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Intention to Adopt Electronic Records Management System in the Oil and Gas Sector in Yemen

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ABSTRACT

The purpose of this study is to measures 14 factors that influence the intention of users in the Oil and Gas (O&G) sector in Yemen to adopt electronic records management system (ERMS). This study integrates UTAUT and TOE models as an ERMS adoption framework to assess the relationship between the factors and intention to adopt ERMS through an online survey. Data has collected from 392 employees in the PetroMasila company in the O&G sector in Yemen by means of a quantitative approach. The analysis of data was performed by using Partial Least Squares (PLS) and the results revealed that 11 factors "(compatibility, effort expectancy, performance expectancy, security, system quality, accountability, change management, facilitating conditions, social influence, policy and trust in the new system)" are significantly and positively influenced the adoption of ERMS. Surprisingly, 3 factors (availability, training, legislation and laws) are found to have an insignificant influence on the adoption of ERMS by O&G sector employees.

Key words: Adoption, Business Continuity, Electronic Records Management System, Oil and Gas, Yemen.

1. INTRODUCTION

Electronic Records Management System (ERMS) represents a crucial tool for enhancing the safety and quality of electronic records. Thus, top management must actively adopt this system to gain the benefits and support the business continuity. The application of this system would trigger changes in the records management field, and thereby enhance business continuity. Although the adoption of an ERMS has been identified as one of the top priorities for supporting the effective management of records, there are tremendous challenges and barriers associated with doing so, which range from the technological to the organizational and the environmental [1]. Organizations have begun to show an increasing interest in the ERMS because of the advantages it offers. One of these advantages is its ability to manage the large volume of organizational records that continue to grow dramatically as a result of using information and communications technology (ICT) [2]. Many organizations have chosen to implement an ERMS as a records management tool for reducing the risk of information loss, enhancing business continuity, improving services, providing easily accessible and reliable information, and increasing the efficiency of records management [3], [4]. The ERMS has changed how organizations interact with their records, and has thus led to an important improvement in their prospects [5].

In the case of organizations in the O&G sector, records consist of information that is created by organizations and actually used in the running of the day-to-day activities of the business. It is therefore essential for O&G organizations to systematically maintain their own records in a proper repository to ease an internal information exchange [6], [7]. When information is not properly managed, it can be easily lost, tampered with, or fall into the hands of unauthorized parties, which could jeopardize the existence of an organization. Mismanagement of information can weaken the accountability of an organization, and this can also have a negative effect on the image of an organization as well as its business continuity [8]-[10].

Hence, it is evident that there is an urgent need to adopt ERMS as an administrative initiative to reduce the risk of information loss, to increase accountability, to enable the management of record integration, and to eliminate the duplication of activities [11], [12]. To achieve the optimum level of record management, public and private sectors organizations in many developed and developing nations, including Australia, New Zealand, the UK, USA, South Africa, and Turkey among others, have implemented ERMS initiatives [13]-[15]. By using an ERMS, the vital records across the organization are identified for evaluation and a decision is then made as to whether to retain or dispose of them [16].

The ERMS will change the landscape of O&G practice by providing an electronic means to store, retrieve, and deploy information in a secured and supportive environment [17], [18]. However, due to the nature of the information and records stored in an ERMS, human intervention is still needed to consolidate and process these records in order to

identify the information that is relevant and meaningful [19].

Despite the advantages of the ERMS, the adoption level in developing nations remains slow. In Yemen, although ERMS initiatives have been successfully implemented in healthcare and telecommunication sectors, the uptake of the ERMS in organizations in other sectors, particularly among those in the O&G sector is slow [20]. Organizations in the O&G sector have encountered many issues in adopting ERMS. Moreover, because of the slow level of adoption in the sector, O&G organizations are facing difficulties in gaining value from their investment in the improvement of intentional record management systems. This has consequently affected business continuity and service delivery to clients [3].

Yet, it is crucial for all sectors including the O&G sector in Yemen to embrace technology to reform their operating background and gain the benefits of developed efficiency, higher effectiveness, and increased cost savings [11]. However, among the several problems that O&G organizations are still struggling with the management of their records electronically. Indeed, the O&G sector in Yemen is lagging behind in terms of digital maturity because it is still managing a large volume of records manually which involves an inherent risk that could eventually stops the business [12], [21]. Addressing this problem has never been more important than it is today. The best solution for digitizing information and records is to adopt the ERMS because its potential success in other organizations in developed and developing nations [1], [22].

Therefore, the purpose of this study is to determine the influence of technological, organizational and environmental factors on the employees' intention in O&G sector to adopt ERMS from the perspective of both managers and users. UTAUT model is employed to examine the relationships between the factors that influence ERMS adoption. The UTAUT model is flexible and thus delivers a good initial point for examining and explaining the relationships between dependent and independent factors. The remainder of this paper consists of seven sections, starting with a literature review on the adoption of ERMS in related settings. This is followed by a description of the conceptual framework, hypotheses, and research methodology. Subsequently, the data analysis procedure and results are discussed. Finally, the contributions made by this study are highlighted and some conclusions are drawn

2. LITERATURE REVIEW

This section reviews previous studies related to ERMS adoption in public sectors including, the Oil and Gas sector. A good review of observed literature needs to specify the different views, arrangements, differences, and inclinations of thoughts on the topic of research and be precisely shown in the text. In this regard, the empirical literature presented in this section is a synthesis of related studies in the area of records management conducted in other developing countries [23], [4]. ERMS devoted studies especially in the context of the Oil and Gas sector are scarce, but ERMS studies are widely available in the other public sectors [3], [24]. The findings of previous researches indicate that there is a need to adopt ERMS in the Oil and Gas sector in order to enhance business continuity. The desire among both public and private sector organizations to improve record management has increasingly been stimulated mainly by the introduction of variety of regulations and laws on the provision of accurate business records as and when needed [21], [25], [26]. Hence, the position of record management has moved from the periphery to the heart of organizational culture. In light of the above, the ERMS was specifically developed to capture and manage all types of records in paper and electronic formats based on some clear organizational principles. The system was developed to manage the records of an organization from their creation to their disposal [27]- [29].

A review of the literature has presented several recent studies on ERMS adoption, nonetheless a handful dealings with the adoption of ERMS in the O&G sector in developing nations and how they could be contributed to improve records management for supporting business continuity [30]. The practice of ERMS has begun lately when it was implemented to manage records in the government sector in some developed and developing nations such as South Africa, Australia, New Zealand, the UK, and the USA. [1], [31] - [33]. According to the National Archives of the USA (2016), there are important prospects and potential benefits to be gained by ERMS. The desire among both public and private sector organizations to improve record management has increasingly been stimulated mainly by the introduction of variety of regulations and laws on the provision of accurate business records as and when needed. Hence, the position of record management has moved from the periphery to the heart of organizational culture. Most ERMS studies suggested that integrating ERMS components should cover three broad categories such as records management, email communication, and cooperation. The combination of these three components is making management of records by users easy and the response to locate and retrieve records faster [34], [35].

A study conducted on ERMS adoption in Yemen by [2] delivered significant visions for this study. The researcher has investigated the factors influencing ERMS adoption in Yemeni higher education. The study used TOE for classifying factors into technological, organizational and environmental. Furthermore, the relationship between the factors and the intention to adopt ERMS has been tested, the findings have revealed that factors should be engaged in the adoption of ERMS n in both public and private sectors. The findings of the study suggested that there is a need to conduct many studies in a different context to determine other factors that have a significant effect on the adoption of ERMS.

One study by [28] indicated that there is a strong relationship between the significant adoption factors and the

level of use of ERMS. This study declared that the significant contribution to the development of ERMS refers to the human and organizational factors that have been investigated. The study also identified technological aspects positively affecting ERMS adoption. In contrast, in developing countries including South Africa, records are still managed physically as stated by [32]. This leads to the need for an ERMS framework that helps organizations to develop information management

Many previous studies discussed the implementation or adoption of ERMS for supporting decision making and organization performance and none of them addressed the adoption of ERMS to enhance business continuity which is the gap of the current study [36]- [39]. The results of the many previous studies had identified many factors influencing the implementation of EDRMS, ERMS, ERP, EDMS, and ECMS among users of such applications in the government sectors and there is no study discusses the factors in the Oil and Gas sector [4], [40]. However, no empirical study or case study was performed to classify the factors into TOE dimensions.

According to [35], the successful adoption of a new system depends on an inspection of the significant factors combined in the system. The existing literature linked to ERMS adoption lacks studies interrelated to the adoption of this system by educational organizations. Correspondingly, various studies in the area of IT/ IS have yet to study the factors that influence ERMS adoption in the O&G sector. Organizations using ERMS, in particular, have more efficient business processes than those who do not use this system. The reason is that the records in ERMS which provide basic information transmission within the organization can be created much faster and can be found more easily when needed [2].

The previous studies on the ERMS adoption in developing nations identified broad factors which are unsuitable for its adoption in the O&G sector. For example, factors were identified that influence ERMS adoption to enhance the records management services of public sector in Australia [48]. These factors are not suitable for adopting ERMS in the O&G sector because they have been measured in public sector that has different infrastructure, knowledge and context. Furthermore, a systematic literature review and experts ranking are considered a new processes chosen to identify the factors. Additionally, it was acknowledged around developing countries that ERMS adoption in the O&G organizations still scarce and needs to be investigated. This study develops a framework for the adoption of ERMS in the O&G sector in Yemen to support business continuity and involves significant factors influencing the users.

2.1 Relevant IT Theories in Adoption

Many theories have been developed to explain and predict an organizations decision to adopt information technology (IT) or otherwise. Technology must be adopted prior to its usage [49]. There are a number of significant theories on adoption in the information system (IS)/IT field. These theories look at the behavioral characteristics of users that affect the technology or system adoption [50]. The adoption of any new system must be based on a sound framework because a framework is a management tool that serves as a plan or a roadmap for the execution of an initiative, including the introduction of an ERMS [2]. This section discusses the UTAUT and TOE models that integrated for developing the ERMS framework. The UTAUT is used as supporting theory in order to test the behavior intention of users to adopt ERMS, while the TOE framework is used to classify the influencing factors into technological, organizational, and environmental. This section also identifies some additional variables that could influence ERMS adoption. These additional variables are also integrated into a questionnaire that is directed to a sample of O&G sector employees for the purpose of achieving one of the main aims of this study, i.e., to recognize the influence of the employees' perspective on ERMS adoption.

1) TOE Framework

TOE framework is used as the most widespread system/technology adoption theory, and it now supports IS adoption studies [38], [39]. In this study, TOE framework is used to classify the factors into three dimensions. There are many factors that are included in the technological dimension that are required in order for a technology to work well [40]. The technological dimension includes factors that influence individuals, organizations, and industries to adopt a technology or system. The technology dimension embraces the inner and outer skills affecting the organization. Technology dimension has defined the features of the existing technologies and the new technologies that are relevant to the O&G sector, which cause modifications to the organization [2]. In this study, the technological dimension contains six important factors that may influence the adoption of ERMS in the O&G sector, namely, availability (AV), compatibility (COM), "effort expectancy (EE)", "performance expectancy (PE)", security (SEC), and system quality (SQ).

On the other hand, the organizational dimension of the TOE framework describes the features and properties of the organization [41]. This dimension includes many factors related to this study which influence the ERMS adoption. In addition, the organizational dimension describes some communicative processes that link the various aspects of the organization, such as the organizations scope and quality of its staff [42]. In this study, this dimension includes five factors that may influence the ERMS adoption in the O&G sector. These factors are accountability (ACC), change management (CM), "facilitating conditions (FC)", "social influence (SI)", and "training (TRA)". The environmental dimension is defined as the context in which O&G organizations function and refers to the area in which these organizations conduct their operations [43], [44]. Many environmental factors have

been proposed in the literature to influence the adoption of ERMS, but this study focuses on legislation (LEG), policies (POL), and trust in the new system (TRU). The main reason why the TOE framework is used in this study is because it is essential to classify the factors in order to distinguish the level of influence of the different types of factors in each dimension and also to ease the understanding of the results when a particular factor is examined using statistical tools.

2) UTAUT Model

UTAUT has been integrated and developed by [43] and since then it has often been used in research on IT/IS adoption. The intention behind the initial development of this theory was to combine eight existing information technology acceptance and use models. It successfully integrated all the components of the prior models and clarified the differences in the prediction of IT behavioral intention and use behavior better than any other model. The dependent factors in this model are behavioral intention and the use, the key independent factors are "performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC)".

The UTAUT is preferred because it has preferable performance than previous technology acceptance models since it facilitates a better testing of the behavior intention of individuals to adopt system compared to other theories [37], [44]. UTAUT model considers as the standard measurement tool in determining information system acceptance in many contexts including Oil and Gas sector [45], [46]. The previous studies on theories of system adoption and technology in developed nations have illustrated the gap that still not filled in developing countries. The others theories such as TAM, TRA and TPB are broadly used to measure the acceptance of technology and system such as health information system (HIS), electronic health records (EHR), enterprise resource planning (ERP) and ERMS in many organizations in developed and developing nations. However, these theories were criticized due to their comparatively low descriptive strength in behavioral intention which scaled in percentage between 30 and 40 percent only [37], [43]. On contrary, The UTAUT model was shown a good result on descriptive strength in behavioral intention to adopt system where scaled in percentage 70 percent [44], [47].

Moreover, several studies have employed the UTAUT to test the adoption and use of ERMS by local government because the UTAUT is one of the latest theories incorporated old theories to examine the behavior intention [44], [48]. UTAUT shows the influence of a range of independent factors on the dependent factors, i.e., intention to adopt ERMS. Although the UTAUT was constructed as a broad conceptual and theoretical framework for IS adoption at the individual level, there is a scarcity of studies conducted on the public sector that test the users' intention to adopt ERMS [2]. Therefore, this study proposes a conceptual framework based on the UTAUT to test the intention of employees in the O&G sector to adopt ERMS. This study measures the adoption of ERMS in a new context by investigating the TOE factors that influence the behavior intention of employees.

2.2 The Factors Selected for the Current Study

Many studies were reviewed in the literature of this study and indicated the critical success factors influencing the adoption of ERMS in the O&G sector and classified into three dimensions. These dimensions are technological, organizational and environmental.

1) Technological Factors

The technological dimension contains several factors may influence positively or negatively the ERMS adoption. Recently, studies on ERMS adoption have highlighted that technological factors could influence the intention of O&G sector employees to adopt ERMS [2], [47]. This study selects 6 technological factors through systematic literature review and IT experts which are "availability, compatibility, effort expectancy, performance expectancy, security and system quality". According to the experts who were surveyed for the current study, among the 6 factors of the technological dimension that they were asked to rank in order of importance, compatibility is the most crucial in terms of its positive influence on ERMS adoption in the O&G sector in Yemen, [35], [48].

Many prior studies were underlined the significant part of technological features of ERMS in guaranteeing business continuity in the O&G sector. The technological dimension delivers best-practice rules that support O&G top management to protect records from any deletion, modification or loss [11], [49]. Hence, the technological dimension contains important factors that influence ERMS adoption, that reflects many advantages that could make a major changes in the organization operations that rely on records [2], [47]. A study by [68] highlighted the importance of technological dimension in supporting the business continuity. Therefore, the technological dimension has provided better practice guidelines, that would assist top management in the organizations to improve the way of managing electronic records and protect their data security over time.

2) Organizational Factors

This dimension describes the organizational characteristics of a workplace in which users can decide to adopt a new system that might be implemented for improving the records management system [49]. The organizational dimension contains many factors with the features and assets of the businesses such as the organizations size, management structures, HR, amount of free resources, and departments among employees [50]. The factors under this dimension are: - change management, accountability, facilitating conditions, training, and social influence.

However, change management is an important factor that plays a role in supporting users by giving a proper change regarding the use of new system in the organization. Thus,

accountability remains the top success factor irrespective of the users activities that are created and must be secured systematically [51]. Organizational size leads to an effective problem that may change the management strategy when the size is big. However, in very small organizations with fewer than twenty employees, change in the management strategy is not considered a problem. Organizational context is measured in most organizations using social influence and training. The measurement substances related to social influence are expanded to include other measurement substances emerging from the analysis of interview data and that reflect other aspects of social influence in the organizational setting [52].

3) Environmental Factors

This dimension considered significant for any organization to collaborate and manage its environment because the corporate setting would help the organization manage its business safely [53]. The accomplishment or failure of organizations business is essentially acknowledged by the effectiveness of its communications with the workplace environment [2].

In a related study, [40] asserts that any rule assumed in organizations is continuously affected by its environment. Many restraints are compulsory on the initiative by the environment factors which impose an enormous influence on the scope and direction of the activities of the organization. The nature of the business environment in the USA is ruled by government protocols with a view to guarantee a certain level of financial life to the people. Thus, ERMS is influenced by many factors related collectively to the business environment. These include legislation and laws, policy, and trust in the new system [54], [55].

It is essential to have policies in place to guarantee the efficient, operative, and well-organized management of electronic records. Policies contain the rules that guide managers in the O&G sector regarding ERMS[1]. In other words, the management of records needs policies to guarantee that the framework is effective. It is critical to provide a summary that contains all the key characteristics of record management requirements in a policy document format [57]-[59]. Organizations should develop a policy that makes it every records officers responsibility to appropriately manage information in all forms and formats. This would then make it easier for ERMS users to comply with the relevant legislation and regulations. In addition, this policy should be extendable and elastic to ensure records are managed appropriately and in line with governmental regulation [3]. A lack of legislation or policy could lead to the deletion or modification of the information of organizations, which would adversely affect business continuity [60]- [63]. Previous studies on ERMS adoption conducted in developing nations including Yemen have indicated that legislation to control the process of managing records has not been upgraded to reveal existing technical developments [61]. On the other hand, according to previous studies, trust in the new system is one of the essential factors that affects ERMS adoption [2, 83].

3. FRAMEWORK DEVELOPMENT

This study proposes 14 potential factors (six technological factors, five organizational factors, three environmental factors) which are influencing the intention of employees in the O&G sector to adopt ERMS in the Yemen. Factors were selected through analysis of SLR and the results of an expert survey. The factors that were identified from the literature are certain to be significant for explaining ERMS adoption. Thus, these factors were included in the proposed study framework. It was considered that this approach was reliable based on a previous study by [2] in which the researchers reused the factors that have been found in the literature, i.e., higher education and the public sector, which were conducted in developing nations including Yemen.

The selected studies provided significant data that were considered suitable for enclosure in this analysis. There are several studies conducted recently and are significantly owing to the need of managing vast amount of records that organizations were created. Therefore, for this SLR, only those studies that were closely related to ERMS were included. To ensure that the selected studies have significant effect in the area of ERMS, we selected only those studies that were published in journals with high impact factor. All the studies that were selected focused on ERMS and/or closely related systems such as the electronic documents management system (EDMS), electronic documents and records management system (EDRMS) and enterprise content management (ECM).

This study extends the literature by examining the relationships between the new factors in the O&G sector and the intention to adopt ERMS [63]. In the IS field, new theories and models are created by improving and extending existing theories and models. As mentioned earlier, the UTAUT model acted as the basis for this research because it is a well-established and previously validated model. Thus, through adding other constructs to this model and defining other relevant relationships among these constructs it is expected that new theoretical and practical knowledge would be emerged. This study employs a modified UTAUT model to examine employees behavioral intention to adopt an ERMS in the context of the overall social structure of the O&G sector regarding the system [64]-[67].The development of framework is done based on the UTAUT which will be tested through the hypotheses testing process. These hypotheses are proposed with the conceptual framework in Figure 1 including all factors of the three dimensions and the hypotheses of study. The framework developed to test the intention of the employees in the O&G sector in Yemen to adopt the ERMS which would be used for supporting the business continuity.

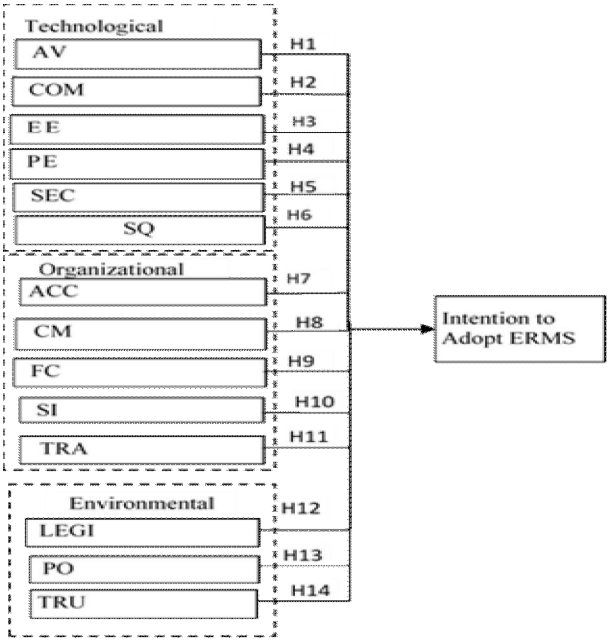

Figure 1: Conceptual framework

3.1 Hypotheses Development

The framework developed for the current study consists of 14 main constructs that were linked to an independent variable (intention to adopt ERMS). These constructs have a direct path with the independent variable in the research framework. Each factor has a hypothesis proposed to measure its effectiveness.

Table 1: Hypotheses

No	Hypothesis
H1	"Availability has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H2	"Compatibility has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H3	"Effort Expectancy has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H4	"Performance Expectancy has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H5	"Security has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H6	"System Quality has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H7	"Accountability has a positive and significant influence on the ERMS adoption in the Oil and Gas Sector".
H8	"Change management has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H9	"Facilitating Conditions has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H10	"Social influence has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H11	"Training has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H12	"Legislation and Laws has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H13	"Policy has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".
H14	"Trust in the new system has a positive and significant influence on the ERMS adoption in the Oil and Gas sector".

4. METHOD

This study conducts online survey and sues structural equation modeling (SEM) to collect and analysis data respectively. The instrument developed in this study through pilot study. A pilot study was done before collecting the main data in order to confirm the consistency of the survey. During the data collection phase, the link to the online survey was distributed to 430 potential participants working in the O&G sector in Yemen particularly the PETROMASILA Company via e-mail. The link to the survey was sent to senior managers, superintendents, heads of IT departments, supervisors, engineers, officers, and technicians. Only 392 participants responded to the survey which started on January 17, 2019 and ended on May 19, 2019.

5. DATA ANALYSIS AND DISCUSSION

Data analysis process was started with an initial analysis including a reliability and validity test. After that, a descriptive analysis of the demographic data was performed as well as the effects of population size and respondent type were examined as control factors for the adoption of ERMS. Then a detailed two-phase analysis of the data was conducted based on SEM using SEM-PLS.

Demographic Analysis was performed through a descriptive analysis of the respondents' demographic data, which consisted of gender, age, education level, general computer knowledge, job position and working experience. This descriptive analysis has examined the characteristics of respondents by calculating the frequency and percentage. Table 3 presents the respondents personal and professional data. Results in Table 3 indicated that the majority of the respondents were male (87.8%) and the remainder were female (12.2%). Most of the respondents (56.9%) were less than 40 years old. Within this age band, those aged between 30 and 40 years old accounted for the highest percentage of respondents at 44.1%, whereas those aged between 20 and 30 years accounted for 12.8%. of the 18–40 age group. On the other hand, participants aged 41 to 50 years accounted for 40.1%, while those aged more than 51 years accounted for only 3.00%.

Accordingly, the respondents' education level was analyzed and all of them were degree holders: 5.4% had a

diploma level degree, 82.1% had a Bachelor's degree and 12.5% had a postgraduate degree (Ph.D. or Masters). In regards to the professional profile of the respondents, they held a range of jobs: 29% were officers, 24.1 were supervisors 24% were engineers. Those who were working as technicians accounted for 13.3% of the sample. The smallest group by job position consisted of managers, who represented 9.2% of the respondents. In terms of working experience, the majority (53.6%) had worked in the O&G sector for between 7 and 10 years, followed by 29.6% who had working experience of more than 10 years. Those who had worked between 2 and 6 years represented 16% of the respondents. The smallest percentage at 0.8% had worked for fewer than 2 years. As regards the respondents level of general computer knowledge, as shown in Table 4, just under half (45.9%) reported that they had a good knowledge of using computers. The results also showed that 27.5% of the respondents described themselves as having a moderate knowledge, and only 25.8% of the respondents stated that they had a very good level of experience in using computers. Only a very small percentage (0.8%) recorded that they had a poor level of knowledge on using computers. This characteristic is particularly important as such knowledge can help in expediting the adoption of ERMS because familiarity with technology may create an opportunity for system adoption.

5.1 Measurement Model Analysis

This study uses PLS-SEM to analyze the measurement model for Convergent Validity (CV) and Discriminant Validity (DV). In the beginning, the convergent validity has been tested by executing the test of items factor loadings and the values that were less than 0.5 were removed and the loadings of items exceeded 0.5 were maintained. The Composite Reliability (CR), and Average Variance Extracted (AVE). The composite reliability (CR) has been calculated and its values for all factors ranged from 0.874 to 0.950. Simultaneously, the AVE values were calculated and ranged from 0.612 to 0.803. The values of CR and AVE are matching with the values suggested by Hair et al. (2017) which should be exceeded 0.70 and 0.50 respectively.

The results revealed that all of the underlying paths proposed in the conceptual framework were supported and significant. Specifically, intention to adopt ERMS was shown to be significantly predicted by TOE factors including the UTAUT factors. Consequently, adoption of ERMS was significantly predicted by the behavioral intention of the Yemeni employees in the O&G sector. Next, we have tested the DV that refers to the level to which items differentiate the construct or measure with specific concepts. This has been done by examining the cross-loadings, Fornell-Larcker, and HTMT (Heterotraitmonotrait). Thus, all the extracted for each construct should be greater than the squares of the correlation among all the constructs as suggested by average Cornell and lacker (1981). Similarly, the square root of AVE is greater than the correlations between the constructs which indicates an appropriate DV for all constructs.

5.2 Structural model analysis

Structural model analysis is a statistical technique that has been widely used for instrument validation and model testing. The structural model analysis addresses the issues of testing hypotheses through Smart-PLS software [68- [70]. According to [92], the common measures for structural model analysis in quantitative studies are including the coefficient of determination (R2) values and the β values. The path coefficients of the structural model were tested through bootstrapping test performed in Smart-PLS software with one tailed test type and basic settings to measure the numerical importance of the path coefficients. The relationships between independent factors and intention to adopt ERMS (dependent factor) were tested through hypotheses testing and the results of analysis are presented in Table 2. The results revealed that there are a significant and positive relationship between 5 technological factors and the intention to adopt ERMS. These factors are "compatibility, effort expectancy, performance expectancy, security and system quality" where: $\beta = 0.290$, $p = 0.000 < 0.05$, $\beta = 0.141$, $p = 0.000 < 0.05$, $\beta = 0.114$, $p = 0.003 < 0.05$, $\beta = 0.135$, $p = 0.000 < 0.05$, and $\beta = 0.073$, $p = 0.009 < 0.05$, respectively. Surprisingly, availability has insignificant relationship with intention to adopt ERMS by the O&G employees: $\beta = 0.029$, $p = 0.290 > 0.05$.

Accordingly, H2, H3, H4, H5 and H6 are supported and H1 is not supported. Regarding the organizational dimension, only the training has insignificant relationship with the intention to adopt ERMS by the O&G employees since the $\beta = 0.833$, $p = 0.203 > 0.05$. The other factors such as accountability, change management, facilitating conditions, social influence have a significant relationship with intention to adopt ERMS by employees of the O&G sector: $\beta = 0.105$, $p = 0.000 < 0.05$, $\beta = 0.099$, $p = 0.001 < 0.05$, $\beta = 0.112$, $p = 0.001 < 0.05$, $\beta = 0.071$, $p = 0.017 < 0.05$, respectively. Training seems not important in the eyes of respondents even though they work in the high-developed sector and naturally, they received training already. Therefore, H7, H8, H9, and H10 are supported and H11 is not supported. Additionally, the environmental dimension, the factor of legislation and laws shows an insignificant relationship with intention to adopt ERM, $\beta = 0.078$, $p = 0.2554 < 0.05$. Thus, H12 is not supported. In contrast, policy and trust in new system have significant relationships with employees' intention to adopt ERMS, $\beta = 0.132$, $p = 0.0070 < 0.05$ and $\beta = 0.141$, $p = 0.0130 < 0.05$, respectively. Thus, H13and H14 are supported.

On the other hand, R^2 is used to initially evaluated structural model based on the analytical strength of the model or descriptive strength of the independent factors that could be measured by the calculation of R2 value of the dependent factors. The result of structural model analysis in this study indicates that the R^2 value for the intention to adopt ERMS is 0.733 which explains 73.3 % of the variance in the intention to adopt ERMS by the O&G sector employers can be described as the influence of the factors on their behavioral

intention. In summary, the majority of factors have influenced the employees' intention to adopt ERMS which related positively to the conceptual framework. The results of R^2 in the structural model show a very satisfactory effect of the independent factors on the intention to adopt ERMS.

6. DISCUSSION

This study identified and examined the factors that influence the adoption of ERMS in the O&G sector. It empirically verified the relationships among factors and the behavior intention of employees in O&G sector to adopt ERMS. Based on the findings obtained from the factor analysis, 11 of these factors have a significant and positive influence on employees' intention to adopt ERMS in the O&G sector and 2 factors have a negative influence on employees' intention to adopt ERMS. This finding is inconsistent with past studies on adoption of ERMS.

According to the statistical results presented in the previous section, it seems that the model developed for the current study is able to reach the acceptable level in the terms of portraying the extent of the influence of all the included factors: ERMS adoption intention R2 value equal 0.733 which means the 73.3% of variance can be influenced by the factors of this study. Furthermore, all of the criteria related to the measurement model, namely, model fitness, construct reliability and validity, were successfully met. The proposed UTAUT model was empirically tested through SEM-PLS application to ensure that it would be effective for carrying out the research and deriving accurate findings from the quantitative data. The findings of this study showed that 5 technological factors were the most significant factors in predicting the employees' intention to adopt an ERMS with highest an AVE, β, T values.

Table 2: Hypotheses testing

Hypothesis	Relationship			β Value	T-Value	P-Value	Result
T: Technological Dimension							
H1	AV	->	Intention to Adopt	0.029	0.553	0.290	Not Supported
H2	COM	->	Intention to Adopt	0.290	4.600	0.000	Supported
H3	EE	->	Intention to Adopt	0.141	3.936	0.000	Supported
H4	PE	->	Intention to Adopt	0.114	2.767	0.003	Supported
H5	SEC	->	Intention to Adopt	0.135	3.461	0.000	Supported
H6	SQ	->	Intention to Adopt	0.073	2.395	0.009	Supported
O: Organizational Dimension							
H7	ACC	->	Intention to Adopt	0.105	3.327	0.000	Supported
H8	CM	->	Intention to Adopt	0.099	3.050	0.001	Supported
H9	FC	->	Intention to Adopt	0.112	3.161	0.001	Supported
H10	SI	->	Intention to Adopt	0.071	2.131	0.017	Supported
H11	TRA	->	Intention to Adopt	0.029	0.833	0.203	Not Supported
E: Environmental Dimension							
H12	LEGL	->	Intention to Adopt	0.009	0.333	0.370	Not Supported
H13	PO	->	Intention to Adopt	0.169	4.280	0.000	Supported
H14	TRU	->	Intention to Adopt	0.143	2.830	0.002	Supported

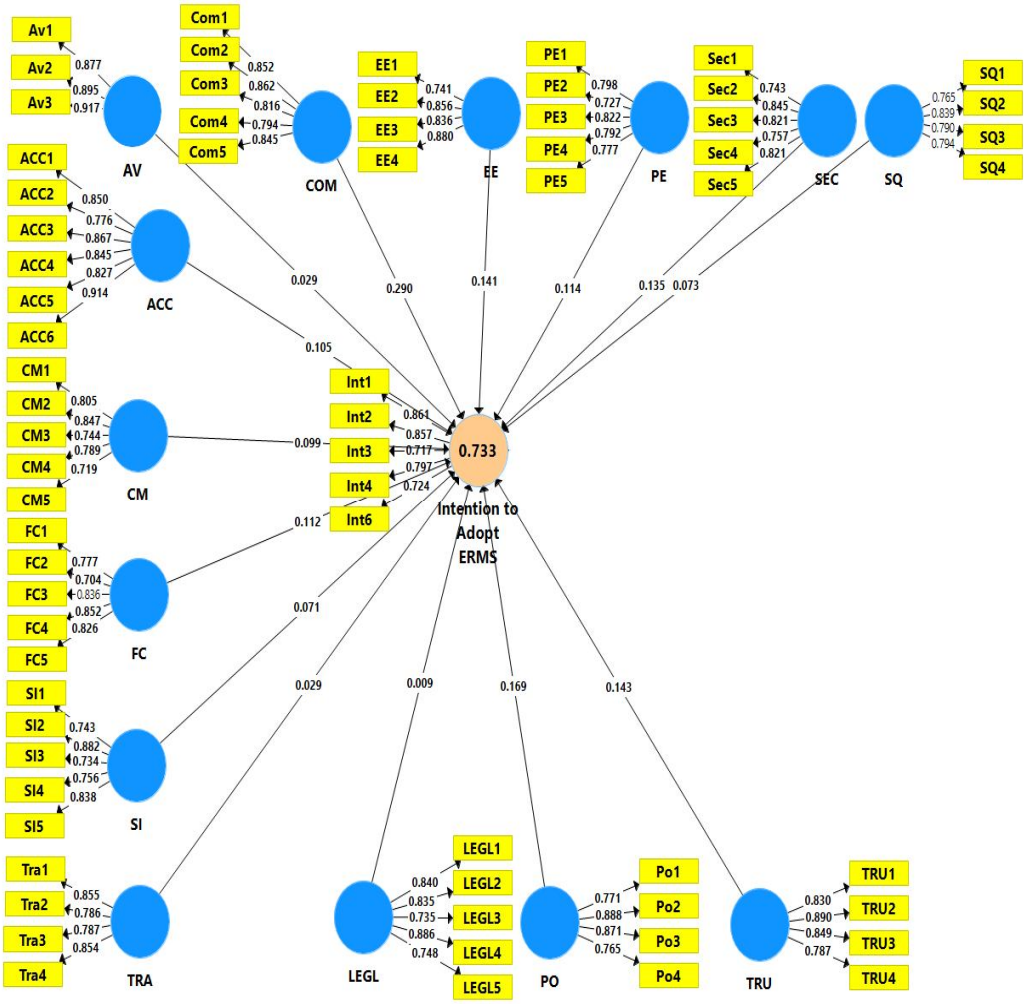

Figure 2 : ERMS adoption framework

These factors are considered a critical determinants influencing ERMS adoption in the context of O&G. Regardless of the relatives' advantages of ERMS, individuals in the O&G context have tended to adopt it because there is a need in their organizations for using ERMS to change the way they manage records. As a result, the availability factor has insignificantly influenced the intention of the employees to adopt ERMS among technological factors. One possible reason is that information security is one of the major established components in the ERMS services and is controlling the security of the daily transactions created in the context of O&G in addition to protecting records from unauthorized changes and access.

The findings of this study confirm that 4 out of 5 of the organizational factors were significantly influenced the intention to adopt ERMS. the most influential factor among these factors is Change management where is found to have the highest effect on ERMS adoption in the O&G context. This was also stated by prior studies that examined the effect of change management as between the critical factors influencing ERMS adoption. The findings of this study also confirmed that factors selected from UTAUT have a significant effect on the behavior intention of the individuals to adopt a new system which also aligned with several prior studies that tested the influencing factors on the behavior intention to adopt new technology. Among organizational factors training has no positive effect on the intention of respondents to adopt ERMS which indicates the employees have enough knowledge about the feature that ERMS would provide if adopted in their organizations. This result seems to be inconsistent with the previous studies of ERMS adoption in the private and public sectors such as health and higher education.

Consequently, the environmental factors were found to be the least significant factors in terms of predicting the employees' intention to adopt an ERMS. 2 factors among environmental factors have a significant influence on the adoption of ERMS. The policy in the O&G sector shows a good relationship with ERMS adoption which means that the policy at the main level influences the employees intentions to

adopt ERMS. This result sounds to be consistent with prior studies of the public context regarding ERMS adoption. The findings of this study also show that trust in new system has a positive relationship with ERMS adoption. The results revealed that the legislation and laws showed insignificant relationship between the intention of employees and the adoption of ERMS in the O&G sector. This result seems to be inconsistent with prior studies of the ERMS adoption. The potential clarification for this insignificant relationship may be due to the organizational structure and the limitation of Information system resources in the O&G sector and the sector also controlled by a government that can choose whether or not to adhere to the legislation and laws.

The results indicate that ERMS adoption could significantly enhanced by the employees' intention in the O&G sector and introduce a new benchmark for research into ERMS adoption. The symbiotic effects of the factors at various adoption phases and the difference in their respective influence on adoption of ERMS suggest that an ERMS adoption framework needs to use the theoretical foundation that is best able to capture the most important aspects associated with its adoption. Furthermore, identifying the TOE factors that influence the adoption of the ERMS in a new context such as the O&G industry provides better insights for ERMS initiators that may assist them in their operational planning to promote ERMS implementation in specific organizations. In particular, enhancing business continuity by adopting ERMS involved the examination of the level of relationship between the TOE factors and the intention of the employees. Moreover, the involvement of ERMS and O&G expert practitioners increases the robustness of the findings in terms of their consistency and makes them suitable for use in enhancing business continuity. Hence, when developing new ERMS initiatives, the outcomes of this study will be valuable to ERMS initiators in the O&G sector in Yemen as well as other developing countries. In addition, the findings of this study revealed that the technological, organizational and environmental factors and the UTAUT model have relative advantages and significant relationships in regards to the adoption of the ERMS by individuals in public and private sector organizations.

7. CONCLUSION

Ensuring the reliability of records is an essential requirement in a variety of different contexts where ERMS provides critical underlying infrastructure crucial to achieving the organization objectives. The adoption of an ERMS is considered to be a challenging process when it comes to supporting business continuity, and adoption is influenced by factors that can be classified as technological organizational, and environmental. This study examined 14 factors influence the adoption of ERMS in the O&G sector in Yemen. These factors were identified through a combination of a SLR and data collected through an e-mail survey of IT experts working in a largest Oil company in the Yemeni O&G sector. This added a better insight for ERMS motivators in their tactical arrangement to encourage ERMS employment among Oil organizations. This study sought to find a way to improve adoption and has accomplished its objective by constructing and validating a conceptual framework that was used to examine the effects of the 14 factors on the intention of employees in the Yemeni O&G sector to adopt an ERMS. It is evident from the results that the 11 factors out of 14 significantly influence ERMS adoption in the Yemeni O&G sector. It is therefore hoped that this study will motivate more researchers to conduct studies to examine the ERMS function in supporting business continuity and the information of a solid framework for the initiative. Furthermore, the results of this study might be useful for organizations that share a similar context to those in the O&G sector in other developing countries which have not successfully implemented ERMS initiatives.

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