Enterprise Resource Planning System and Productivity of Main Stream Oil and Gas Companies in Rivers State

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ABSTRACT

This study focused on enterprise resource planning system and productivity of mainland oil and gas companies in Rivers State of; exclusively to establish the influence of enterprise resource planning system on productivity. The study adopts the positivist ontological realism philosophy, a survey methodology, quantitative technique, and questionnaire and a data collection technique. The population of the study is drawn from the eleven (11) mainstream oil and gas companies quoted on the Nigerian Stock Exchange. The population is also understood as the sample size, since it is less than 30. A census sampling method was therefore adopted for the study, and entire 11 listed mainstream oil and gas companies on the Nigerian stock exchange were accepted as sample size of the study. The simple random sampling technique was adopted for the study however; the number of participants in the study was fifty-five (55), on a sample frame of five (5) respondents per firm. The primary data collection method was a structured questionnaireof which 55 copies of it were distributed to the respondents. Of the 55 copies of questionnaire that were distributed to the respondents, 53 copies were returned useful, yielding a response rate of 93 percent. Hence, these 53 copies were used for the analysis. Data was analyzed using quantitative techniques, and the findings presented in the frequency distribution tables and charts while, the hypotheses were tested by means of simple regressions analysis to investigate the effect of enterprise resource planning system on productivity. The results disclosed that enterprise resource planning has a moderate positive and significant influence on total factor productivity and social productivity. Based on the findings, the study concludes that enterprise resource system significantly influence productivity of main land oil and gas companies in Rivers State, and recommends that, mainland oil and gas companies should maintain a fully computerized enterprise resource system to ensure minimization of operational costsandhence increase in the productivity of their companies.

Key Words: Enterprise resource planning system, Productivity, Social productivity, Total factor productivity

INTRODUCTION

In the era of digitalization and dynamic business environment, firms experience various challenges such as fierce competition, outstanding market power, incessant information technology (IT) improvements, and the pertinentground-breaking usage of that technology in order to gain a competitive advantage. Liem *et al*. (2019) observed that, the various challenges a companyexperienceshinder their ability to innovate in terms of absence of advantaged information from experts, human resources, and technology with special reference to developing countries. These challenges impinge on the way that organizations are managed.Increasing competition in the international market and swift improvements in information technology (IT) have forced many organizations to adopt revolutionary technological systems to stay competitive (Amalnik & Ravasan, 2018), one of which is the Enterprise Resource Planning (ERP) systems, whichorganizations rely on for improving their services, products and business processes.

Enterprise resource planning system facilitates organizations in facing rapid technological transformations to tackle changeable expectations via the provision of timely, exact, and interconnected information that enhances organizational decision making (Rouhani&Mehri, 2018).Organizations continuouslyacquire the innovative abilities to erect, integrate, and reconfigure internal competencies in the ever-shifting environment of contemporary times to remain in business (Rodrigues, Ruivo& Oliveira, 2020).Enterprise resource planning is a standardized software package embracing a number of modules for explicit functions(Ekren *et al.,* 2019) necessary for organizations to build and enhance their competencies to gain the requisite competitive edge by leveraging on the system towards fulfilling the needs of customers and competing with other industry players, improving customer service, reducing costs, and lessening cycle time (Rodrigues *et al.,* 2020).

Widespread studies concerning enterprise resource planning had mostly focused on planning andmanaging the organizational resources in anresourceful, productive and profitable manner to guarantee anintegrated business process (Chatterjee *et al.,* 2019; Almajali, Masa'deh, &Tarhini, 2016).Further, studies that have concentrated on and organizational performance amassed. For example, Ikegwuru and Gabriel (2022) investigated theimpact of Cloud ERP adoption on organizational effectiveness in the online retail industry, Rabeeya *et al.* (2021)focusedon the effect of enterprise resource planning and entrepreneurial orientation on organizational performance, and also examines the mediating role of organizational excellence in the relationship between enterprise resource planning and entrepreneurial orientation and organizational performance of manufacturing SMEs in Pakistan, AlMuhayfith and Shaiti (2020) examined the impact of ERP adoption on financial and non-financial performance of Saudi SMEs, Najm,*et al.* (2018) examined the impact of change management dimensions on ERP system outcomes

The results of these studies show that enterprise resource planning hadpositive impact on the performance of companies. However, to the best of the knowledge of the researcher, none of these studies have been done in Rivers State or in mainland oil and gas companies. Therefore, this study investigatesthe effect of enterprise resource planning system on productivity of mainland oil and gas companies in Rivers State.

LITERATURE REVIEW AND HYPOTHESES

2.1 Theoretical Framework

This study is anchored on diffusion of innovation theory.

Diffusion of Innovation Theory

The innovation diffusion theory was proposed by Rogers in 1958 following his doctoral studies in the diffusion of agricultural innovations (Rogers, 1957) at Iowa State University, US, is formallyexpressed as the "Paradigm of Innovation Decision Process" (Rogers, 2003). The theory was popularized in his book *Diffusion of Innovations*, first published in 1962.Diffusion of innovations theory variously recognized as the Classical Innovation Theory (Hung *et al.,* 2010); the Diffusion of Innovations (Kelleher & Sweetser, 2012); and the Diffusion Theory (Kelleher & Sweetser, 2012), seeks to explain how, why, and at what rate novel ideas and technology spread. Rogers disputes that diffusion is the course by which modernism is communicated over time among the members in a social system. Diffusion of innovations theory has different origins and cut acrossseveral disciplines. Agag and El-Masry's (2016) advocates of diffusion of innovation (DOI) theory, defined it as a process employed to transmit an innovation and spread its materialization among members of a social background through some particular channels over a precise period of time (Sheikh *et al.,* 2017). An innovation proposed for adoption is labeled as an art, idea, practice or an object that is perceived as novel by a person. That is, it may be merely supposed as novel by a neophyte.

Rogers proposes that five major elements influence the multiplicity of a novel idea: the innovation itself, adopters, communication channels, time, and a social system. This process relies heavily on social capital. The innovation must be extensively adopted in order to self-sustain. Within the rate of adoption, there is a point at which an innovation arrives at critical mass. The groupings of adopters are innovators, early adopters, early majority, late majority, and laggards (Rogers, 1962). Diffusion becomes visible in different ways and is extremely subject to the type of adopters and innovation-decision process. The standard for the adopter categorization is innovativeness, described as the extent to which a person adopts a novel idea.

Rogers specifies that a person's inclination to adopt or use any innovation such as ICT depends on the characteristics of that individual.Such individual characteristics comprise the degree to which that individualintermingles with the change agents of relevance to the innovation in question; the intensity of training of relevance to the innovation the person has received.Therefore, diffusion of innovation theory was used in this study to empirically examine the it examines the success factor of enterprise resource planning adoption and productivity to deliver innovation to the mainstream oil and gas companies in Rivers.

The Concept of Enterprise Resource Planning System

ERP has evolved from manufacturing requirements planning (MRP) and is described as an integrated information system that supports business processes and functions. The Enterprise Resource Planning system is a system that harmonizes all departments in an organization in a single database, and consequently, decreases the operational cost, shrinks operational time, enhances quality of services and boosts decision-making (Hwang & Min, 2015). Enterprise

Resource Planning system are developed to deal with the problem of data fragmentation in organizations and to merge all the data that surge in the organization (Ahmad & Cuenca, 2013). Enterprise Resource Planning system consists of enhancing the productivity, improving the quality, improving customer services, sustaining business growth, and sustaining resources management (Shang & Seddon, 2003).

The literature has highlighted the importance of ERP system, mostly on the role in ERP as software to assimilate and power all management levels in an organization through an integrated system (Almajali *et al.,* 2016; Aremu *et al.,* 2018). The ERP system also has the ability of linking up top-, middle- and low-level management (Altamony *et al.,* 2016), in this manner synchronizing all management levels along with their departments (such as human resource, production, finance, quality control, logistics and marketing) through an integrated system (Almajali *et al.,* 2016). Enterprise resource planning system is a procedure of managing business system through an integrated system, typically in form of software. Currently, the growth of technology has hoist competitiveness among various businesses, leveraging information system packages to integrate business processes contained by functional precincts in all business organizations.

The Concept of Productivity
Productivity implies quality as well as quantity of output (AmusanLekan *et al.,* 2013). Productivity is the output per man-hour in an organization (Hanley, 2014). Productivity has been regarded is the optimal utilization of resources and effectiveness in achievement of targets, goals, or levels of performance (Heutel, 2012). Productivity includes rate of absenteeism (Mitchell *et al.,* 2013). Productivity envelops measures of customer satisfaction; employee loyalty, morale, and job satisfaction (Abraham, 2012). Productivity is preordained for efficiency and effectiveness of operations (Karlaftis, 2004).

Productivity is usually defined as a ratio of a volume measure of output to a volume measure of input used. The importance of productivity has been well recognized in literature (Alsughayir, 2013; Belay *et al.,* 2011; Crouzet *et al.,* 2014). Productivity is the only relevant measure of competitiveness (Klaus, Sala-Martin &Brende, 2014). Productivity thus, encompasses the whole thing that concerns an organization, making it to be a multidimensional term and an engine of growth. This study in line with Onchoke and Wanyoike (2016) adopts total factor productivity and social productivity as the measures of productivity.

Total Factor Productivity

Total factor productivity (TFP) or multi-factor productivity is a metric that relates more than one input to an output. Total factor productivity is interpreted as the volume of production per unit of a combination of factors of production. An example of TFP is the ratio of output to a combined measure of labour and capital inputs. Total factor productivity growth can be employed to appraise changes in the efficacy of the production process stimulated by technological progress. The change in efficiency is one of the determinants of economic growth. Total Factor Productivity is that fraction of output not explained by the amount of inputs employed in production. Therefore, total factor productivity level is determined by how efficiently and intensely the inputs are consumed in production. Total factor productivityTotal factor productivity as the difference between the

growth rate of the real output and the growth rate of factor inputs, plays a vital role on economic fluctuations, economic growth and cross-country per capita income differences.

Social Productivity
Barnett (2004) depicts social productivity as an outcome, which can be supplied from a social activity. To this end, the concept of social productivity should be measured by the factors that refer to social facets of productivity. Social productivity becomes visible by several social factors where its relationship with the social capital isexamined. Yilmaman and O'Connor (2012) portray social productivity as an intangible asset employed to measure the effects of social factors on the socioeconomic landscape of a software organization. Social productivity refers to the denominator and numerator of the productivity level, ratio inputs and outputs ahead of those employed in the tapered economic definition of productivity, where inputs and outputs are classified as simply those directly related to production. From the perspective of the worker, social productivity metric may be an improved representation of the output produced per hour based on the total number of hours that the worker uses up at work and going back and forth.

Empirical Review

Ikegwuru and Gabriel (2022) investigate the impact of Cloud ERP adoption on organizational effectiveness of online retail sector on a target population of 10 online retail companies in Rivers State. Data were gathered from 30 management staff of the online retail firms studied andanalysedusing the simple regression analysis technique. The study finds that Cloud ERP has a positiveand significantly influence on goal accomplishment, and that Cloud ERP has a positive and significantly influence on strategic constituencies' satisfaction. The study, therefore, concludes that Cloud ERP positively and significantly influence organizational effectiveness of online retailers in Rivers State.

AlMuhayfith and Shaiti(2020) examined the impact of ERPs usage on the financial and non-financial performance of the Saudi SMEs in an exploratory study A questionnaire was administered to 200 Saudi SMEs and 120 valid responses were received. The structural equation modeling (SEM) tool was adoptedfor data analysis and hypothesis testing. The results illustrate that management support, user satisfaction, and training significantly influence ERPs usage; ERP systems boost SMEs' performance.

Yujong and Kyung (2015) empirically investigated ERP integration on global or local ERP implementation strategyusing 102 ERP professionals from two user groups, global ERP system users and local ERP system usersin the United States, by means of five levels of ERP integration (system-specification, system-user, island of technology, organizational, and socio-organizational integration). It was found that, system-specification and organizational integration significantly influence the implementation of local ERP systems while system-specification and socio-organizational integration significantly influence global ERP service implementation. The model explains 44 percent and 52 percent respectively of ERP adoptions within the two groups.

Rabeeya *et al.* (2021) investigated the effect of enterprise resource planning and entrepreneurial orientation on organizational performance. under the mediating role of organizational excellence in the relationship between enterprise resource planning and entrepreneurial orientation and

organizational performance. The data was collected from the managers of manufacturing SMEs in Pakistan. The distributed 340 questionnaires to respondents, out of which 260 were returned representing a response rate 76.47%. The SEMP-LS was used for data analysis, and the study found that, organizational excellence positively and significantly relates with organizational performance. It was also found that, organizationalexcellence partially mediates this relationship between enterprise resource planning and entrepreneurial orientation and organizational performance.

Najm *et al*.(2018) examined the effect of change management on ERP system outcomes in the Jordanian pharmaceutical companieson a sample of 200 employees working in five major companies in the Jordanian pharmaceutical sector: Hikma Pharmaceuticals, Pharma International Co. and United Pharmaceutical Manufacturing Co., Philadelphia Pharmaceuticals Co. and Amman Pharma Industries. by means of a 46-item questionnaire. Data was analyzed using regression analysis. The results indicated that the four dimensions of change management have a significant positive influence on the two outcomes of ERP system application.

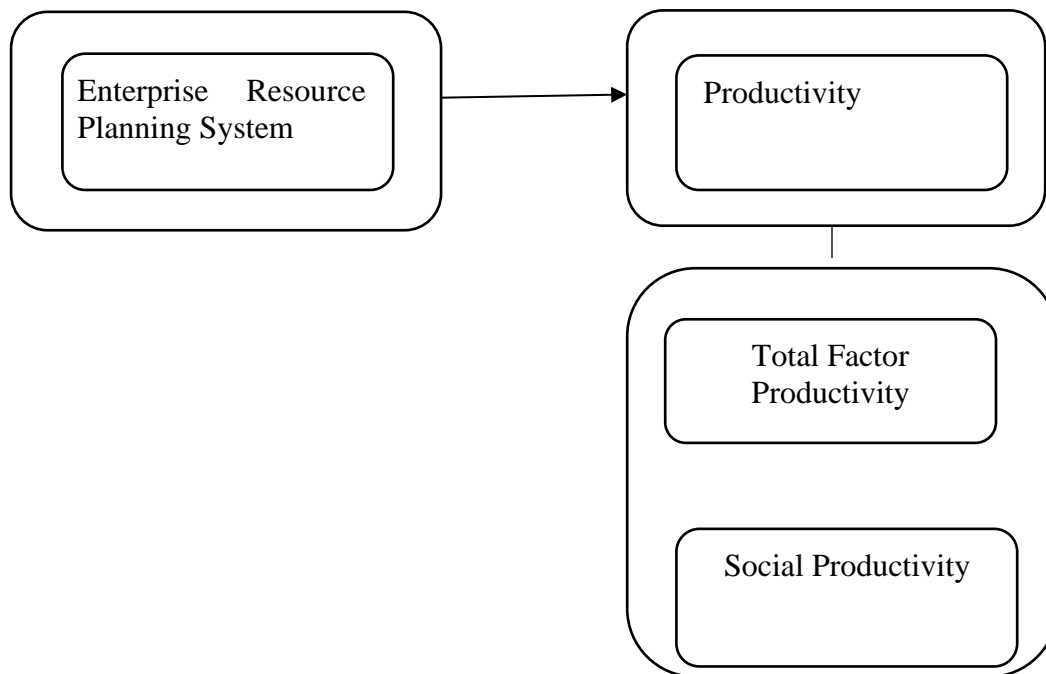From the review of literature, the following conceptual framework was designed:

Figure 1: Conceptual Framework of Enterprise Resource Planning System**.**

Source: Designed by the Researchers, 2023.

From the conceptual framework the following hypotheses were raised:

Ho$_1$: There is no significant influence of enterprise resource planning system on total factor productivity

Ho$_2$: There is no significant influence of enterprise resource planning system on social productivity.

RESEARCH METHODOLOGY
The studyadopts the positivist ontological realism philosophy, a survey methodology, quantitativetechnique, and questionnaireand a data collection technique. The population of the study is drawn from the eleven (11) mainstream oil and gas companies quoted on the Nigerian Stock Exchange. The population is also understood as the sample size, since it is less than 30. A census sampling method was therefore adopted for the study, and entire11 listed mainstream oil and gas companies on the Nigerian stock exchange were accepted as sample size of the study. The simple random sampling technique was adopted for the study to allow each firm under study to be given equal opportunity to be contacted. However, the number of participants in the study was fifty-five (55), on a sample frame of five (5) respondents per firm. Therefore, the respondents constitute finance managers, marketing managers, sales managers, information communication and telecommunication managers and personnel managers (5 respondents per departments) of listed mainland oil and gas companies in Nigeria. The primary data collection method which constitutes information acquired from questionnaire was used for the study, and 55 copies of structured questionnaires were distributed to the respondents. Data was analyzed using quantitative techniques, and the findings presented in the frequency distribution tables and charts while, the hypotheses were tested by means ofsimple regressions analysis to investigate the effect of enterprise resource planning system on productivity.

Reliability of the Instrument

The retrieved copies of questionnaires was scored, coded and imputed into the calculation of reliability using Cronbach's Alpha coefficient to determine the result with the support of statistical package for social sciences (SPSS).Therefore, only the items that recorded alpha values of 0.7 and above were reflected on. The Table 1 presents the Cronbach alpha values of the variables.

Table 1. Reliability Coefficient Table Showing the Cronbach's Alpha of all Variables of the Study

Scale	Dimension	Items	Reliability
ERPS	Enterprise Resource Planning Systems	5	0.756
P	Productivity	4	0.887
TFP	Total Factor Productivity	4	0.775
SP	Social Productivity	5	0.833

Source: SPSS output, 2023

The Cronbach's Alpha Reliability Coefficient was computed for the composite scale and each of the subscales, and the results are reported in Table 1. It specifies how the items for each factor were internally related in the manner expected. Actually, the value of the Alpha coefficient for the composite scale and the subscales are all above the threshold ($\alpha \geq 0.70$); therefore, they are all reliable.

RESULTS AND DISCUSSIONS

This study dealt with enterprise resource planning system and productivity of mainstream oil and gas companies in Nigeria. Of the 55 copies of questionnaire that were distributed to the respondents, 53 copies were returned useful, yielding a response rate of 93 percent. Hence, these 53 copies were used for the analysis.

Statistical Test of Hypotheses

The study hypothesized that there is no significant influence of enterprise resource planning system on productivity measures (total factor productivity and social productivity). The simple regression was employed to test the hypotheses to determine the degree of influence of the predictor variable on the dependent variable. This is aimed at identifying the extent of the effect of enterprise resource planning system on measures of productivity (total factor productivity and social productivity). The result of the tested hypothesis is presented below:

Ho_1: There is no significant influence of enterprise resource planning system on total factor productivity

Table 1a Enterprise Resource Planning System and Total Factor Productivity (n=53)

Model Summary

Model R	R square	Adjusted Square	R std error of the Estimate
1 . 568 [a]	.465	.463	.000

a. predictor: constant), enterprise resource planning system

Table 1b Coefficients of Enterprise Resource Planning Systems and Total Factor Productivity (n=53)

Model	Unstandardized Coefficient B	Std. error	Standardized Coefficient Beta	T	Sig.
1 ERPS	1.866 .	.068	26.786 .000		
.567	.048	.568	19.675 .000		

Dependent variable; total factor productivity

From the table above, regression equation become
Total Factor Productivity= 1.866 – 068 ERPS

The implication of this is that for every improvement in the adoption of enterprise resource planning systems there is a proportional increase in total factor productivity. The table equally provides the coefficient of determination r^2, which implies that 46.4% of the variance in total factor productivityis explained by enterprise resource planning systems adoption.

Ho2: There is no significant influence of enterprise resource planning system on social productivity

Table 2a Enterprise Resource Planning System and Social Productivity (n=53)
Model Summary

Model R	R square	Adjusted Square	R std error of the Estimate
1 .579ᵃ	.447	.444	.08678

a. predictor: constant), enterprise resource planning system

Table 2b Coefficients of Enterprise Resource Planning System and Social Productivity (n=53)

Model	Unstandardized Coefficients		Standardized Coefficient			
	B	Std. error		Beta	T	Sig.
1 (constant)	2.89	73569			7.713	.000
	.473	.147	.579		3.667	.008

Dependent variable; social productivity

From the table above, regression equation become
Social Productivity= 2.89 – 047 ERPS

The implication of this is that for every improvement in the adoption of enterprise resource planning systems there is a proportional increase in social productivity. The table equally provides the coefficient of determination r^2, which implies that 44.7% of the variance in social productivityis explained by enterprise resource planning systems adoption.

This study observed a moderate positive influence of enterprise resource systems on productivity. The result above shows the coefficient (r= .568** and .579**) between enterprise resource planning system and the two measures of productivity (total factor productivity nd social productivity) which indicate a positive and significant association. On the ground of test of

hypotheses, it indicated that moderate and positive influence of enterprise resource system on total factor productivity and social productivity.

The study further establishes thatenterprise resource system is highly explained in the productivity of mainland oil and gas companies. This is in support of Najm*et al.*(2018) who examined the effect of change management on ERP system outcomes.Furthermore, studies conducted by Yujong and Kyung (2015) who investigated ERP integration on global or local ERP implementation strategy, AlMuhayfith and Shaiti (2020) who examined the impact of ERPs usage on the financial and non-financial performance, and Ikegwuru and Gabriel (2022) who investigated the impact of Cloud ERP adoption on organizational effectiveness have exceptionally shown that, productivity is internally connected to enterprise resource system. Therefore, the finding of the study is not alone when it reveals that enterprise resource system is directly responsible for productivity.

CONCLUSION AND RECOMMENDATION

Findings confirm that enterprise resource system used by mainland oil and gas companies are effective. These companies follow enterprise resource systemwhich has led to improvement in productivity. Based on the findings,the study concludes that enterprise resource system significantly influence productivity of main land oil and gas companies in Rivers State, and recommends that,mainland oil and gas companies should maintain a fully computerized enterprise resource system to ensure minimization of operational costs and hence increase in the productivity of their companies.

References

Ahmad, M. M., & Cuenca, R. P. (2013). Critical success factors for ERP implementation in SMEs. *Robotics and Computer-Integrated Manufacturing, 29*(3), 104-111.

Almajali, D. A., Masa'deh, R. E., &Tarhini, A. (2016). Antecedents of ERP systems implementation success: A study on Jordanian healthcare sector. *Journal of Enterprise Information Management,* 29(4), 549–565.

AlMuhayfith, S.,&Shaiti, H. (2020) :The impact of enterprise resource planning on business performance: With the discussion on its relationship with open innovation, *Journal of*

Altamony, H., Al-Salti, Z., Gharaibeh, A., &Elyas, T. (2016). The relationship between change management strategy and successful enterprise resource planning (ERP) implementations: A theoretical perspective. *International Journal of Business Management and Economic Research*, 7(4), 690–703.

Aremu, A. Y., Shahzad, A., & Hassan, S. (2018). Determinants of enterprise resource planning adoption on organizations' performance among medium enterprises.*LogForum*, *14*(2),

Barnett, L. (2004). Social productivity, law, and the regulation of conflicts of interest in the investment industry, *Cardozo Public Law, Policy Ethics J. 3,*793.

Chatterjee, S., Chaudhuri, B. R., &Dutta, D. (2019). Determinants of adoption of new technology in telecom sector: A structural equation modeling approach. *Global Business Review, 20*(1), 166–178.

Ekren, G. L., Erkollar, A., &Oberer, B. (2019).ERP-related issues and challenges in Turkey:

Elragal, A., & Al-Serafi, A. (2011). The effect of ERP system implementation on business performance: An exploratory case-study. *Communications of the IBIMA*, 1-19. https://doi.org/10.5171/2011.670212

Enekwe, C.I, Okwo, I.M., &Ordu, M.M. (2013). Financial ratio analysis as a determinant of profitability in Nigerian pharmaceutical industry. *International Journal of Business and Management 8*(8),107-117.

Eniola, A. A., & Entebang, H. (2015). Government policy and performance of small and medium businessmanagement. *International Journal of Academic Research in Business and Social Sciences*, *5*(2), 237.

Hung, S., Hung, W., Tsai, C., & Jiang, S. (2010). Critical factors of hospital adoption on CRM system: Organizational and information system perspectives. *Decision Support Systems, 48,* 592 - 603.

Hwang, D., & Min, H. (2015). Identifying the drivers of enterprise resource planning and assessing its impacts on supply chain performances.*Industrial Management & Data Systems,* 115(3), 541–569.

Ikegwuru, M., & Gabriel, J.M. O. (2022). Cloud enterprise resource planning system and organizational effectiveness of online retailers in Rivers State. *InternationalJournal of Management Studies and Social Science Research,* 226-236.

Kelleher, T., & Sweetser, K. (2012). Social media adoption among university commentators. *Journal of Public Relations Research, 24* (2), 105 - 122.

Klaus, H., Rosemann, M., & Gable, G. (2000). What is ERP? *Information Systems Frontiers, 2*(2), 141-162.

Liem, N.T., Khuong, N.V., Khanh, T.H.T.,Liem, T., Khuong, V., &Khanh, T. (2019).Firm Constraints on the Link between Proactive Innovation, Open Innovation and Firm Performance.*J. Open Innov*. Technol. *Mark. Complex*, 5, 88.

Najm, A. N., Naser, A., Karem, R. M. S., &Enas, A. (2018). The impact of change management on ERP system outcomes: A case of Jordanian Pharmaceutical Companies. *Journal of Applied Economics and Business Research JAEBR,* 8(2), 93-108.

Rabeeya, R., Muhammad, F. B., Javeria, S., Saira, G. H., &Sadia, J. (2021).Enterprise resource planning, entrepreneurial orientation, and the performance of SMEs in a South Asian

economy: The mediating role of organizational excellence, *Cogent Business & Management,* 8:1, 1973236,

Rodrigues, J., Ruivo, P., & Oliveira, T. (2020). Mediation role of business value and strategy in firm performance of organizations using software-as-a-service enterprise applications. *Information& Management*, 103289.

Rogers, E. M. (1957). *Conceptual variable analysis of technological change*. Doctoral dissertation, Ames, Iowa State University, Ames, Iowa, US.

Rogers, E. M. (2003). *Diffusion of innovations* (5[th]ed.). New York, US: Free Press.

Shang, S., & Seddon, P. (2003). *A comprehensive framework for assessing and managing the benefits of enter-prise systems: The business manager's perspective*. In G. Shanks, P. B. Seddon, & L. P. Willcocks (Eds.), *Se-cond-wave enterprise resource planning systems* (74-101). Cambridge University Press.

Shaikh, A.A., &Karjaluoto, H. (2015). the most of information technology & systems usage: A literature review, framework and future research agenda.*Comput. Hum. Behav.* , 49, 541-566.

Yilmaz, M., & R. V. O'Connor, R.V (2012).Social capital as a determinant factor of software development productivity: An empirical study using structural equation modeling, *Int. J. Human Capital and Information Technology Professionals 3*(2), 40-62.

Yujong, H. & Kyung, H. (2015). An empirical study of enterprise resource planning integration: Global and local perspectives. *Information Development.* 1-11