第 48 卷第 6 期
2021 年 6 月

湖南大学学报（自然科学版）
Journal of Hunan University（Natural Sciences）

Vol. 48. No. 6.
June 2021

Open Access Article

FACTORS INFLUENCING ERP DIFFUSION IN SMES IN SAUDI ARABIA: AN EMPIRICAL STUDY

Saad Alzughaibi
School of Management, University Science Malaysia, Minden, 11800 Penang, Malaysia
Email: tvsaad50@gmail.com

DR. Nor Hasliza Saad
Senior Lecturer, Operations Management Section School of Management, University Science Malaysia, Minden, 11800 Penang, Malaysia
Email: norhasliza@usm.my

DR. Imran Mahmud
Department of Information Technology and Management, Daffodil international University
Email: imranmahmud@daffodilvarsity.edu.bd

Abstract: Enterprise Resource Planning (ERP) is a system that supports companies to amalgamate their operational areas like accounting, human resources, finance etc. It develops communications, productivity and transparency in companies. It also support in improvement of flow of information among various departments. Originally ERP was developed with best activities of big companies whereas SMEs has also started implementation of ERP to be in competition. Only developed countries are not implementing ERP system in their organizations, developing countries are adopting it like African, Asian or Gulf countries like Saudi Arabia. This study was conducted with the aim to explore the factors influencing ERP Diffusion in SMEs in Saudi Arabia**.** A sample of 297 respondents was surveyed and factor analysis and multiple regression was applied to get the results. The study concludes that the factors namely Competitive Environment Compatibility and Organizational culture Relative Advantages Support from Top Management Organization Intention had significant level of influence for ERP diffusion in SMEs in Saudi Arabia. Finding of the study reveals that diffusion of ERP in “Saudi Arabia” face many challenges due to the factors like culture, environment, government regulations, and resistance to change, no proper training provided to employees, lack of IR skills and knowledge etc.

Keywords: ERP System, implementation, Small and Medium Enterprises, multiple regression, Saudi Arabia

抽象的

Received: March 4, 2021 / Revised: April 4, 2021 / Accepted: May 8, 2021 / Published: June 13, 2021
About the authors: Saad Alzughaibi, School of Management, University Science Malaysia, Minden, 11800 Penang, Malaysia
Corresponding author Email: Saad Alzughaibi, Email: tvsaad50@gmail.com

企业资源规划 (ERP) 是一个支持公司合并其运营领域（如会计、人力资源、财务等）的系统。它可以提高公司的沟通、生产力和透明度。它还支持改善各部门之间的信息流动。最初 ERP 是随着大公司的最佳活动而开发的，而中小企业也开始实施 ERP 以进行竞争。只有发达国家没有在他们的组织中实施 ERP系统，发展中国家正在像非洲、亚洲或沙特阿拉伯等海湾国家一样采用它。本研究旨在探讨影响沙特阿拉伯中小企业 ERP 扩散的因素。对297名受访者进行了抽样调查，采用因子分析和多元回归得出结果。该研究得出的结论是，竞争环境兼容性和组织文化相对优势支持来自高层管理组织意图的因素对沙特阿拉伯中小企业的 ERP 传播具有显着影响。研究结果表明，由于文化、环境、政府法规、变革阻力、员工没有得到适当培训、缺乏 IR 技能和知识等因素，ERP 在“沙特阿拉伯”的传播面临许多挑战。

关键词：ERP系统，实施，中小企业，多元回归，沙特阿拉伯

Introduction

Saudi Arabia economies are emerging as largest in the world (G20) and are the biggest ICT market. Many organization of Saudi Arabia has adopted ERP in both private as well as in public sectors. Some has selected packaged software system like oracle while some choose local developed ERP like MADAR. Implementation of ERP is a serious challenge in “Saudi Arabia” as diffusion of technology is always a burning issue that is to be resolved. Saudi companies specially SMEs face lots of challenges in implementation of ERP such as social barriers, cultural barriers, insufficient IT laws, shortage of skills of IT user, less knowledge of IT and insecure infrastructure.

Distribution of information technology is a crucial process and includes various risks and issues in areas like Saudi Arabia. These issues are not only concerned to technology but also economic, political, cultural and social factors of the organization. ERP system can make the process of business automatic and make possible to change process. It provide the benefits like decrease of cycle time, reduce cost, enhancement in productivity, quality & customer service improvement etc. ERP system is a software package that includes different modules such as manufacturing, accounting, financial management, sales & distribution, production etc (Sayed, 2017).

Implementation of ERP system in “Small and Medium enterprises” most of the time leads to failure and the reason behind it can be organizational, individual or external. High costs, resist to change, risk to lose advantage of competition are some of the reason of failure of implementation in company’s (Samander, Siam, Basri, & Hamed, (2017). Most of the time technology innovation acceptance got cancelled even before completion that lead to serious concerns on organizations. Innovation cancellation can happen due to failure of technology, management, market testing or uncertainty of environment. This failure of implementation of ERP is not only limited to SMEs, large organizations also face huge losses due to failure. In developing countries like “Saudi Arabia”, failure rate is comparatively more due to issues related to culture, economy, fundamental infrastructure and lack of awareness of technology.

Substantial efforts are needed towards planning of ERP project as lack of proper and adequate

knowledge and skills can lead to resistance in change and fail to enjoy the benefits of ERP. It needs substantial changes that must be carefully managed. Interaction among many actors and factors like system, stakeholders, various modules, subsystem and functions may present many issues and hurdles that decrease the possibility of victorious execution of "ERP". This system can bring changes and benefits at different business levels and these can be radical or incremental or both. It can be consider as an innovation of technical, organizational, process or administrative (Aldossari and Mokhtar, 2018). Every type of ERP system needs particular set of resources and capabilities to attain the best goals from implementation.

ERP implementation includes four phases i.e. diffusion, adaptation, modification and reinvention. Adaptation and adoption are related to energetic changes by ongoing alignment among environment and innovation. Modification related to ability to alter innovations by learning and training and reinvention includes changes to innovative innovation that go well with users need and make sure sustainability. Factors that are important for victorious execution of "ERP" includes key objective to implement ERP in organization, main stakeholders, methods & strategies for implementation, learning importance and need of culture of organization that support the implementation and development of ERP. Implementation success depends on organization ability to perform a creative blending or combination of more and more enabler factors (Ahmad, & Cuenca, 2013).

Implementation is usually used to find the technical execution of ERP system or consider it as representation of the whole lifecycle of ERP. Transformation into innovation is not sure until some main factors are not fulfilled. Insecure infrastructure, hurdles of IT budgets, shortage of judiciary and policy requirement for IT, intrusion at the time of selection of vendor, lack of expertise to understand which module to implement, less or no involvement of employees in decisions regarding ERP system, resistance to change in rules and business processes, poor management during implementation, no adequate training provided to employees, no authority delegation to low and middle level employees, lack of IT skills among users, no authority with employees to execute business process, cultural and social barriers are the main factors that influence implementation of ERP in "Saudi Arabia".

Diffusion of ERP system can be a vital factor to make sure the victorious execution of ERP in a company. The companies must check their manpower and motivate them to use ERP system to achieve success in implementation. Organizations must apply different types of strategies like employees will not accept the ERP until they use it. Hence, organizations must provide educational programs and adequate training to make them learn to use ERP system appropriately.

Literature Review

AlBar and Hoque (2017) examined the factors that influence "cloud ERP" diffusion in "Saudi Arabia" by merging "Technology Organization Environment (TOE) framework" and "Diffusion of Innovation theory (DOI)". Result of the study observe that complexity, observability, competitive environment, regulatory environment, ICT infrastructure, support from Top management, ICT skill and relative advantage has noteworthy influence on cloud ERP diffusion and culture of organization,

compatability and trial ability had no noteworthy impact.

Abdollahzadegan, Hussin, Razak, Moshfegh and Amini (2013) examined that SMEs need to choose and evaluate the right ERP deployment model keeping in mind some critical success factors to get success in its adoption and smooth operations within the organization. Support from top management, size of the enterprise, technical readiness is some of the important critical success factors.

Al-Johani and Youssef (2013) found that Enterprise Resource Planning (ERP) is quite costly model that is difficult to execute in "Small and Medium Enterprises (SME)" due to restrictions of budget. Additionally, several issues are connected with present ERP systems like limited customization, backup hedge, solution integration, mutual synchronization of multi typed resources, technology updates, high upgrading cost and industry functionality. These challenges leads to implementation of ERP system as time consuming, painful, complex and need to make huge changes in ERP framework to make sure functionality and infrastructure of ERP system.

Kinuthia (2014) examined the factors i.e. organizational, technological and environmental factors that influence adoption of "Enterprise Resource Planning (ERP) systems". Cloud ERP systems compatibility, Cloud ERP systems relative advantage and Cloud ERP system environment security concern are technological factors, support from top management, readiness of organizations, size, formalization and centralization are organizational factors and vendor support & competitive pressure are external environmental factors.

Ahn and Ahn (2020) explored that factors like culture of organization, trialability, relative advantage, vendor lock-in and regulatory environment all had a noteworthy impact on adoption of ERP based on cloud whereas skills of information & communications technology, observability, complexity, customization and data security had no noteworthy impact.

Baslom and Tong (2018) found that capacities of businesses are successfully augmented by administering production network and making client interface in an enterprise. The main aim to use ERP is to increase performance of business and decrease in cost. As the dependence increases on supportive strategies of business and knowledge with learning, various new potential, and technical along with infrastructure is developed to help in making decision and smooth implementation of ERP across all units of business.

Alhammadi, Stanier and Eardley (2015) investigated factors that have impact on adoption on cloud ERP system on the basis of "diffusion of innovation theory (DOI)" and "Technology-organization-environment (TOE)" framework. Organization context, environmental context and technological context are some of the factors categorize by TOE and observability, trial ability, complexity, compatibility and relative advantage are the factors identified by DOI.

Alanezi (2018) examined that enterprises must analyzed the factors before taking decisions to adopt technologies of cloud computing. This study explored the factors that support in cloud implementation or create hindrance in adopting it in public and private enterprises of Saudi Arabia. These factors are divided into two categories i.e. category of negative impact with government policy, security and privacy, Loss of control and lack of knowledge while positive category includes flexibility, promote scalability,

improvement in IT performance and reduce expenses.

Alhirz and Sajeev (2015) examined the impact of individual cultural values on "Enterprise resource planning (ERP) system", acceptance by users. This influence is intervening by supposed resistance of user, ERP satisfaction and involvement. Size of organization, level of education and ER user are also observed as moderate factors. Total 230 users of ERP from various enterprises of Saudi Arabia take part in the survey conducted in this study.

Bazhair and Sandhu (2015) examined the connection between adoption of "Enterprise Resource Planning (ERP)" system in "Saudi Arabia" and the ways through which it can be accepted for long term. Acceptance of the system is a main challenge for most of organizations and they need to be sure that proper measures are taken that can lead to actual financial performance improvements. This feature must be taken care to make sure support from top management for long term for investment in novel information systems.

Egdair, Rajemi and Nadarajan (2015) explored the technological factors of adoption of ERP in developing countries by organization. This paper provides quick glimpse of developing countries that have familiar characteristics and different environment and those have accepted and implemented ERP. It was observed that investment in information technology will provide support to both intangible and tangible including influence of performance with the adoption of modern technology. Technology factors of organization features have optimistic reasonable influence on relationship between performance of organization and ERP system.

AlHirz and Sajeev (2013) examined the connection between behavioral and cultural magnitude and ERP adoption in Saudi Arabia. Data was collected from 230 employees of organizations of Saudi. Finding shows that influence of cultural feature is not so much significant whereas expectation from effort and supposed compatibility have noteworthy impact on ERP adoption.

Mutaher and Aljedaibi (2017) investigated the "Critical Success Factors (CSFs)" of implementation of ERP among companies of Saudi Arabia. Total of 18 factors were found to examine the influence on ERP projects performance of these factors. Technological factors like testing, IT infrastructure; individual factors like team implementation and organizational factors like communication have optimistic influence on successful ERP implementation. Business process management is also an important factor for above implementation.

Alkraiji, Jayawickrama, Olan, Asaduzzaman, Subasinghage and Gallage (2020) explored "Key Influencing Factors (KIFs)" with the base as national ERP vendors at the time of pre execution and "during ERP projects" implemenatation in Saudi Arabia. In depth interviews was done to find out KIFs and analyzed with multi criteria decision method. Factors explored were grouped into 4 main catagories i.e. project management, change management, IT capabilities and sponsors and leadership. Stakeholders managers and ERP capabilities are the most important factors of KIFs.

Hasan, Ebrahim, Mahmood & Rahman (2018) reviewed the literatures between 2011 to 2016 and explored the factors that have impact on "Enterprise Resource Planning System (ERP)". Articles selected were grouped into "ERP-S user factors", "ERP-S assimilation factors" and "critical success failure factors (CSFF)". This

study provides deep clarity to both industrial and academicians related to ERP success factors.

Alsayat and Alenezi (2018) examined the factors that lead to failure of "Enterprise Resource Planning (ERP)" execution in "Saudi Arabia". Study found lack of commitment from senior management, unsuccessful communication with users, fail in getting support from users and unsuccessful change management are some of the factors that lead to failure of implementation of ERP.

Bazhair and Sandhu (2014) examined perceived benefits; training and education of users manipulate the ERP system adoption in the enterprises. Data was collected from companies listed on Saudi Arabian exchange. Finding shows that employees are more comfortable to have proper programs on training & education and benefits related with ERP Systems must be shared to motivate employees for ERP system adoption. Information system of management must be encouraged with the use of proper incorporated ERP system.

Valdebenito and Quelopana (2019) found "Enterprise Resource Planning (ERP) system" under "Software as a Service (SaaS)" model is set up as feasible solution for "Small and Medium Enterprises (SMEs)". SMEs get great opportunities as it obtain ERP system benefits without investment and maintenance cost related with these models. Finding shows organizational readiness, configurability and customization, vendor qualities, support from top management, perceived value, security concerns and competitive pressure are some of the factors influencing ERP system.

Mufeti (2017) examined that there is a difference in operation of organizations and companies from different areas experience hurdles in ERP implementation. This study examined the acceptance of implementation of ERP in developing countries with focus on risks and challenges they face. Finding of the study shows the main challenges are unreliable vendors, misfits between companies' business processes and ERP system's built-in processes, lack of skilled human resources.

Aarabi, Saman and Zakuan (2012) explored difference between small & medium enterprises and large enterprises "Critical Success Factors (CSFs)" of "Enterprise Resource Planning (ERP)" system in developing countries. This research used seventeen studies to evaluate CSFs of ERP in both type of companies. By finding differences among large and SMEs critical success factors, stakeholders can develop better, suitable and useful models for implementation to enhance implementation of ERP irrespective of sizes.

Bekhet and Sofian (2018) found that "Enterprise Resource Planning (ERP)" system is a complicated project of information technology that amalgamates wide operations of organization. Surveys were done a lot in earlier surveys and describe perceptions regarding factors that are important for success of implementation of ERP. This study concentrated on private and public enterprises of Saudi Arabia in terms of factors influencing ERP system. Finding shows that it can be added to Technological element of organizational, technological and Environmental theory.

Tongsuksai, Mathrani and Taskin (2019) examined that in present scenario, Cloud ERP has taken over traditional ERP due to ease of access of remote information in real time with payback of scalability, flexibility and cost saving. These systems are very much helpful for SMEs as they have mostly limited resources. Factors like previous IT experience, uncertainty,

support from top management are some of the factors that influence Cloud ERP as well as traditional ERP system.

ElFarmawi (2019) investigated the hurdles in implementation of ERO system in Saudi Arabia's medium size businesses and its influence on profitability, productivity and business process engineering. 75 companies are selected to collect the data. Finding shows that ERP system includes high implementation cost due to financial issues and system errors. For successful implementation of ERP, proper one-to-one relationships, communications, shared understanding, selection of correct consultants and correct manpower for every task and compatibility are CSFs.

Saleh (2016) examined the determinants of implementation of victorious ERP in "Saudi Arabia". Consultant competence and Vendor support are the factors that are more influential for implementation of ERP. This study suggested to avoid these factors that can lead to failure of implementation of ERP. Enterprises will definitely face challenges when shift to applications on cloud but after analyzing the Critical Success Factors, organizations can overcome these hurdles.

Alhajaj (2018) explored that implementation of ERP brings considerable changes in norms of business organizations, people, processes and culture and hence there exist numerous hurdles in implementation of ERP.

Objective of the study

1. To find the factors that influences the ERP diffusion in SMEs in Saudi Arabia.
2. To find the overall level of influence of ERP diffusion in SMEs in Saudi Arabia

Research Framework and Hypotheses:

The major focus of the study is to find that which factors contribute to the ERP adoption in the SMEs in Saudi Arabia. To explore the same, a descriptive research approach has been adopted and based on the thorough literature review the following theoretical framework has been proposed:

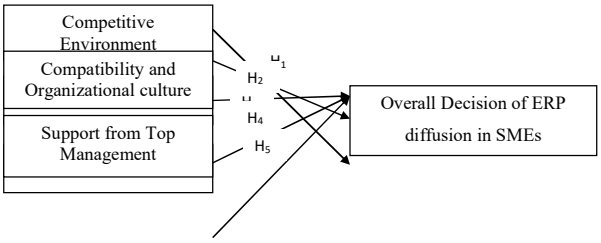

Figure 1 Theoretical Framework of the Study

Research Methodology

The study was conducted to find the factors that influence the ERP adoption in SMEs in Saudi Arabia and their significance and effectiveness. A sample of 297 people that were associated with different SMEs was surveyed through a structures questionnaire. The study is empirical in nature and the primary data was collected through random sampling. Factor analysis and multiple regressions were applied to analyze and get the appropriate results.

Findings of the study

Factor analysis

Table: 1 "KMO and Bartlett's Test of Sphericity" and "Measure of Sampling Adequacy"

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.858
Bartlett's Test of Sphericity	Approx. Chi-Square	3071.755
	df	136
	Sig.	.000

KMO is 0.858 in the Table 1, which means that the sample size for Factor Analysis is adequate and the "Barlett's Test of Sphericity" is also significant, which means that there is sufficient and there is a sufficient relation among variables to go ahead for Factor Analysis.

The "principal component analysis" method was applied to extract the factors and it was found that 17 variables form f Factors, based on the Eignvalues (>1). The factors explained the variance of 20.321%, 16.433%, 15.448%, 12.091%, and 11.193% respectively. The total variance explained is 75.486%, which is sufficient for the requirements of Factor Analysis (Table 2).

Table 2: Variance Extracted "Exploratory Factor Analysis" (EFA)

Component	Initial Eigen values			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.276	36.920	36.920	3.454	**20.321**	20.321
2	1.865	10.972	47.892	2.794	**16.433**	36.754
3	1.791	10.537	58.430	2.626	**15.448**	52.202
4	1.558	9.162	67.592	2.056	**12.091**	64.293
5	1.342	7.894	75.486	1.903	**11.193**	75.486
6	.725	4.267	79.753			
7	.533	3.138	82.891			
8	.508	2.991	85.882			
9	.458	2.692	88.574			
10	.390	2.293	90.866			
11	.327	1.926	92.792			
12	.301	1.772	94.565			
13	.257	1.514	96.079			
14	.217	1.278	97.357			
15	.205	1.208	98.565			
16	.149	.877	99.442			
17	.095	.558	100.000			

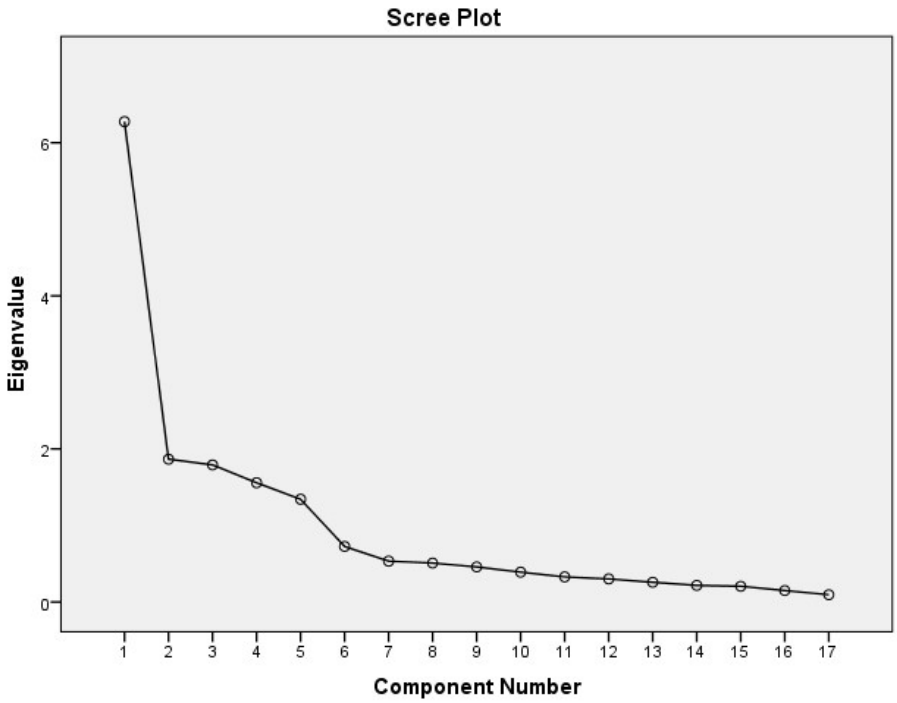

Figure 2: Scree Plot

Figure 2 is the graphical presentation of the Eigenvalues obtained from the Table "Total Variance Explained". The figure shows an elbow at 5 components. Hence portrays that total 5 Factors have been extracted.

Table: 3 Factors, Factor Loading, and Reliability

SL. No.	Factor Names	Factor Loadings	Factor Reliability
1.	**Competitive Environment**		**.939**
1.	Competitive environment makes a pressure on SME to for Enterprise Resource Planning (ERP) adoption	.864	
2.	Competitive environment creates a strategic necessity for the SMEs for ERP diffusion	.863	
3.	SMEs need to adopt ERP so as to retain their customers	.860	
4.	SMEs are forced to adopt ERP due to fear of losing their market shares	.799	
2.	**Compatibility and Organizational culture**		**.842**
1.	My organization is compatible with ERP system	.842	
2.	Organization is responsive and always ready for changes	.806	
3.	ERP system is compatible with the work style of my organization	.766	

4.	Organization and its culture shows high level of agreement	.743	
3.	**Relative Advantages**		**.919**
1.	ERP enhances the efficiency of business	.898	
2.	The performance of business is improved due to ERP	.893	
3.	ERP provides the information timely ad helps in making the decisions	.864	
4.	**Support from Top Management**		**.779**
1.	Top managemets supports the adoption of ERP enthisistically	.886	
2.	Top management provide required resources for the ERP adoption	.810	
3.	Management encourages and promotes the adoption of ERP	.658	
5.	**Organization Intention**		**.691**
1.	We have high intention to adopt ERP system	.796	
2.	My organization is intend to adopt and use the system	.771	
3.	We had planned to adopt work according to ERP system	.759	

Development of the Factors

Factor 1 – "Competitive Environment" (Variance =20.321, Reliability =0.939): Competitive environment makes a pressure on SME to for Enterprise Resource Planning (ERP) diffusion, Competitive environment creates a strategic necessity for the SMEs for ERP diffusion, SMEs need to adopt ERP so as to retain their customers, and SMEs are forced to adopt ERP due to fear of losing their market shares.

Factor 2 – "Compatibility and Organizational culture" (Variance =16.433, Reliability = 0.842): My organization is compatible with ERP system, Organization is responsive and always ready for changes, ERP system is compatible with the work style of my organization, and Organization and its culture shows high level of agreement.

Factor 3 – "Relative Advantages" (Variance =15.448, Reliability =0.919): ERP enhances the efficiency of business, the performance of business is improved due to ERP, and ERP provides the information timely ad helps in making the decisions.

Factor 4 - "Support from Top Management" (Variance =12.091, Reliability =0.779): Top managemets supports the adoption of ERP enthisistically, Top management provide required resources for the ERP adoption, Management encourages and promotes the adoption of ERP.

Factor 5 - "Organization Intention" (Variance =11.193, Reliability =0.691): We have high intention to adopt ERP system, My organization is intend to adopt and use the system, and We had planned to adopt work according to ERP system.

Table: 4 Reliability Statistics

Cronbach's Alpha	N of Items
.878	17

The reliability of the factors was computed with the help of the "Cronbach's Alpha". The value of reliability for 5 constructs is 0.878. The criteria minimum value of "Cronbach's" Alpha (>0.7) was fulfilled.

Multiple Regression Analysis:

Table: 4 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.926[a]	.858	.855	.30397
a. Predictors: (Constant), Competitive Environment Compatibility and Organizational culture Relative Advantages Support from Top Management Organization Intention				

In this study, to measure the impact of all 5 constructs – Competitive Environment Compatibility and Organizational culture Relative Advantages Support from Top Management Organization Intention on "Overall level of influence of ERP adoption in SMEs", multiple regressions was applied. The model explained 85% of the variance (R Square = .858).

Table: 5 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162.021	5	32.404	350.696	.000[b]
	Residual	26.888	291	.092		
	Total	188.909	296			
a. Dependent Variable: Overall level of influence on ERP diffusion in SMEs						
b. Predictors: (Constant), Competitive Environment Compatibility and Organizational culture Relative Advantages Support from Top Management Organization Intention						

Table 5 (ANOVA) shows that whether the IDVs have significant impact on the DVs. The significance value is less than 0.05 (0.000), which reflects that one of more of the IDVs significantly influences the DV.

Table: 6 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.939	.018		223.343	.000
Competitive Environment	.690	.018	.864	39.069	.000
Compatibility and Organizational culture	.160	.018	.200	9.029	.000
Relative Advantages	.166	.018	.208	9.404	.000
Support from Top Management	.099	.018	.123	5.580	.000
Organization Intention	.090	.018	.113	5.100	.000
Dependent Variable: ***Overall Decision of ERP diffusion in SMEs***					

Open Access Article

Table 6 shows that all the 5 variables namely Competitive Environment Compatibility and Organizational culture Relative Advantages Support from Top Management Organization Intention has significantly influenced the overall decision for ERP adoption in SMEs.

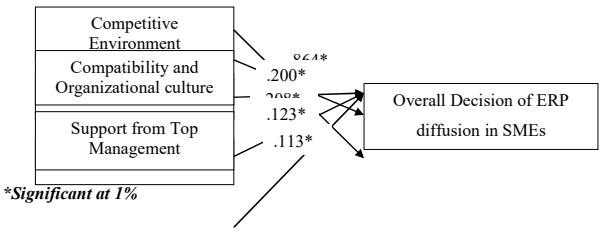

Figure 3 Results of Hypothesis Testing

Conclusion

ERP system does not provide benefits to companies directly and organizations that are looking for ERP system benefits need to take care internal hurdles, find solutions to challenges within a company along with keep updating from current to future trends. With clear idea of company's internal challenges like profiles of companies, objective to implement ERP and factors that will have impact on successful execution of ERP system, this system can be more efficient and effective. Other factors like availability of human capital, combination of data used that influences the companies and their operations. If challenges and limitations can be identified then companies will be able to strike the ERP system capabilities and benefits.

Saudi Arabia is a developing country and organizations in this region face lots of challenges mainly in case of SMEs. Organization culture, nation culture, lack of IT skills and knowledge, less updated information on ERP system, resistance to change, costly ERP system, Government regulations etc. are some of the factors that pressure the implementation and adoption of ERP system in this region. Saudi Arabia is adopting many technologies along with ERP system and trying to modify and resolve the issues that lead to difficult and failure of implementation of ERP in their region.

The study concludes that there are mainly five factors namely Competitive Environment Compatibility and Organizational culture Relative Advantages Support from Top Management Organization Intention that influences the ERP diffusion in SMEs in Saudi Arabia and it is also found that they had significantly influenced the ERP diffusion in SMEs in Saudi Arabia.

References

1. AlBar, A.M. and Hoque, M.R. (2017). Factors affecting cloud ERP adoption in Saudi Arabia: An empirical study. *Information Development, 35(1) 150–164*. DOI: 10.1177/0266666917735677
2. Abdollahzadegan, A.; Hussin, C.; Razak, A.; Moshfegh, G.M. and Amini, M. (2013). The organizational critical success factors for adopting cloud computing in SMEs. *Journal of Information Systems Research and Innovation (JISRI) 4(1):67–74.* https://www.academia.edu/8068016/The_Organizational_Critical_Success_Factors_for_Adopting_Cloud_Computing_in_SMEs
3. Al-Johani, A.A. and Youssef, A.E. (2013). A framework for ERP systems in

Received: March 4, 2021 / Revised: April 4, 2021 / Accepted: May 8, 2021 / Published: June 13, 2021
About the authors: Saad Alzughaibi, School of Management, University Science Malaysia, Minden, 11800 Penang, Malaysia
Corresponding author Email: Saad Alzughaibi, Email: tvsaad50@gmail.com

SME based on cloud computing technology. *International Journal on Cloud Computing: Services and Architecture (IJCCSA) 3(3), 1-14.* http://airccse.org/journal/ijccsa/papers/3313ijccsa01.pdf

4. Kinuthia, J.N. (2014). Technological, Organizational, and Environmental Factors Affecting the Adoption of Cloud Enterprise Resource Planning (ERP) Systems. Retrieved from https://commons.emich.edu/cgi/viewcontent.cgi?article=2081&context=theses
5. Ahn, B. and Ahn, H. (2020). Factors Affecting Intention to Adopt Cloud-Based ERP from a Comprehensive Approach. Sustainability, 12, 1-26. doi:10.3390/su12166426.
6. Baslom, M.M.M. and Tong, S. (2018). Impact of Strategic Knowledge Management (KM) Practices on ERP Systems in select Manufacturing Organizations in Saudi Arabia. *International Journal of Economics, Commerce and Management, 6(8), 591-595.* https://1library.net/document/z3gdx99y-impact-strategic-knowledge-management-practices-systems-manufacturing-organizations.html
7. Alhammadi, A, Stanier, C. and Eardley, A. (2015). *The Determinants of Cloud Computing Adoption in Saudi Arabia.* In: 2nd International Conference on Computer Science and Engineering, 55–67. DOI : 10.5121/csit.2015.51406
8. Alanezi, M.A. (2018). Factors Influencing Cloud Computing Adoption in Saudi Arabia's Private and Public Organizations: A Qualitative Evaluation. International Journal of Advanced Computer Science and Applications, 9(4), 121-120. https://pdfs.semanticscholar.org/7e74/a7b185238519a04c4eead9e7be863ad8e359.pdf
9. Alhirz, H. and Sajeev, A. S. M. (2015). Do cultural dimensions differentiate ERP acceptance? A study in the context of Saudi Arabia. *Information Technology & People*, 28 (1), 163-194. https://doi.org/10.1108/ITP-07-2013-0127
10. Bazhair, A. and Sandhu, K. (2015). Factors Influencing The Acceptance Of Enterprise Resource Planning System (ERP) And Financial Performance Of Saudi Arabia Listed Companies: Multivariate Data Analysis Using Structural Equation Modeling (SEM). International Journal of Business and Management Review, 3(4), 93- 118.
11. Egdair, I., Rajemi, F.M. and Nadarajan, S. (2015). Technology Factors, ERP System and Organization Performance in Developing Countries. International Journal of Supply Chain Management, 4(4), 82-89.
12. AlHirz, H. and Sajeev, A.S.M. (2013). Factors influencing symbolic adoption of ERP systems in the Middle-East. Proceedings of the First International Conference on Enterprise Systems: ES 2013
13. Mutaher, A. and Aljedaibi, W.H. (2017). An Empirical Study of Critical Success Factors for ERP Software Systems Implementations in Saudi Arabia. JKAU: Comp. IT. Sci., 6 (1), 59 – 74.

https://www.kau.edu.sa/Files/320/Researches/71330_44359.pdf

14. Alkraiji, A.I.; Jayawickrama, U.; Olan, F.; Asaduzzaman, M.; Subasinghage, M. and Gallage, S. (2020). The perspective of national ERP vendors in achieving ERP project success in government organisations: a case of Saudi Arabia. *Enterprise Information Systems*, https://doi.org/10.1080/17517575.2020.1845811
15. Hasan, M., Ebrahim, Z., Mahmood, W., & Rahman, M. (2018). Factors Influencing Enterprise Resource Planning System: A Review. *Journal of Advanced Manufacturing Technology (JAMT)*, *12*(1), 247-258. Retrieved from https://jamt.utem.edu.my/jamt/article/view/3939
16. Alsayat, M. and Alenezi, M. (2018). ERP Implementation Failures in Saudi Arabia: Key Findings. *International Business Management, 12 (1), 10-22.* https://www.researchgate.net/profile/Mamdouh-Alenezi-2/publication/324703883_ERP_Implementation_Failures_in_Saudi_Arabia_Key_Findings/links/5ade01b7aca272fdaf8718f9/ERP-Implementation-Failures-in-Saudi-Arabia-Key-Findings.pdf
17. Bazhair, A. and Sandhu, K. (2014). Factor Performance for ERP Systems Acceptance a Descriptive Statistical Analysis from Saudi Arabia Companies. *International Journal of Managerial Studies and Research, 2(9), 14-22.* https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.682.9581&rep=rep1&type=pdf
18. Valdebenito, J. and Quelopana, A. (2019). Conceptual Model for Software as a Service (SaaS) Enterprise Resource Planning (ERP) Systems Adoption in Small and Medium Sized Enterprises (SMEs) Using the Technology-Organization-Environment (T-O-E) Framework. International Conference on Information Technology & Systems, 143-152. https://link.springer.com/chapter/10.1007/978-3-030-11890-7_15
19. Mufeti, V.H. (2017). Current prospects and challenges of enterprise resource planning (ERP) adoption in developing countries. *International Science and Technology Journal of Namibia, 094 - 106.* Retrieved from http://journals.unam.edu.na/index.php/ISTJN/article/view/1210
20. Aarabi, M.; Saman, M.Z.M. and Zakuan, N. (2012). A comparative study on Critical Success factors (CSFS) of ERP system implementation among SMEs and Large firms in developing countries. International Journal of Advancements in Computing Technology. https://www.semanticscholar.org/paper/A-comparative-study-on-critical-success-factors-of-Aarabi-Saman/0bea781c7d60afe2cabbc10e3f2502f8b88c3bfa?p2df
21. Bekhet, M. and Sofian, S. (2018). Technological Critical Success Factor In Erp Implementation Projects In Public And Private Sector In Saudi Arabia. *International Journal of Research – Granthaalayah, 6(7).* https://www.granthaalayahpublication.or

g/journals/index.php/granthaalayah/article/view/IJRG18_A08_1577

22. Tongsuksai, S.; Mathrani, S. and Taskin, N. (2019). A Framework to Assess the Critical Success Factors for Cloud Enterprise Resource Planning Adoption in Small and Medium-sized Enterprises. . *CONF-IRM 2019 Proceedings. 7.* https://aisel.aisnet.org/confirm2019/7
23. *ElFarmawi,W. (2019).* Challenges Affecting the Implementation of Enterprise Resource Planning (ERP). *Journal of Systems Integration, 35-43.* http://si-journal.org/index.php/JSI/article/viewFile/378/181178240
24. Saleh , M. (2016). Implementing enterprise resource planning in Saudi Arabia. *Journal of Global Business Advancement, 9(3).* https://doi.org/10.1504/JGBA.2016.076720
25. Alhajaj, K.M. (2018). Exploring the Implementation of ERP as a Complex Innovation: the case of Kingdom of Saudi Arabia. Retrieved from https://uwe-repository.worktribe.com/preview/858449/Khaled_Alhajaj_PhD_Thesis_Final_Approved_Version.pdf
26. Sayed, E.M.A.M. (2017). An Analysis of Critical Failure and Success Factors for ERP Systems Implementation in Large Organizations (Case Study in Saudi Arabia Environment). *International Journal of Scientific Engineering and Research, 6(9), 103 114.* https://www.ijser.in/archives/v6i9/IJSER18261.pdf
27. Aldossari, S. and Mokhtar, U. A. (2018). A Model to Adopt Enterprise Resource Planning (ERP) and Business Intelligence (BI) Among Saudi SMEs. *International Journal of Innovation, 8(2), 305-347.* https://doi.org/10.5585/iji.v8i2.17395.
28. Samander, B. A., Siam, M. R., Basri, W. S., & Hamed, A. A. (2017). ERP Acceptance in Airline Industry of Saudi Arabia with Mediating Effect of Job Security. International Journal, 11(2), 226-240.
29. Ahmad, M. M., & Cuenca, R. P. (2013). Critical success factors for ERP implementation in SMEs. *Robotics and computer-integrated manufacturing, 29(3), 104-111.*
30. Epizitone, A. and Olugbara,O.O. (2019). CRITICAL SUCCESS FACTORS FOR ERP SYSTEM IMPLEMENTATION TO SUPPORT FINANCIAL FUNCTIONS. Academy of Accounting and Financial Studies Journal, 23(6), 1-11. https://www.abacademies.org/articles/Critical-Success-Factors-for-ERP-System-Implementation-1528-2635-23-6-487.pdf