable treatment of its employees at every level of the organizational hierarchy (Rivero & Theodore, 2014, p. 2). By doing so, it will support the corporate sustainability model throughout the organizational setting, which will eventually lead to a positive work environment.

Most importantly, it is critical that leaders have an understanding of corporate sustainability factors that may have an effect on the overall organizational setting. Although it is understood that organizations are faced with challenges with minimal operational resources, a leader should maintain his/her composure prior to communicating with staff members. This will have a

positive impact on the overall work environment, which will eventually lead to the increase of work productivity. Also, leaders should monitor the organizational climate for subtle changes that may have the potential to derail the organizational setting.

## VI. RECOMMENDATIONS

Progressive organizations should continue to make improvements to embrace the corporate sustainability model. This being said, the following recommendations are suggested.

1. Consider hiring a seasoned corporate emotionally intelligent leader who is willing and able to embrace the corporate sustainability model.
2. Mid-management should create a reporting mechanism so that employees are able to report allegations of workplace bullying. Most importantly, confidentiality should be enforced to protect parties involved from retaliation.
3. Establish a training program for employers/employees on communication skills, particularly when it comes to soft skills. According to Winstead, Adams, & Sillah, "Soft skills include a collection of communication, interpersonal, teambuilding and other business skills that today's employers value in hiring new recruits" (2009, p.35). Most importantly, it is important that all involved are able to understand the importance to respect one another.
4. Organizational leaders should establish a formal assessment process to make sure that the organization's expectations are not overwhelming, or beyond reach. At times, when this occurs, it will have a negative impact on the organization's overall work productivity.
5. Reevaluate employees' expectations to determine if they are realistic and attainable. By doing so, employees' responsibilities are well aligned with the organization's strategic plan.

## VII. SUMMARY

It is understood that American firms need to embrace organizational change initiatives in order to stay competitive. Misguided organizational change occurs when goals and objectives are not aligned and well presented to subordinates, which leads to miscommunication. In some cases, employees are overworked, and mistreated by management. In certain instances, managers are not emotionally fit to deal with the day-to-day work responsibilities due to the lack of leadership abilities. This causes infighting among employers/employees preventing the organization from ever meeting its goals and objectives.

Although there are certain organizations that have embraced the corporate sustainability model, there are others that have not. Corporate sustainability should be incorporated by all organizations, regardless. At the

end, the organization is better fit to meet its goals and objectives.

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# An Attempt to Assess the Strategic Roles of Human Resources Managers in the Algerian Enterprises: A Case Study of Some Economic Companies in Setif and Bordj Bou Arreridj Districts

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**Abstract-** This paper sought to determine and assess the roles human resources managers (HRMs) are playing in the Algerian economic enterprises. To achieve this objective, a questionnaire, consisting of 20 items, was developed and distributed to a sample of 35 HRMs in public and private enterprises in the Setif and Bordj Bou Arreridj districts. Various statistical methods, were then used to test different hypotheses.

**Keywords:** *human resources, human resources managers, strategic human resources managing, traditional human resources managing, competencies.*

**GJMBR - A Classification :** JEL Code: O15



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# An Attempt to Assess the Strategic Roles of Human Resources Managers in the Algerian Enterprises: A Case Study of Some Economic Companies in Setif and Bordj Bou Arreridj Districts

Hamoudi Hadj Sahraoui<sup>α</sup>, Adel Ladjali<sup>σ</sup> & Abdelouahab Belmahdi<sup>ρ</sup>

**Abstract-** This paper sought to determine and assess the roles human resources managers (HRMs) are playing in the Algerian economic enterprises. To achieve this objective, a questionnaire, consisting of 20 items, was developed and distributed to a sample of 35 HRMs in public and private enterprises in the Setif and Bordj Bou Arreridj districts. Various statistical methods, were then used to test different hypotheses.

The main findings of the study are :

- The HRMs are more committed to executing the known operational or traditional daily tasks of human resources management,
- They, however, show a growing interest in performing some strategic activities in relation with human resources management.

**Keywords:** human resources, human resources managers, strategic human resources managing, traditional human resources managing, competencies.

## INTRODUCTION

The function of human resources management (HRM) has known during the past decades a great evolution, especially in the tasks that are assigned to it. Consequently, this function has become of great importance in ensuring the success of the enterprise by boosting its competitive advantages. This development is due to the great competitive pressure that the enterprises, all over the world, are facing as a result of the overwhelming globalisation phenomenon. Henceforth, besides of fulfilling the traditional tasks (human resources planning, recruitment, job analysis...etc), HRMs have to achieve some strategic goals in compliance with the enterprise strategic objectives.

As far as the Algerian economic enterprise is concerned, we can say that the HRM function, like other functions has seen an attempt to adapt itself to the new environment by the introduction of modern management techniques, the introduction and use of the technologies of information and communication...

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All this, drives us to raise the following question: What is the role played by HRMs in the Algerian enterprises ?

In order to answer the above question, we formulate the following hypotheses:

*H1:* The role of HRMs in the studied enterprises is more an operational role than a strategic one.

*H2:* There are significant differences for the role played by the HRMs due to the type of property.

*H3:* There are significant differences for the role played by the HRMs due to the size of enterprise.

## I. THEORETICAL FRAMEWORK

HRM has long been perceived as an isolated department fulfilling traditional or operational tasks such as recruitment, hiring, training, maintaining employees records ...etc. These day to day personal management tasks appear to have no contribution to the enterprise overall performance. The strategic role for HRMs can only be achieved by integrating the enterprise human resources with the strategic objectives of the company.

### a) The concept of the strategic role of HRMs

Dave Ulrich can be considered as being the first to give a strategic role to HRMs. According to him, this strategic role comprehends 4 major roles:

- The role of the administrative expert,
- The role of employee champion,
- The role of change agent,
- And the role of strategic partner.

While the first and second roles are regarded as traditional ones, the third and the fourth can be considered as strategic roles (Katharina Thill et al., 2014).

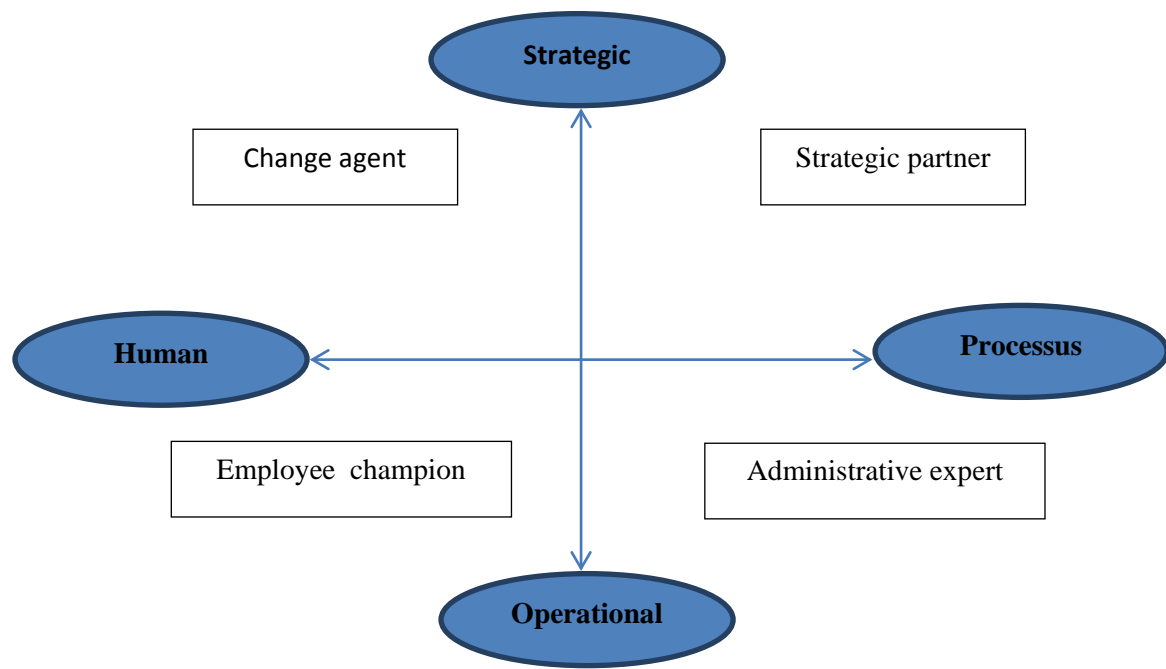


Figure 1 : HRMs roles according to Ulrich

Source: Jean-Yves Le Louarn, *Gestion Stratégique Des Ressources Humaines, Ed., Liaisons, 2010, p.214*

b) *The role of Administrative Expert*

According to Ulrich model, this role is traditionally assigned to the HRM department in the enterprise. The HRMs must :

- Ensure that tasks related to HRM are performed as stipulated,
- Ensure efficiency by reducing costs and improving profits,
- Analyse how work overflow takes place in the enterprise,
- Be aware of rethinking the modes of operation in a business adapting them to any new environment (Khalil Al Jerjawi, 2011).

This role, generally, requires a team of experts specialized in leading edge solutions to human resources problems (Stephen Taylor and Carol Woodhams, 2012).

c) *The role of Employee Champion*

Defending employees welfare and promoting their rights, can be considered as one of the most important tasks that HRMs are expected to accomplish, because listening to the employees' concerns and trying to provide suitable solutions to the problems they raise, can only result in a win-win situation for both the employers and the employees. According to Ulrich, HRMs should do their best to promote all types of communication that give the employees the opportunity to make suggestions improving their work conditions as well as improving the product quality.

d) *The role of change agent*

The change agent is any person or group of persons, from the company or from outside, who

undertakes the tasks of implementing changes in the company. To succeed in his project, he must have "the skill and power to stimulate, facilitate and coordinate the change effort" (Lunenbourg, 2010:1). As far as human resources are concerned, as the employees are always afraid of any change, HRMs must do their best to make change as swift as possible. This can only be achieved by involving them in the process of change and the creation of a new work environment for the best of both enterprise and employees.

e) *The role of strategic partner*

As enterprises are facing nowadays great challenges, many academicians and experts are asking HRMs to become strategic partners. This means that human resources have to contribute to any value-creating project in the enterprise. This contribution can be achieved by developing employees' competencies and by focusing on new strategies for recruiting and retaining employees (Lawler and Mohrman, 2003). For (Taylor and Woodhams, 2012) this strategic role allows HRMs to be more engaged with line managers to the great benefit of the enterprise.

As strategic partners, HRMs can help with valuable information and suggestions in the formulation of the enterprise strategy (Strandberg, 2009). All this make (Holley, 2009) claim that this role is not only the critical element in the model but it is also a very complex one.

Given the four roles presented above, we can argue now that :

- HRM function has to be integrated with other functions in the enterprise such as financial function, production function, marketing function...etc.
- HRMs have to evolve once again from HRMs to the new role of Human Resource Business Partners (HRBP's), working in harmony with CEO's, CFO's, Directors...to achieve the enterprise overall objectives.

## II. EMPIRICAL STUDY

### a) Methodology of study

As mentioned before, in order to assess the Algerian HRMs strategic role, we use a questionnaire consisting of 20 items, built on the basis of the Ulrich Model principles as described above, to be responded on five-point Likert scale (1 = "strong disagreement" to 5 = "strong agreement").

#### i. The Sample of the study

The questionnaire was distributed to 35 enterprises working in different sectors and that have a specific HRM department, after a while, we received 30 usable questionnaires, a response rate of more than 85%.

#### ii. The limits of the study

- **Spatial limits:** we focused our study, on purpose, to the economic enterprises working in Setif and Bordj Bou Arreridj districts, for the following reasons:
  - To Limit the field of study to avoid variations due to the site;
  - These two districts contain large number of economic companies working in many different sectors.
- **Temporal limits:** The time domain for this study was the starting of field work until the completion of data collection, analysis, results interpretation and investigation of the answers to the posed questions to accept or refute the different hypotheses of the

study. In general, this period lasted more than six months. From 16 march 2015 to 13 September 2015.

#### iii. The Questionnaire

- **Measure:** As mentioned above and because the nature of the questionnaire items (opinion closed questions rather than information gathering questions), a five point Likert-scale was used to collect responses; (from 1 = "strongly disagree", to 5 = "strongly agree").
- **The principal parts of the questionnaire:** In the light of what has been presented earlier, the questionnaire was divided into two major parts; as follows:
  - **Part I:** Concerned gathering general information the studied companies: the organization name, address, number of employees, and sector of activity;
  - **Part II:** This second part was devoted to the strategic role, if any, of HRMs in the studied companies, it has included all other items of the questionnaire; distributed according to the following groups:
    - **Group A:** It presented the role of **Administrative Expert**;
    - **Group B:** It presented the role of **Employee Champion**;
    - **Group C:** It presented the role of **Change Agent**;
    - **Group D:** It presented the role of **Strategic Partner**;

#### iv. Testing the validity of the questionnaire

In order to test the ability of our questionnaire to achieve the objectives assigned to it in addition to the clarity of its items and vocabulary, we used the Kendall's Tau b correlation coefficient, which value lies in the range of -1 and +1, to find out the correlation between each item with the axis that belongs to it. The results are shown in the following tables:

Table 1 : Kendall's Tau\_b Correlation coefficient

| Item  | Coef. | Signif. | Item | Coef. | Signif. | Item | Coef. | Signif. |
|---|-------|---------|------|-------|---------|------|-------|---------|
| Kendall's Tau between the items of <b>Expert administrative's group</b> |       |         |      |       |         |      |       |         |
| 1   | 0.469 | 0.003   | 2    | 0.579 | 0.000   | 3    | 0.718 | 0.000   |
| 4   | 0.542 | 0.000   | 5    | 0.636 | 0.000   |      |       |         |
| Kendall's Tau between the items of <b>Employee Champion's group</b>     |       |         |      |       |         |      |       |         |
| 6   | 0.519 | 0.001   | 7    | 0.497 | 0.001   | 8    | 0.589 | 0.000   |
| 9   | 0.625 | 0.000   |      |       |         |      |       |         |
| Kendall's Tau between the items of <b>Change Agent's group</b>          |       |         |      |       |         |      |       |         |
| 10  | 0.673 | 0.000   | 11   | 0.729 | 0.000   | 12   | 0.719 | 0.000   |
| 13  | 0.683 | 0.000   | 14   | 0.534 | 0.000   |      |       |         |
| Kendall's Tau between the items of <b>Strategic Partner's group</b>     |       |         |      |       |         |      |       |         |
| 15  | 0.477 | 0.005   | 16   | 0.516 | 0.001   | 17   | 0.757 | 0.000   |
| 18  | 0.527 | 0.000   | 19   | 0.601 | 0.006   | 20   | 0.619 | 0.000   |

Source: SPSS output.

From the results in the table above, we can say that there is a positive correlation between variables and as the p value for all the tests is less than the critical value of 5%, we accept the alternative hypothesis, which means that there is some association between the variables under study.

#### v. Testing the Reliability of the questionnaire

After testing the validity of the questionnaire, the next step is to assess its internal consistency, i.e. the

**Table 2 :** The value of Cronbach Alpha coefficient

| Coefficient      | For the whole questionnaire |
|------------------|-----------------------------|
| Cronbach's Alpha | 0.905                       |

Source: SPSS output

We note from the above Table that the value of Cronbach Alpha coefficient for all the variables of the study is about 0,90, which is very high and exceeds the standard critical value of 0.70, indicating a good internal consistency of our questionnaire.

#### b) Results and analysis of the responses

##### i. The characteristics of the study sample

This study is based on a number of identifiable variables concerning the characteristics of the studied

degree to which all the items in the questionnaire measure the same concept. For this purpose, we use Cronbach's Alpha coefficient which lies from 0 to 1. And a high value of this coefficient indicates that the items are correlated to each other. using the SPSS package, we get the results shown in the next table.

enterprises, (property and size), and through these variables we can describe the study sample as follows:

a. *Distribution of study sample according to the type of property:* As noted earlier the sample is composed of state owned enterprises (SOE's) and private ones.

**Table 3 :** Distribution of study sample according to the type of property

| Category            | Frequency | %          |
|---------------------|-----------|------------|
| SOE's               | 19        | 63.3       |
| Private enterprises | 11        | 36.7       |
| <b>Total</b>        | <b>30</b> | <b>100</b> |

Source: SPSS output.

It is clear from Table 3 that the number of private enterprises in the sample amounted to 11 enterprises i.e. 36.7% of the total enterprises in the study, while the number of SOE's amounted to 19 enterprises i.e. of 63.3% of the total sample.

##### b. Distribution of the study sample according to the enterprise size

As noted above, our sample includes large and small and medium sized enterprises (SMEs) which are

defined by the Algerian legislature as enterprises producing goods and/or services that employ less than 250 workers and with a total annual sales not more than 2 Billions AD, approximatively less than 20 Million Euros, (Benzazoua Bouazza, 2015).

**Table 4 :** Distribution of study sample according to the enterprise size

| Category          | Frequency | %          |
|-------------------|-----------|------------|
| Large Enterprises | 12        | 40         |
| SMEs              | 18        | 60         |
| <b>Total</b>      | <b>30</b> | <b>100</b> |

Source: SPSS output

Table 4 shows that 18 companies at a rate of 60% of the enterprises studied are SMEs, this is in part due to the high prevalence of this type of companies in various sectors of the Algerian economy because of the advantages awarded to them by the Algerian authorities. We also note from the above table that the 12 companies which represent 40% of the enterprises under study are the large enterprises.

##### ii. Analysis of the operational role of HRMs in our sample of enterprises

Since the main objective of our study is an attempt to assess HRMs role in the Algerian Enterprise and after analyzing the characteristics of our sample of enterprises, we turn now our attention towards analyzing the four roles, as suggested by Ulrich's Model and as described above, one by one.

a. Analysis the role of administrative expert

Table 5 : Descriptive statistics concerning the role of administrative expert

| Item's number                | Item   | Mean | Standard deviation | P value | Level of significance |
|------------------------------|--|------|--------------------|---------|-----------------------|
| 1                            | Find solutions to the problems of human resources              | 4.10 | 0.995              | 0.000   | Very significant      |
| 2                            | Do a search to provide feasible alternatives for supervisors   | 3.47 | 1.279              | 0.055   | Not significant       |
| 3                            | Propose best practices for supervisors                         | 3.87 | 1.137              | 0.000   | Very significant      |
| 4                            | Adapt human resources programs to the needs of the institution | 4.53 | 0.860              | 0.000   | Very significant      |
| 5                            | Elaborate a general policy of human resource disciplines       | 3.93 | 1.172              | 0.000   | Very significant      |
| <b>Administrative expert</b> |  | 4.00 | 0.73               | 0.000   | Very significant      |

Source: SPSS output

Table 5 contains some descriptive statistics which help to analyse the first of the four strategic roles of HRMs, it is the role of the administrative expert, which was measured by five items:

- The HRMs "Find solutions to the problems of human resources" in enterprise under study, where the mean of this item reached (4.10) with a P value of (0.000). Which meansthat it is very significant.
- The HRMs "Do a search to provide feasible alternatives for supervisors" in the enterprises under study, where the mean of this item reached (3.47) with a level of significance is a bit low.
- The HRMs "Propose best practices for supervisors" in the enterprises under study, where the mean of this item reached (3.87) with a (0.000) P value. Which means that it is very significant.

b. Analysis the role of Employee Champion

Table 6 : Descriptive statistics concerning the role of Employee Champion

| Item's number            | Item  | Mean | Standard deviation | P value | Level of significance |
|--------------------------|---|------|--------------------|---------|-----------------------|
| 6                        | The representation of human resources                     | 3.70 | 1.179              | 0.003   | Very significant      |
| 7                        | Diversity management and the provision of mutual respect  | 4.00 | 1.050              | 0.000   | Very significant      |
| 8                        | Discuss the diverse opinions of the employees             | 3.60 | 1.102              | 0.006   | Very significant      |
| 9                        | Participation of the employees in resolving work problems | 3.50 | 1.225              | 0.033   | significant           |
| <b>Employee Champion</b> |   | 3.70 | 0.76               | 0.000   | Very significant      |

Source: SPSS output

Table 6 contains some descriptive that we are going to use to analyse the second of the four strategic roles of HRMs, that it is the role of the Employee Champion, which we measured with the following four items:

- The HRMs fulfill the task of "representation of human resources" in enterprises under study. The mean for this item is (3.70) with a standard deviation of about (1.18), suggesting a very high level of significance. This means that the respondents do agree that they

- The HRMs "Adapt of human resources programs to the needs of the institution" in the enterprises under study, where the mean of this item reached (4.53) with aP value of (0.000). Which meansthat it is very significant.
- The HRMs "Elaborate general policy of human resource disciplines" in the enterprises under study, and the mean of this item reached (3.93) a (0.000) P value. Which means that it is very significant.
- Due to the above results, we find that the mean for the whole role (4.00) with a standard deviation of (0.73) and, consequently, a Pvalue of (0.000) is very significant. Which means that the role of the administrative expert, was practiced a high level in the institutions under study.

are representing the employees in our sample of enterprises.

- The HRMs promote "Diversity management and the provision of mutual respect" in enterprises under study. The mean for this item is (4.00) with a standard deviation of (1.05), suggesting a very high level of significance. This means that the respondents do promote diversity management and mutual respect in our sample of enterprises.



- The HRMs "Discuss the diverse opinions of human resources" in entreprise under study. The mean for this item is (3.60) with a standard deviation of (1.10), suggesting a very high level of significance. This means that the respondents in our sample agree that they are ready to listen and discuss their employees' opinions and suggestions.
- The HRMs "Participation of work problems with human resources" in entreprise under study. The mean for this item is (3.50) with a standard deviation of (1.22), suggesting a moderate level of

c. Analysis the role of Change Agent

Table 7 : Descriptive statistics concerning the role of Change Agent

| Item's number       | Item   | Mean | Standard deviation | P value | Level of significance |
|---------------------|--|------|--------------------|---------|-----------------------|
| 10                  | Diagnosing organizational problems   | 3.67 | 1.061              | 0.002   | Very significant      |
| 11                  | Proposing appropriate solutions to these problems to the top managers                  | 3.90 | 0.995              | 0.000   | Very significant      |
| 12                  | Assisting management in the implementation of these solutions                          | 3.73 | 1.081              | 0.001   | Very significant      |
| 13                  | Helping the enterprise and its resources to develop                                    | 3.97 | 1.066              | 0.000   | Very significant      |
| 14                  | Promoting management of change for the purpose of the success of the process of change | 3.70 | 1.055              | 0.001   | Very significant      |
| <b>Change Agent</b> |  | 3.78 | 0.835              | 0.000   | Very significant      |

Source: SPSS output

Table 7 contains some descriptive statistics related to the third role from the roles of HR manager, it is the role of the change agent, which was measured by five items; Where reached the mean for this role (3.78) with std deviation (0.835), and significant estimated by (0.000), and It is less than tabular value (0.05); Which means that the role of the administrative expert, was practiced a high level in the institutions under study, and this is due to the following factors:

- The HRMs do the "Diagnosing of organizational problems" in entreprise under study. The mean of this item is (3.67) with a standard deviation of (1.06), suggesting a very high significance. This means that the HRMs in our sample agree that they do the diagnostic of organizational problems.
- The HRMs "Propose appropriate solutions to these problems to management" in entreprise under study. The mean for this item is (3.90) with a standard deviation of (0.995) and a very high level of significance. This leads us to conclude that HRMs in our sample do propose solutions to resolve organisational problems.
- The HRMs "Assist management in the implementation of these solutions" in entreprise under study. The mean for this item is (3.73) with a standard deviation of (1.08) and a very high level of significance. This means that HRMs in our sample

significance. This means that some of the respondents in our sample recognize that they do not often promote the participation of employees in resolving work problems.

- Concerning the whole role of Employee Champion, the mean for this item is (3.70) with a standard deviation of (0.76), suggesting a very high level of significance. This means the role of employee champion is well practiced in our sample of enterprises.

do assist top management in the implementation of the solutions they suggested.

- The HRMs "Help in the development of the enterprise and its resources" in entreprise under study. The mean for this item is (3.97) with a standard deviation of (1.06) suggesting a very high level of significance. This means that HRMs in our sample do help in the development of the enterprise and its resources.
- The HRMs use "Management of change for the purpose of the success of the process of change" in the enterprises under study. The mean for this item is (3.70) with a standard deviation of (1.05) suggesting a very high level of significance. This means that HRMs in our sample use Management of change for the purpose of the success of the process of change.
- Concerning the whole role of change agent, the mean for this item is (3.78) with a standard deviation of (0.76), suggesting a very high level of significance. This means the role of change agent is well practiced in our sample of enterprises.



d. Analysis the role of Strategic Partner

Table 8 : Descriptive statistics concerning the role of Strategic Partner

| Item's number            | Item  | Mean | Standard deviation | P value | Level of significance |
|--------------------------|---|------|--------------------|---------|-----------------------|
| 15                       | It provides knowledge to the team   | 3.70 | 1.088              | 0.001   | Very significant      |
| 16                       | The formulation of the human resources strategy is compatible with the organization's business strategy   | 3.73 | 1.172              | 0.002   | Very significant      |
| 17                       | Provide consultation to managers of business units in the field of HRM                                    | 3.77 | 1.165              | 0.001   | Very significant      |
| 18                       | Discusses the challenges of the business with managers of business units                                  | 3.00 | 1.174              | 1.000   | not significant       |
| 19                       | Discusses the challenges of human resources with business units Managers                                  | 3.40 | 1.380              | 0.123   | not significant       |
| 20                       | Suggests paths to maintain at the same time the interests of the institution and the interests of workers | 3.80 | 1.40               | 0.004   | Very significant      |
| <b>Strategic Partner</b> |   | 3.48 | 1.164              | 0.029   | significant           |

Source: SPSS output

Table 8 contains descriptive statistics concerning the fourth role of HR manager, that is the role of the strategic partner, which was measured by six items:

- The HRMs "provides knowledge to the team" in enterprise under study. The mean for this item is (3.70) with a standard deviation of (1.08) suggesting a very high level of significance. This means that HRMs in our sample provide knowledge to the team.
- "The formulation of the human resources strategy is compatible with the organization's business strategy" in enterprise under study. The mean for this item is (3.73) with a standard deviation of (1.17) suggesting a very high level of significance. This means that HRMs in our sample elaborate human resources strategies that are in harmony with the organization's business strategy.
- The HR manager "provide consultation to managers of business units in the field of HRM" in enterprise under study. The mean for this item is (3.77) with a standard deviation of (1.16) suggesting a very high level of significance. This means that HRMs in our sample of enterprises do help managers in other business units of the enterprise by providing them with information and consultation in case of need.
- The HRMs "Discusses the challenges of the business with managers of business units" in enterprise under study. The mean for this item is (3.00) with a standard deviation of (1.17) with a t-value of 2.55 suggesting a moderate significance. This means that not all HRMs in our sample of enterprises are concerned with discussing the challenges of the business with managers of business units.
- The HRMs "Discuss the challenges of human resources with business units Managers" in

enterprise under study. The mean for this item is (3.40) with a standard deviation of (1.38) and a P-value of 0.123 suggesting a low level of significance. This means that not all HRMs in our sample of enterprises are concerned with discussing the challenges of the human resources with managers of business units.

- The HRMs "Suggests paths to maintain at the same time the interests of the institution and the interests of workers" in enterprise under study. The mean for this item is (3.80) with a standard deviation of (1.40) suggesting a very high level of significance. This means that HRMs in our sample of enterprises do suggest solutions that preserve both enterprises and workers interests.
- Concerning the role of strategic partner as a whole, the mean for this item is (3.48) with a standard deviation of (1.16), suggesting that the sample mean for this item is significant (P-value < 0.05). This means the role of strategic partner is well practiced in our sample of enterprises.

iii. Testing for differences of the role of the HRMs according to the type of property and size of enterprises

The main question that one may ask at this level is: Do the roles accomplished by HRMs differ depending on the type of property and the size of the enterprises they work in? To answer this question, we use the t-test.

- iv. Testing for differences according to the type of property: Here we are going to answer the question: Is the role of HRMs different in SOEs from the role of their counterparts in private enterprises?

**Table 9 :** T-test for differences in the role of the HRMs according the type of property

| Type of enterprise | N     | Mean   | Std. Deviation |
|--------------------|-------|--------|----------------|
| SOE                | 19    | 4.00   | 0.467          |
| Private            | 11    | 3.37   | 0.774          |
| Levene test        |       | t-test |                |
| F                  | Sig   | t      | Sig            |
| 5.956              | 0.021 | 3.085  | 0.005          |

Source: SPSS output.

From the above Table, we can see that t statistic value is (t=3.085) with a high level of significance this means that there is a statistically significant difference for the role of HRMs depending on the type of property. And as the mean for SOEs is greater than the mean for private enterprises, we can conclude that the strategic role of HRMs is better

practiced in SOEs than in the private ones. This may be due to the fact that the employment in the public institutions is entrusted to specialists and done on the basis of laws that are clear, unlike private institutions where employment is handled by the owner, who is usually the manager.

#### v. Testing for differences to the role of the HRMs according to the size of the enterprises

**Table 10 :** T-test for differences in the role of the HR manager according size of enterprise

| Size of enterprise | N     | Mean   | Std. Deviation |
|--------------------|-------|--------|----------------|
| SME                | 18    | 3.85   | 0.65           |
| Corporate          | 12    | 3.59   | 0.68           |
| Levene test        |       | Test t |                |
| F                  | Sig   | t      | Sig            |
| 0.273              | 0.606 | 1.067  | 0.295          |

Source: SPSS output

With reference to the table 10, we can see that t statistic value is (t=1.067) with a low level of significance this means that, statistically speaking, we can say that there is no significant difference for the role of HRMs depending on the enterprises size ; Meaning that the fulfillment of the strategic role of the HRMs does not depend on the enterprises size.

### III. THE RESULTS ANALYSIS

- Hypothesis testing:* Here each hypothesis is restated and tested
- The first hypothesis:* The role of HRMs in the studied institutions is more an operational role than a strategic one.

**Table 11 :** The results for first hypothesis testing

| Variable                | Mean        | Significance | Importance |
|-------------------------|-------------|--------------|------------|
| Administrative expert   | 4.00        |              |            |
| Employee champion       | 3.70        |              |            |
| <b>Operational role</b> | <b>3.85</b> | <b>0.000</b> | <b>1</b>   |
| Change agent            | 3.78        |              |            |
| Strategic partner       | 3.48        |              |            |
| <b>Strategic role</b>   | <b>3.63</b> | <b>0.001</b> | <b>2</b>   |

Source: SPSS output

The above results show the HRMs in institutions under study practice both operational and strategic roles, whereas the mean for the former is 3.85, which means that the HRMs do practice the roles of administrative expert and employee champion, we note from the same results that the mean of the strategic

role is only 3.63, which means that some of HRMs in our sample of enterprises do not play the roles of agent of change and strategic partner. Thus we accept the hypothesis which states that: The role of HRMs in the studied institutions is more an operational role than a strategic one.

- The second hypothesis:* There is significant differences for the role played by the HRMs due to the type of the property.

**Table 12 :** The results for the second hypothesis testing

| Type of Propriety | Mean  | Significance | Importance |
|-------------------|-------|--------------|------------|
| SOEs              | 4.002 | 0.000        | 1          |
| Private           | 3.322 | 0.137        | 2          |

Source: SPSS output

The results in the above table indicate that there are significant differences for the roles practiced by HRMs due to the type of property. In other words, the two means show substantial differences between the roles practiced by HRMs in SOEs and those practiced by their

counterparts in private enterprises. It is clear that the former are more likely to be committed to play strategic roles than the latter. Thus, we accept the second hypothesis.

- iii. *The third hypothesis:* There are significant differences for the role played by the HRMs due to the size of the enterprise.

*Table 13 :* The results for the third hypothesis testing

| Size of enterprise | Mean  |
|--------------------|-------|
| SME                | 3.85  |
| Corporate          | 3.59  |
| T value            | 1.067 |
| Sig.               | 0.295 |

Source: SPSS output

The results show clearly that there are not any significant differences for the roles played by HRMs in our sample due to the size of enterprise. Which means that the roles practiced by HRMs are almost the same either in SOEs or in private ones. Hence, the third hypothesis is rejected.

#### b) General Results of the study

After presenting and analysing the empirical study results on the basis of our study hypotheses, we now turn our attention to the study findings which can be summarized as follows:

- HRMs, in our sample of enterprises, are more interested by operational role in the practice of human resources activities;
- HRMs in the institutions under study practice the role of the administrative expert;
- HRMs practice the role of champion of human resources in the institutions under study;
- There is a growing interest from HRMs towards practicing strategic role in the institutions under study;
- HRMs are committed to carry out the change in the institutions under study;
- There is a growing interest from HRMs towards directing human resources activities for the purpose of achieving the objectives of the organization in line with the organization's strategy. Which means that the HRMs, in the institutions under study, seem to be committed to play the role of strategic partner.

## IV. SUGGESTIONS

In the light of the results of our study, we present the following suggestions:

- To be more efficient, HRMs must be urged to undertake external training courses on strategic practices of HRM;
- Top managers should do their best to make HRMs play entirely the strategic role of HRM;
- In order to fully concentrate on accomplishing the strategic role of HRM, HRMs should delegate all or part of their operational tasks to their subalterns.

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## Automated Queue Management System

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**Abstract-** Automated queue management system is a system that helps service provider to manage customer in efficient way. The system can ease the customer flow management which is useful for manager of the service provider. The purpose of this project is to develop an Automated Queue Management System for organizing queuing system that can analyze the queue status and take decision which customer to be served first. This project focuses more on the banks queuing system, different queuing algorithm approaches which are used in banks to serve customer and the average waiting time. This queuing architecture model can switch between different scheduling algorithms according to the testing result i.e. the average waiting time by using two different queue control systems, which have developed. There are several process undergo, which control by Intel Galileo Microcontroller that is software-compatible with the Arduino software development environment. Finally, the systems have been tested under different conditions to evaluate its performance.

*GJMBR - A Classification : JEL Code: O32*



*Strictly as per the compliance and regulations of:*



# Automated Queue Management System

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**Abstract-** Automated queue management system is a system that helps service provider to manage customer in efficient way. The system can ease the customer flow management which is useful for manager of the service provider. The purpose of this project is to develop an Automated Queue Management System for organizing queuing system that can analyze the queue status and take decision which customer to be served first. This project focuses more on the banks queuing system, different queuing algorithm approaches which are used in banks to serve customer and the average waiting time. This queuing architecture model can switch between different scheduling algorithms according to the testing result i.e. the average waiting time by using two different queue control systems, which have developed. There are several process undergo, which control by Intel Galileo Microcontroller that is software-compatible with the Arduino software development environment. Finally, the systems have been tested under different conditions to evaluate its performance.

## CHAPTER 1

### 1. INTRODUCTION

#### a) Background

Nowadays, customer service oriented companies facing difficulties of lengthy queues. These problems often occurred in the banks, post office and airport and it became worsen when the time reached peak hour. The improper management of such queues will cause tension and stress among customers and employees. Customers will tend to shift to other service companies that provide better services and it reduced job satisfaction of the employees.

According to Bain & Company net, a global management –consulting firm, “a customer is four times more likely to defect to a competitor if the problem is service related than price or product related”. Moreover, Lee Resources International net, a general business consulting stated that for “every customer complaint there are 26 other unhappy customers who have remained silent”. Thus, any companies need a provide good services in order to attract customers to attain sustainability doing business.

In general, queuing is a line of people waiting to be serve and the movement is from a central to a specific place. Thus, a queue management system must handle and organized queue formation in the most efficient way.

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#### b) Problem Statement

Many companies provide queue management system for controlling queues of people in various situations and locations in a queue area. Most of the techniques used are manually for a small space and simple flow. On the other hand, automated queue management system deal for a larger space and complex flow. These can be see widely used in banks, hospitals or clinics and post offices.

Bylayat, Nahid, Moqbull and Habibur (2011) had designed a Microcontroller Based Electronic Queue Control Systems. The aim of that designed systems is to maintain a queue with order and efficiency. There are two different queue control systems which have been implemented with slightly different queue control systems which have been implemented with slightly different features in the research which are EQC system-1 and EQC system-2, EQC system-1 displays token number and service counter number whereas EQC system-2 display token number individually in each service counter with separate displays.

The fundamental of the designed system is similar like the one, which has been use broadly todays in queue area. The flexibility is that customers have the flexibility of being processed by more than one service point and service points possess the capability of processing more than one customer class. However, the system cannot integrate to the number of customers per certain time. The sytem cannot change and remain it is when there are not much customers in the waiting area and when there are crowded of customers in the waiting are.

Therefore, the purpose of this research is to design and built an automatic queue management system that has more flexibility when dealing with its surrounding.

#### c) Research Objectives

The aim of this research is to develop an Automated Queue Management System in a way that solve queuing problems. The objectives of this project to:

- 1) Investigate the current approaches for queue management system.
- 2) Design a working system for automated queue control system.
- 3) Implement the system using mechatronic solution.
- 4) Evaluate the system for effectiveness.



d) *Research Questions*

The study is conduct based on these two research questions:

- 1) Which surrounding should be use as model to develop an automatic queue management system?
- 2) What are the parameters should take in order to achieve optimal performance in queue system?

e) *Project Scope*

The Automated Queue Management System is design to manage certain customers with single department and multiple counters. There are three operations, which customers can choose i.e. Service A, Service B, Service C and three customer counters that provide services i.e. Counter 1, Counter 2 and Counter 3. The related information of this system will be displayed at the display module i.e. Liquid Crystal Display and sound module i.e. Buzzer.

f) *Research Methodology*

g) *Gantt Chart*

## CHAPTER 2

### II. LITERATURE REVIEW

a) *Introduction*

A queue management system is the organization of queues of people within a retail or public sector department. It can be either reactive through a system that can organize the existing queue or proactive through queue management statistics gathering system, so that the trends can be identified and anticipated. People that join queue in a standing line queue are direct to the next position by the system or be given issued with a ticket. With a ticketed system, customers are took out of the standing line queue, which can give comfort and less stress for the customers as well as their turns are not neglect. This queuing environment is and essential part of our daily lives and it is important for manufacturer to build the most cost-effective queuing solution.

b) *Types of Queue*

There are two types of queue, which are structured and unstructured queues. Structured queue is a queue in a fixed form and people that included are in predictable position. We can see this at supermarket paying counter and some other retail locations such as banks and post offices. This type of queue systems often being set up to manage ticket ranking for a service with identification and thus enable a stress-free waiting. Extending the different possibilities, some of this system is planned reception by appointment or remotely rank allocation on Smartphone or through SMS.

Whereas, unstructured queue is where people form a queue in unpredictable and varying locations and directions. This is often the case in some forms of retail, taxi queues, ATMs and at period of high demand in

many situations. Some of the existing solutions are rank allocation for service, pages or RFID badges or simply by reading the customer card. In fact, it is hardly to implement a way of structuring these queues to be successful. The reason is that one cannot easily calculate the behavior of man.

c) *Queue Management Techniques*

Various queue management techniques exist are physical barrier, signage and signaling systems and automatic queue measurement system.

Physical barrier is aim at guiding queue formation and organizing it in a neat way. While signage and signaling systems are aim to provide information to people, queuing and aid efficient queue formation flow as well as setting service expectations. Differently, automatic queue measurement system uses a variety of measurement technologies, which predict and measure lengths and waiting times, which provide management information to help service levels and resource deployment.

d) *Queue Management Concept*

Many researches have done previously on the queue management concepts such as Shortest Processed First (SPF), First Come First Serve (FCFS), Singe Queue (SQ), Multiple Queue (MQ), Diffuse Queue (DQ) and Head of Queue (HQ).

SPF works as scheduling policy that choose lesser time execution to process first. In a supermarket, a specific paying counter only process transaction which customer buying goods less than 10 goods. SPF can work well because of its simplicity and minimizes the average amount of waiting time for each process. However, the setback is that it requires long time to complete if short process are continually add and customers do not perceive the right degree of fairness from the system. It is important to explain why customers are being serve in that order and ensure the understanding of customers to see the logic of this alternative approach.

On the other hand, FCFS is a method that deal the oldest entry being process first. FCF's behavior is where people leave the queue in the order, which they arrive. It is the most fairly service provision where all customers think of themselves as equal.

The single queue, SQ is the familiar snake format. Each person waiting is serve in turn and the format discourages pushing in. The queue also provides visible reassurance to customers that they will be serve fairly while the queue is progressing.

Besides that, the multiple queue, MQ is the improvement of SQ, it is essential to use this method when handling larger amount of people. This queue is the format that always being use at the supermarket.

Other than that is the diffuse queue, DQ, which has no formal queue line but customers registr place in

the process with a ticket. Figure 2.1 is the example of using this method.

Last is the head of queue, HQ, which place the next person to be serve waits in a single queue environment. This method is significant when the number of checkout is higher than five. It is vital that customers able to see along the line of service position to avoid significant gaps in service provision. In order to maintain fairness in this system, there are several rules have been set:

- Queue must be fair and be managed systematically that cannot allowed to descend into a chaotic situation.
- Perception of waiting time should be manage.
- The process must be clearly identify; start and ends must be visible.
- The process must include positive feedback of progress.

e) *Advantages of Queue Management System*

Queue management system gives benefits either to customer service provider or to the customer itself. The benefits can be directly or indirectly to the system. There are:

- Keeps track and forecast the flow of customers.
- Optimum utilization of staff forecast.
- Constant monitoring the staff's performance.
- Enhance productivity and morale of the staff, as operation were efficient and systematic.
- Gives flexibility in dealing with customers.
- Increase service reliability, as customers are treated fairly and efficient.
- Producing statistical reports, which facilitate top management's decision making process.

f) *Existing Queue Management System*

There are many products available on the market produced by many queue management companies for delivering optimum customer service, which are Stand Alone Queue System and Centralized Control Queue System.

i. *Stand Alone Queue System*

Stand Alone Queue System (SAQS) design based on First Come First Serve, FCFS queue model, where there is only one service counter operation. All customers will be manage at the single counter. This system operates by calling or displaying number in sequential or randomized order and the customers will be treat fairly. The SAQS is performing well in a single department, service operation environment such as clinic.

ii. *Advance Queue System*

Advance Queue System (AQS) based on SAQS design where additional service counters are add to give flexibility in queue system process. This system can support up to 32 service counters and additional of 60 counters. It also can provides useful queue features as

well as comprehensive reports. Besides that, it allows manager of real-time monitoring status for the queue management analysis. AQS is performing well in bank, hospital or any organization that has multiple department service operation.

iii. *Centralized Control Queue System*

Centralized Control Queue System (CCQS) design is use for higher range of customers in different department. This system has the capability to support up to 20 departments which each department can have up to 32 service counters and 60 counters. CCQS is network compatible because each department has been located at different part of a building or even in geographical area. Thus, CCQS is connect through LAN or Internet and it also provide real-time status monitoring.

g) *Customer Flow Management*

There are few manager of service provider know what happens with their customers throughout the whole interaction process in real-time. If the supply and production managers know the flow of material and product in detail, why does not the head of operations know the flow of customers equally well? Is the flow of customers less important than the flow of material and products? Is the flow of customers more difficult to monitor and control? By knowing absolutely the customers is a key success factor for any service provider that wants to be competitive. Therefore, Customer Flow Management (CFM) is managing the flow of customers and their experience from initial contact to final service delivery.

The Customer Flow Management process consist of several phases including pre-arrival, arrival, queuing or waiting, serving, post-serving and managing as illustrated in figure 2.14. It is view of the entirety of the customer service operation, the resulting framework for making informed business decisions and the frames the boundaries of CFM.

i. *Pre-arrival*

CFM can start before the customers physically visits the shop or service center by implementing a method to book appointments before arrival. This reduces the time spent waiting by the customer and produce a positive impact on the customer's service experience.

ii. *Arrival*

Customers need to be place in an appropriate queue on arrival. Customer Flow Management stresses the possibility of segmenting the customers in different queues rather than entering all customers in the same queue.

iii. *Queuing/waiting*

Most customers will endure a period of waiting after queue entry. A balanced and controlled waiting period is the desired optimum results of any managers.

No one wants to have a completely empty waiting area as it reflected that you are overstaffed or impression of abandonment. Equally, too many customers waiting is simply as off-putting. In the case of a hospital or public service center, certain citizens might not accept it as they can demonstrate this during elections. CFM can help managers get the balance rightly by improving staff planning and by adding more flexibility to the process.

#### iv. *Serving*

When calling the customer forward, staff can start preparations if the service chooses to identify and tracking customer's history before the customer actually arrives at the service point.

#### v. *Post-serving*

After a customer has been serve, a case handling function can continue to manage the case throughout its lifetime if needed and each step is document and process.

#### vi. *Managing*

Managers can uses the gathered data in CFM process to evaluate the current processes. Reports can be generate on employee-customer interactions, service times and customer wait times. Operational inefficiencies can be identified and addressed through process changes or training.

### CHAPTER 3

## III. SYSTEM DESIGN

#### a) *Conceptual Design*

Banks have been one of the major units of the public for the past years. Many researchers try to develop new technology in order to increase customer satisfaction. Thus, an active research should be focuses on analyzing the queues to optimize their operations, which customer's waiting time can be reduce.

In this research paper, an automated queue control system has been develop for organizing queue in banking for a low-cost and efficient way. The system can analyses the queue status and take decision which customer to serve, as the factor of the average waiting time is take into consideration.

#### b) *System Design Overview*

The scenario of the proposed system can be described as shown in the Figure 2.1. Customer will select required services either Service – A, Service-B or Service-C and gets an acknowledgement receipt. The receipt consists of information like token number, service selected, date, time and retail or organizational name. The customer proceeds towards the service counter when his token number displayed on the screen. Therefore, instead of worrying about their places in the line, customers can relax and have a great customer service experience.

The automated queue control system can be divide into several process. First, customers will select

require service and proceed to the waiting area. The system will records the customers token number with the type of service selected. Then, the system will analyzes the data collected and decides customers turn to be serve. At the waiting area, a display will be place and shows customers token number and service counter number that indicate which customer to be serve next. Lastly, different display located at the different service counter will display current customer's token number which is now being serve.

#### c) *Component Selection*

##### i. *Intel Galileo Gen-2*

The Intel Galileo board is a microcontroller board based on the Intel Quark soC x 1000 application processor, a 32-bit Intel Pentium brand system on a chip (soC). It is the second-generation board based on Intel Architecture design to be hardware and software pin-compatible with shields designed for the Arduino Uno R3.

In addition to Arduino hardware and software compatibility, the Intel Galileo board has several PC industry standard I/O ports and features to expand native usage and capabilities beyond the Arduino shield ecosystem. A full-sized mini-PCI Express slot, 12V power-over-Ethernet (PoE) capable, Micro-SD slot, 6-pin FTDI header, USB host port, USB client port and 8 Mbyte NOR Flash come standard on the board.

##### ii. *Push-Button*

A push-button is a simple switch mechanism for controlling some aspect of a machine. It is usually made of hard material likes plastic or metal. To accommodate the human finger or hand, the surface is usually flat. The push-button is required for this project as input from the arriving customers and as the control pendant at the service counter.

##### iii. *Liquid-Crystal Display*

A liquid –crystal display (LCD) is a flat panel that uses the light modulating properties of liquid properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images or fixed images which can be display or hidden, such as preset words, digits and 7-segment display as in digital clock. They use the same basic technology, except that arbitrary images are made of a large number of pixels, while other displays have larger elements. For this project, LCD is use for displaying token number at ticket counter, waiting area and service counter.

##### iv. *Buzzer*

A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke. For this project, buzzer is use for alarming which indicate of next customer service at the service counter.

v. *Ds1307 Real-Time Clock Module*

The DS1307 Real-Time Clock is a low power, full binary-coded decimal (BCD) clock plus 56 bytes of NV SRAM. The clock provides seconds, minutes, hours, day, date, month and year information. Address and data are transferred serially via a 2-wire, bi-directional bus. The DS1307 has a built-in power sense circuit that detects power failures and automatically switches to the battery supply. Meanwhile, the DS1307 happens to possible the getting of customers arrival time data. which is important for the system analysis.

e) *Bill Of Material*

*Table 3 : Bill of Material*

| Component                 | Bill | Expected Price (RM) |
|---------------------------|------|---------------------|
| Intel Galileo Gen-2       | 1    | RM 245.00           |
| LCD (16x2)                | 4    | RM 80.00            |
| PCF8574N                  | 4    | RM 32.00            |
| Wire Jumper               | 100  | RM 13.60            |
| Trimpot 10K               | 4    | RM 8.00             |
| DS1307RTC Module          | 1    | RM 6.30             |
| Plastic Container         | 1    | RM 5.90             |
| 6x6x1 Push Button 4 Pin   | 6    | RM 3.30             |
| Screw and Screw PCB Stand | 4    | RM 2.80             |
| Buzzer 6-12v              | 1    | RM 3.00             |
| Resistor 10k $\Omega$     | 8    | RM 0.40             |
| Total                     |      | RM 400.30           |

## CHAPTER 4

### IV. RESULT AND DISCUSSION

a) *Analysis on Input Module*

i. *Push Button*

There are total of six push buttons used for connecting the Galileo. The pins used are digital pin 2 to digital pin 7. Push buttons for digital pin 2, 3 and 4 used for collecting data from customers. They will choose either service A, B or C. In contrast, push buttons for digital pin 5, 6 and 7 are place at the service counter. Teller will use it to call for next customer to provide require service.

The way a push button works with Galileo is that when the button is pushed, the voltage will goes Low, which in turn Galileo read this and reacts accordingly. A pull-up resistor is use to keep the voltage HIGH when the push button is not being press. In other words, a small amount of current is following between VCC and the input pin (not ground). thus the input pin reads close to VCC.

ii. *DS1307 RTC Module*

The DS1307 RTC module works very well in keeping the time. However, the external temperature can affect the frequency of the oscillator circuit, which drives the DS1307's internal counter. This may sound like a problem, however it usually result with the clock being off by a round five or so minutes per month. Besides

vi. *PCF8574N*

The PCF8574N is an 8 bits I/O port expander that uses the 12C protocol, which communicates using a 2-wire seria interface i.e. one wire is a serial clock (SCL) and the other is for serial data (SDA). The reason for choosing the PCF8574N is to minimize the using of Galileo ports for LCD's circuitry.

d) *Complete Circuit*

All the hardware components are connect together as shown in the figure below.

that, proper ventilation is use for the container in this project.

b) *Analysis on Output Module*

i. *LCD*

A standard 16x2 LCD is use but using just two pins. The way it can achieve by the PCF8574, an I/O expander that communicates with Galileo by 12C. With this IC, two ports of Galileo can control up to eight digital I/O ports. In the 12C protocol, each IC has different address. In this project, first four of the address is use as there are four different LCDs used.

ii. *Buzzer*

A piezo buzzer will makes a small "click" when voltage is applying to it. If the voltage is turn on and off hundreds of times per second, the piezo buzzer will produce a tone. Then, if a bunch of tones is string together, it will produce a music. Simple music will ring when a service counter calls a customer.

c) *Algorithm Development*

i. *Rule Based System*

Rule based system is a system. which problems can written in the form of IF-THEN rules. The problem are usually is not large. If there are too many rules, the system can become difficult to maintain and can suffer a performance hit.

In this project, there are three rules will be looking at before deciding which one will be implemented in the system. There are:



- 1) Rule 1: All service counters are multipurpose type.
- 2) Rule 2: Service counter 1 only for customer choosing Service-A.
- 3) Rule 3: Each service has one service counter.

In addition, two parameters set for all the rules, which are Service-A, B and C have duration to complete 60sec, 120sec and 180sec respectively. The second parameter is that customer is assume to follow this arrangement: "customer-A customer-B customer-C customer-A customer-B customer-C..."

Figure 4.4 shows that Rule 1 is the least time consuming to finish all the customers and thus the rule will be use throughout this project.

#### ii. Queuing System Model

This part presents a different technique for queue management system in banks proposed by Ahmed and Huda (2011). The technique can build an automated queue control system by using the DQ concept. To select the next customer to be serve during a specific period, the system chooses and appropriate algorithm among more than one scheduling algorithm, which are FCFS and SPF.

Moreover, to achieve the best waiting time for all the customers that are waiting to be serve, it is depend on the testing result for selecting the scheduling algorithm. To achieve this, additional components to the traditional queue management system are need.

- Customer Area

In customer area, customer selects required service at the ticket counter and waits until the ticket number shown in a display.

- Queuing Area

In queuing area, the system chooses one of the waiting customers by using the queuing algorithm that is choose by the testing area.

#### FCFS

|    |    |    |    |    |    |    |    |    |     |     |     |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|
| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|

Fig. 4.6 : Ordinary Queuing System Gantt chart

#### a. Testing first 15 minutes using the two scheduling algorithms

##### FCFS

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| C1 | C2 | C3 | C4 | C5 |    |
| 0  | 15 | 20 | 35 | 50 | 60 |

##### SPF

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| C1 | 2  | C5 | C3 | C4 |    |
| 0  | 15 | 20 | 30 | 45 | 60 |

#### b. Testing 2<sup>nd</sup> 15 minutes using the two scheduling algorithms

##### FCFS

|    |    |    |    |    |
|----|----|----|----|----|
| C6 | C7 | C8 | C9 |    |
| 60 | 15 | 20 | 35 | 50 |

##### SPF

|    |    |    |    |    |
|----|----|----|----|----|
| C6 | C7 | C8 | C9 |    |
| 60 | 65 | 70 | 75 | 80 |

- Testing Area

In testing area, the system test and compare all the result for the expected waiting and response time then selects the best algorithm.

- Scheduling Algorithm Database Area

All the needed scheduling algorithms, the testing result and the number of customers are stored in this area. The testing result and the customer's numbers are save temporarily.

- Service Area

In service area, the system serves the customer according to the different services that a bank can gives such as transaction, open account and balance. Each service has their own specific time.

#### iii. Result Analysis

To test the performance of the new proposed system, several simulations were carry. A randomized generated number is use to generate a sequence of customer's arrival time and option of services that they can choose. The different services are open an account, transaction and balance with the period of each services which are 15, 10 and 5 minutes respectively.

In this proposed system, two scheduling algorithm are used which are FCFS and SPF. Differs to the ordinary system (FCFS) which is usually being use in the most of the banks queuing system. The proposed system will test the queuing system using testing algorithm every specific period, consider in this research to be 15 minutes. Then, make comparison of the results of waiting time and average waiting time. The results shown in figure 4.5 and figure 4.6 respectively.

c. Testing 3<sup>rd</sup> 15 minutes using the two scheduling algorithms

|      |     |     |     |     |
|------|-----|-----|-----|-----|
| FCFS |     |     |     |     |
| C9   | C10 | C11 | C12 |     |
| 75   | 80  | 90  | 100 | 105 |

|     |    |    |    |     |
|-----|----|----|----|-----|
| SPF |    |    |    |     |
| C6  | C7 | C8 | C9 |     |
| 75  | 80 | 85 | 95 | 105 |

Fig. 4.7 : The New Queuing System Gantt chart (a, b, c,d)

Through the extensive experiments conducted, the primary goal is to determine the ability of the new queuing system against the ordinary queuing system. Figure 4.7 shows that the new approach decreases the

average waiting the time compared to the ordinary queuing system while Table 3 shows the average waiting time for the ordinary queuing system and the new queuing system.

Table 5 : The Average Waiting Time Comparison between the Ordinary Queuing System and the New Queuing System

| Time Slice                 | Average Waiting Time and Algorithm (Ordinary Queuing System) | Average Waiting Time and Algorithm (New Queuing System) | Difference the between Ordinary and New Algorithm |
|----------------------------|--|---|---|
| 1 <sup>st</sup> Group      | 16.4/FCFS  | 14.4/SPF  | 2   |
| 2 <sup>nd</sup> Group      | 42.5/FCFS  | 42.5/FCFS   | 0   |
| 3 <sup>rd</sup> Group      | 47/FCFS  | 43.66/SPF   | 3034  |
| Total Average Waiting Time | 32.75  | 31.083  | 1.667   |

Equation 1 used to calculate the waiting time for each customer and Equation 2 used to calculate the average waiting time for each group of customers (Willin, 1999).

$$CWT\ I = SSTC\ I - ATC\ I$$

Where:

CWT is a Customer Waiting Time

SSTC is a Start Serving Time for a Customer

ATC is Arrival Time for a Customer

I is the number of customer

$$AWT = (\sum CWT\ i) / TN$$

Where:

AWT is Average Waiting Time

CWT is a Customer Waiting Time

TN is total number of customer served

i is the number of customer

## CHAPTER 5

### V. CONCLUSION AND RECOMMENDATION

#### a) Conclusion

Design and development of Automated Queue Management System starts with the understanding of the queue system itself. which is very crucial to broaden the horizon of understanding. Then, the consideration of the control strategy and component to be use plays important role as guidelines to accomplish this project.

In addition, several articles have been review to investigate the current approaches for queue management system. Although the current approaches have proven to ease and give benefits to service

providers, yet there are space of improvement in order for a queue system function efficiently.

Besides that, the early queue system design for this FYP (implemented using mechatronics solution) has been present on the chapter 3 and several analysis were carry on the chapter 4 of this report.

#### b) Limitation

The assumption of the queuing theory may be too restrictive to be able to model real-world situations exactly. The mathematical models often assume infinite number of customers, infinite queue capacity or constant inter-arrival or service times (same service type), when it is quite apparent that these bounds do not exist in reality. In other words, the theoretical solution may prove insufficiently informative to be useful.

#### c) Recommendation

There are some improvement can be made such as addition of sensors of cameras that can detect customers at a certain time. This method can improve the efficiency of a queue system as it alerts manager to counter fast on the situation. Lastly, the system can being made to become a product as in this project only being made as for research and learning.

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- Author Name in Font Size of 11 with one column as of Title.
- Abstract Font size of 9 Bold, "Abstract" word in Italic Bold.
- Main Text: Font size 10 with justified two columns section
- Two Column with Equal Column with of 3.38 and Gaping of .2
- First Character must be three lines Drop capped.
- Paragraph before Spacing of 1 pt and After of 0 pt.
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- Large Images must be in One Column
- Numbering of First Main Headings (Heading 1) must be in Roman Letters, Capital Letter, and Font Size of 10.
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**You can use your own standard format also.**

### Author Guidelines:

1. General,
2. Ethical Guidelines,
3. Submission of Manuscripts,
4. Manuscript's Category,
5. Structure and Format of Manuscript,
6. After Acceptance.

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- (c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.
- (d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.
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- (h) Brief Acknowledgements.
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Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

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*Acknowledgements: Please make these as concise as possible.*

## References

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**26. Go for seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.





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**28. Make colleagues:** Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

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**33. Report concluded results:** Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

**34. After conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

### Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.



Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

- Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
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### **Title Page:**

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



## Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript-- must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

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- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

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- Single section, and succinct
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- Center on shortening results - bound background information to a verdict or two, if completely necessary
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- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

## Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

## Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.



- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

#### **Procedures (Methods and Materials):**

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

#### **Materials:**

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

#### **Methods:**

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

#### **Approach:**

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

#### **What to keep away from**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

#### **Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently. You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



## Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

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### Approach

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### Figures and tables

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- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
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- Recommendations for detailed papers will offer supplementary suggestions.

### Approach:

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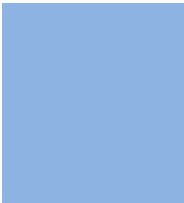


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