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The Introduction of Multi-field Entrances and Knowledge-based Systems in Enhancing the Success Factors of the ERP System

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This study aims to shed light on the introduction of modern concepts regarding the entrances to multiple fields and systems related to the transformation of energy properties. These are the characteristics of knowledge: as energy and knowledge are characterised by their transformation from one form to another. The use of these approaches has been identified in enhancing the success factors of the ERP system, which is the key to implementing the system. The sample of the study in Duhok gas station includes 24 forms. The study reached a number of conclusions, the most prominent of which was the existence of a significant correlation between multiple field entries, knowledge-adaptive systems, and ERP system success factors. A set of recommendations was presented that came in line with these conclusions.

Keywords: *Multi-field entrances, knowledge-based systems, ERP system, Duhok, gas station.*

Introduction

In light of the rapid developments in the administrative concepts and the labour market, organisations seek to excel and compete in this competitive environment and the abundance of information contained therein. This can create confusion which causes some organisations to take measures that do not accumulate information and prevent a recurrence (Gladwell, 2005) The intellectual dilemma arises in how to limit the correct information based on scientific strength and practical knowledge. This occurs through an organisation working to consolidate its competitive position and enhance its capacity and prestige. The objectives of

this study are achieved by focusing on determining the theoretical frameworks for each of the multiple field entrances, knowledge-adapted systems, ERP systems, and its success factors (Kahneman, 2011). It is also important to identify the correlation and impact of the relationships between multiple field entries, knowledge-adaptive systems, and ERP system success factors (Ekman, 2003).

Literature review

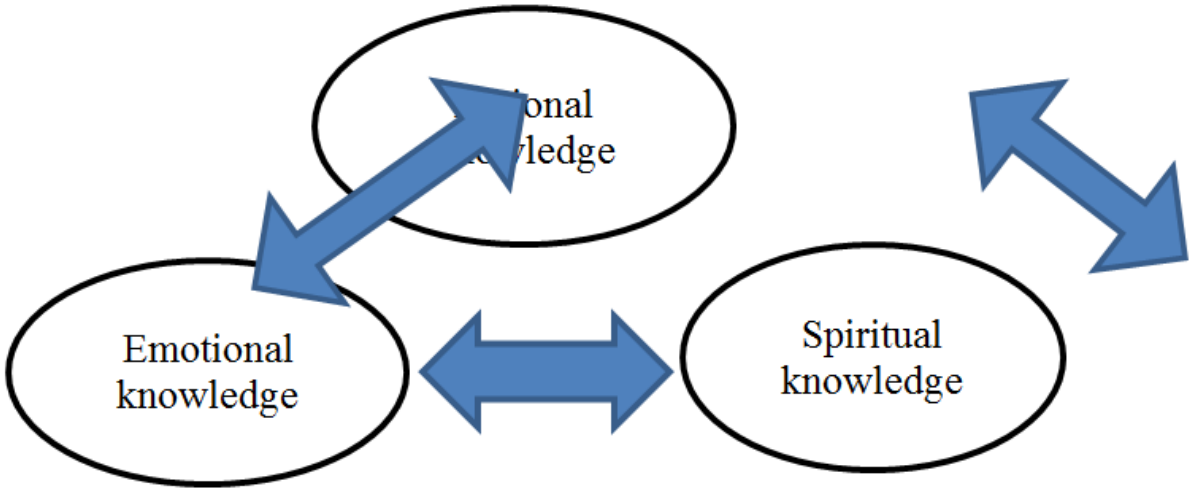
Multiple Fields and Systems Adapted to Knowledge

Access to multiple areas of knowledge is based on the proposed energy comparison developed by Bratinu (2013). This is based on the fact that energy is the source and knowledge is the target. This means that it transforms the characteristics of energy in the direction of knowledge and the basic characteristics that shift from the field of energy to the field of knowledge according to the following characteristics: energy is an area and not a physical appearance. The first relates to the fact that knowledge is an area which means that knowledge is intangible. This is because the field can't be seen and can't be touched contrary to material things. The second characteristic refers to the idea that knowledge may take different forms according to new studies. Knowledge has three main areas: rational knowledge, emotional knowledge, and spiritual knowledge (Bratianu, 2015). These different forms of knowledge can be found at each level of the organisational structure of a business from the micro to the macro level. The third indicates that any specific knowledge domain may be transformed into another knowledge domain, generating complex aspects of knowledge. Therefore, the basic fields of knowledge are in constant interaction and transformation which means that the meaning of knowledge transformation may He went beyond doubt (Davenport, 2000). Rational knowledge is a goal and its characteristics are appropriate in the development of scientific and technological knowledge. Emotional knowledge is the knowledge that has emerged as an element of tacit knowledge. Hill (**2008**) discusses the implicit dimensions of knowledge and considered that our experience with the environment is a source of knowledge, a physical experience that generates emotional information through cognition. In contrast to the European philosophy adopted over centuries by the dualism of mind and body of Descartes, the Japanese philosophy of life evolved on the idea of the unity of body and mind supported by three pillars (Nonaka, 2008). These three pillars are the unity of man and nature, the unity of body and mind, and the unity of self with others. Thus, we find emotional knowledge and cultural values relate to implicit knowledge. Dealing with implicit knowledge as a wastebasket, in which managers put everything that can't be explicit knowledge, poses a serious problem in the search for emotional knowledge and spiritual knowledge. Therefore, there is a need to change the energy to open new opportunities for areas of emotional knowledge, research, and applications (Bratinu, 2013). Emotional knowledge is the result of processing the information generated by our emotions

and feelings (Ekman, 2003). This means that its emphasises the fact that the external environment in our mind is represented by the emotional information we receive through the body and its sensory system where this information is processed through emotional intelligence such as personal intelligence. Spiritual knowledge is the third basic form of knowledge. If rational knowledge reflects the material environment in which we live, emotional knowledge reflects the physical interaction with the outside world and spiritual knowledge reflects our understanding of the meaning of our existence (Maxwell, 2007). People must learn to see the faces of the world around us are of stones, people, work, and the future and generate with time the culture of their organisations. The multidisciplinary theory of knowledge is based on the assumption that there are three domains of knowledge (at the individual and organisational levels) namely rational knowledge, emotional knowledge, and spiritual knowledge. We can also consider that there is a shift in implicit knowledge to explicit knowledge regardless of the nature of the field of knowledge (Bratianu, 2015).

- *Transform implicit knowledge into explicit knowledge and vice versa*. These transformations depend on an analogy, in which latent mechanical energy is an example of tacit knowledge and mechanical dynamic energy is an example of explicit knowledge. A good example is the watermill that transforms the potential energy of water into kinetic energy when the water flows through the wheel and turns it into a mechanical movement (Cho, 2013).
- *Transform rational knowledge into emotional knowledge and vice versa*. This kind of shift of knowledge is related to the transformation of mechanical energy into thermal energy according to the laws of thermodynamics. In terms of mechanical energy, one can assign it as a similarity to rational knowledge, whereas thermal energy has a similarity to emotional knowledge. Therefore, it is feasible to consider a shift in rational knowledge to emotional knowledge and vice versa, a shift that occurs frequently in decision-making as shown by cognitive science (Hill, 2008).
- *Transform rational knowledge into spiritual knowledge and vice versa.* The transformation of mechanical energy into electrical energy in this example is in accordance with the laws of electricity. Mechanical energy is associated with rational knowledge and electrical energy is associated with spiritual knowledge. This shift in physics is known as the effect of piezoelectric, a phenomenon in which the change in the mechanical field generates a change in the electric field and produces an electric current (Hanebeck, 2000).
- *Transforming emotional knowledge into spiritual knowledge and vice versa.* In this type of transformation, the transformation of thermal energy into electrical energy and vice versa can be illustrated. This transformation can be illustrated by the physical phenomenon of the thermocouple, in which a change occurs in the field of thermal energy that generates electricity using two electrical conductors of different materials.

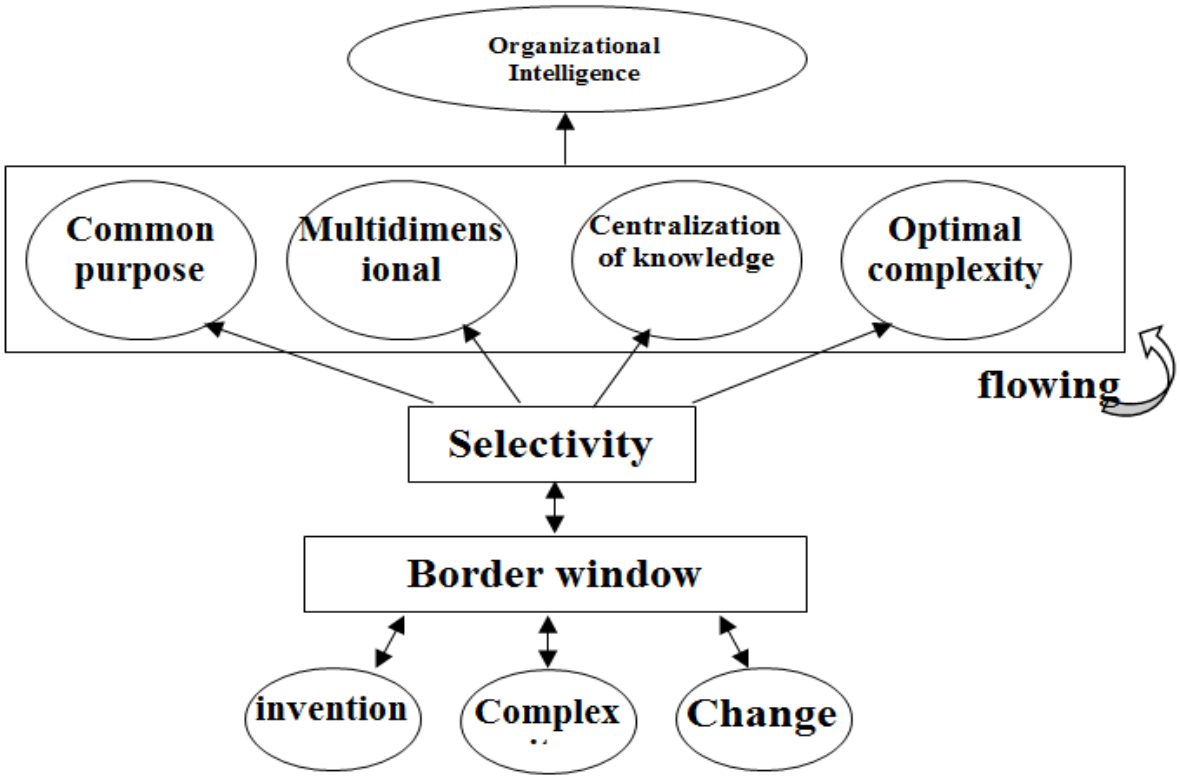
Figure 1. Structure of transmission and transformation of knowledge



Source: Constantin Bratianu, Management Dynamics in the Knowledge Economy Vol.4 (2016) no.3, pp.323-337; www.managementdynamics.ro ISSN 2392-8042 (online) Faculty of Management (SNSPA).

Bennet (2004) described the introduction of complex adaptive systems in knowledge management. Various models have been presented, one of which views the organisation as a system of symbiotic relations with its environment which "transforms the metaphor of living systems into truth and reality". Organisations, through their environment, transform inputs into high-value outputs, and knowledge becomes one of the most valuable resources because of its crucial role in taking effective actions in various uncertain situations. This is usually used to distinguish information management (expected actions to identify expected situations) and knowledge management (use existing or new responses in unexpected situations). The main processes involved in the ICAS model in knowledge management can be summarised as follows: since the individual has been able to make decisions and take action, this model has focused on individual knowledge workers, their abilities, their energies, their learning, and so on (LeDoux, 2002). This kind of implicit knowledge is improved or increased by dynamic networks and a wider highway is available to connect data, information, and individuals through virtual communities and knowledge repositories. The characteristics shown above are the result of nonlinear interactions, synergistic interactions, and self-regulating systems (Hanebeck, 2000). These apparent priorities serve to give the organisation internal capabilities to deal with unexpected future environments when the organisation is waiting for it (Filos, 2005).

Figure 2. Characteristics of complex adaptive intelligence system (ICAS)



Source: Filos, Erastos; Dec. 2005. Smart Organisations In The Digital Age. European Commission, Directorate-General Information Society and Media. Cited on 24th May 2006.

Organisational intelligence refers to the organisation's ability to innovate, acquire knowledge, and apply that knowledge in relevant situations. In the Complex Adaptive Intelligence System (ICAS), this property refers to the organisation's ability to recognise, interpret, and respond to its environment in the way its objectives are achieved and stakeholders are satisfied (Davenport, 2000). There are four main ways in which the ICAS model can describe organisational knowledge management: creativity is the generation of new ideas, perspectives, understandings, concepts, and methods that help solve problems, build products, offer services, and others. Individuals, teams, networks, and virtual communities are useful in solving problems, and they take the output of creative processes, such as inputs.

Enterprise Resource Planning (ERP) System

Many authors and researchers agree that the ERP system is an evolution of the MRP and MRP2 requirements planning systems as an inevitable result of technological development and the use of computers in FAO operations (Agnieszka, 2017).

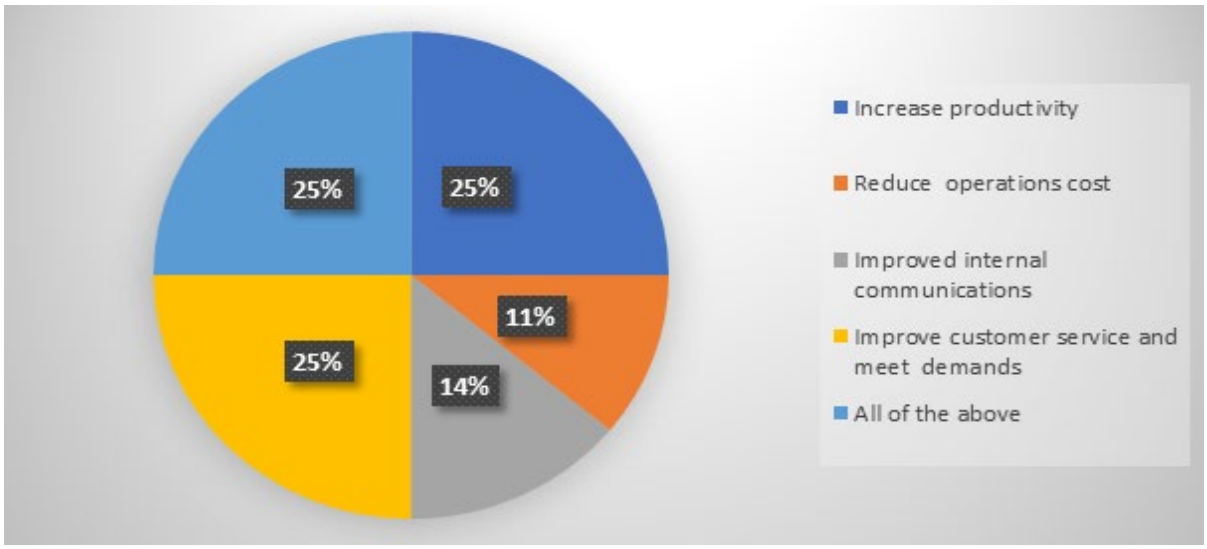
Table 1: Development stages of the ERP system

1960	**Packets Control Of Warehouses**
1970	**MRP Material Requirement Planning System**
1980	**Manufacturing resource planning System MRP2**
1990	**ERP System**
2000	ERP2 Extended ERP System

Source: Gebremedhin Saron,2017, Assessment OF ERP Implementation: The Case Of Heineken Breweries S.C Ethiopia, St. Mary's University College School of Graduate Studies Department of MBA Accounting and Finance, Addis Ababa

ERP is a system used to integrate information and accelerate its distribution across functions and departments to increase the operational performance of organisations (Brătianu, 2016). Vaidyanathan (2018) explains ERP as a system that integrates the flow of information throughout the organisation itself. Other theorists believe that ERP is a way to use computer system technology to integrate all functions in different departments, such as marketing, inventory control, accounting, and human resources across the organisation as a system that integrates business and management systems. This coincides with the areas of financial management, transportation, shipping, manufacturing, human resources, and supply chain operations that extend along the chain (Thebeh, 2018). The researcher believes that the ERP system is a system consisting of each integrated - software - the organisations used to consolidate data within a unified database to prevent replication and provide updated and accurate information at various levels of management and control of the flow within the organisation. The third benefits of the ERP system is the application of the ERP system in yielding number of benefits (Agnieszka, 2017). These benefits are the reduction of the time required to reach the beneficiary, improved procurement efficiency, improved distribution or production, improving the economic and financial situation, enhance staff skills, increased data security, automate and consolidate data, access to current information and improved reputation among competitors (Mufeti, 2017). This literature identifies the reasons why companies are rushing to implement the ERP system: 1. Pressure from customers and suppliers. 2. Technological pressure. 3. To deal with future needs. In a study by the researcher, Kanchana (2018), the organisations that implemented the ERP system achieved results in increasing productivity, reducing operating costs, improving internal communication, improving customer service, and quickly and effectively achieving demands.

Figure 3. ERP Benefits



Source: Kanchana V& Sri Ranjini S,2018, Investigation and Study of Vital Factors in Selection, Implementation and Satisfaction of ERP in Small and Medium Scale Industries, International Journal of Electrical and Computer Engineering (IJECE), Vol. 8, No. 2

Factors of ERP Success

The factors that the organisation provides will vary and the application will be successful for the ERP system. It varies from one company to another and from one field to another. Table 4 reflects this diversity.

Table 2: Success factors for the ERP system according to the views of a group of writers

Success factors / Author	Top Management support	Business Process Reengineering	Training	legacy system	Partnership with Vendor	Post-implementation analysis	Risk management	Quality Management	Performance Organisation	Project Envelope	Communication	Exercises Team	Vale system	Propaganda action of the system	Cultural constraints	Application Model	Prepare for change	Resources and techniques	Project management	Selection of ERP system	User participation
Leyh,2016,9	*		*														*		*	*	
Chatzoglouet.al,2016, 1248	*	*	*		*				*						*	*			*		*
Totla,et.al,2016,90	*	*			*		*	*	*	*	*	*					*		*	*	*
Mufeti,2017,97	*	*																	*		
Arvidsson & Kojic,2017,23	*		*								*						*			*	
Mrini,et.al,2018,165	*												*	*	*		*	*	*		
Jeroen,2018, 4663				*	*	*						*		*				*	*		
Fadelelmoula,et.al,2018,26	*	*	*		*													*	*		
Osman& Sahraoui,2018,34	*	*			*							*						*	*		
Total	**8**	**5**	**4**	**1**	**5**	**1**	**1**	**1**	**2**	**1**	**2**	**3**	**1**	**2**	**2**	**1**	**4**	**5**	**8**	**3**	**2**

The researcher will rely on the factors of success that have obtained the largest agreement between the researchers on the one hand and their suitability to the application environment on the other.

1- Supporting Top Management: senior management support in the implementation of the ERP system has two main aspects: (1) leadership, (2) provide the necessary resources. Strong and committed leadership is a necessary condition for the successful implementation of the ERP system. The project team and monitoring the progress of the project with the desire to provide the necessary resources is a form of senior management support. Implementation will be restricted if some key resources, such as staff and equipment are not available (Aremu, 2018).

2. Project Management: It is believed that the management of the ERP application project includes aspects related to clear scope, implementation plan, realistic time frame, effective project leader, project progress tracking. A large number of studies are important to the successful implementation of the system, and the usual reason is that the application of these systems is a complex process due to many problems, including complex configurations and difficulties in making the required changes in the organisation's processes and environment to suit the system (Fadelelmoula, 2018).

3. Collaboration with the system vendor: considers that the support of the system vendor through the establishment of supplier support in the form of technical assistance and maintenance with all its updates, which must be facilitated by a committed vendor overseeing the implementation the whole life cycle (Kanchana, 2018).

4. Process re-engineering: It was stressed that the theory of strategic selection indicates that the staff of any organisation can play an important role in shaping their working environment and that the strategic choice extends to the environment in which the organisation operates, and the design of the organisation's structure. The transition to the ERP system may lead to a time delay. This requires the organisation to be flexible to modify existing processes and reorganise the workflow to improve adaptability to the ERP system(Thebeh, 2018).

Results

1. *The correlation between the multiple field entrances and the systems adapted to the knowledge and the success factors of the ERP system*: In order to identify the nature and direction of the relationships of multi-domain entrances and systems adapted to knowledge and factors of success of the ERP system, Table 2 was prepared. There was a positive correlation between the elements of continuous improvement combined and the development of the culture of quality. The total index of the correlation coefficient was (0.966 *) at a significant level (0.05). This result indicates that increasing FAO's interest in the introduction of multiple domains and knowledge-adapted systems will result in the success of the ERP system and, thus, the application of the system. Therefore, the first main hypothesis (H1) is achieved, which states: There is a significant correlation between multiple field entries, knowledge-adapted systems, and ERP system success factors.

Table 3: Results of the correlation between multiple field entries and knowledge-adapted systems and the ERP system success factors in the organisation under Consideration

dependent variable / Independent variable	**ERP system success factors**
multiple field entries and knowledge-adapted systems	0.966*

P≤0.05
N=40

2. *The effect of multiple field entrances and the knowledge-adapted systems has a significant on ERP system success factors as a supported variable*. This is supported by the calculated F value of (524,755) (4.09) at the levels of freedom (1.38) and the moral level

(0.05). The value of R2 (0.932) indicates that (93.2%) of the explanatory differences in the success factors of the ERP system in the organisation are due to the entrances of the multiple domains and the systems adapted to the knowledge and the rest are random variables that can't be controlled or are not included in the regression model originally. By following the value of β and the T-Netin test, the calculated T value was 22,908, which is greater than its total value of 1.684 at the level of freedom (1.38) and the moral level (0.05), thus accepting the second hypothesis (H2): There is a significant effect on the entrances of multiple domains, knowledge-adapted systems and ERP system success factors.

Table 4: The effect of the correlation between multiple field entries and knowledge-Adapted systems and the of the ERP system success factors

Dependent Variable / Independent Variable	**ERP system success factors**			**F**	
	β0	**β0**	**R2**	Calculated	Table
multiple field entries and knowledge-adapted systems	**0.084**	**1.021**	**0.932**	**524.755**	**4.09**
	Values T	**22.908***			

P ≤ 0.05, N=40, d.F(1,38) *

Conclusion and Recommendations

As a result of processing the information in these approaches, this will be reflected in the successful implementation of the ERP system represented by the factors proposed in the Iraqi environment. The results of the analysis conducted by the researcher are demonstrated in Table 3 and Table 4 show the existence of this relationship between multiple field entrances, knowledge adapted systems, and ERP success factors.

The study recommends intensifying efforts to study the modern concepts of knowledge management because they have the effect of enriching the individual working in the organisation intellectually. This allows organisations to move towards modern systems, including the subject of research ERP2 system while providing the appropriate environment for the application of these systems by providing the factors of success that organisations must provide before applying the system.

REFERENCES

Agnieszka Ociepa-Kubicka, (2017), Advantages Of Using Enterprise Resource Planning

Aremu, Adejare Yusuff&Arfan Shahzad& Shahizan Hassan,(2018), Determinants Of Enterprise Resource Planning Adoption On Organizations' Performance Among Medium Enterprises, Logforum Scientific Journal Of Logistics,VOL. 14,No.2

Arvidsson, Jonathan & Daniel Kojic ,(2017), Critical Success Factors In ERP Implementation The Perspective Of The Procurement System User, Jönköping International Business School

Bennet, David & Bennet,(2004), The Rise Of Knowledge Organization, A Paper Appeared As A Chapter In "Knowledge Management: The Catalyst For Electronic Government", May 2001.

Bratianu C. Andriessen D. (2008). Knowledge as energy: A metaphorical analysis. In HarorimanaD.WatkinsD. (Eds.), Proceedings of the 9th European Conference on Knowledge Mnagement Reading, UK: Academic Publishing Limited

Bratianu, C., (2015), Organizational Knowledge Dynamics: Managing Knowledge Creation, Acquisition, Sharing, and Transformation, IGI Global

Brătianu, c., 2016, Knowledge Dynamics, Management Dynamics in the Knowledge Economy, Vol.4 (2016) no.3, Bucharest University of Economic Studies, Bucharest, Romania

Brătianu, C., and Orzea, I. (2013a). The entropic intellectual capital model. Knowledge Management Research & Practice, 11:2

Chatzoglou, Prodromos &Dimitrios Chatzoudes&Leonidas Fragidis & Symeon Symeonidis,2016, Critical Success Factors For ERP Implementation In Smes, Proceedings Of The Federated Conference On Computer Science And Information System, Vol. 8.

Cho, M. ,2013, User Perceptions of Social Media: a Comparative Study of Perceived Characteristics and User Profiles by Social Media. Online Journal of Communication and Media Technologies, Vol. 3,No. 4

Davenport, T. H., & Prusak, L. (2000). Working knowledge: How organizations manage what they know . Boston, MA: Harvard Business School Press.

Ekman, P.E, 2003, Emotion revealed: Recognizing faces and feeling to improve communication and emotional life. New york times books.

Fadelelmoula, Ashraf &Ahmed Prince &Sattam Bin Abdulaziz,2018 The Effects Of The Critical Success Factors For ERP Implementation On The Comprehensive Achievement Of The Crucial Roles Of Information Systems In The Higher Education Sector, Interdisciplinary Journal of Information, Knowledge, and Management (IJIKM),No. 13.

Filos, Erastos; Dec. 2005. Smart Organizations In The Digital Age. European Commission, Directorate-General Information Society and Media. Cited on 24th May 2006.

Gebremedhin Saron,2017, Assessment OF ERP Implementation: The Case Of Heineken Breweries S.C Ethiopia, St. Mary's University College School Of Graduate Studies Department Of MBA Accounting And Finance ,Addis Ababa

Gladwell, M. (2005). Blink: The power of thinking without thinking. New York: Back Bay Books.

Hanebeck, H., Ch., (2000), "Business processes for a distributed learning environment", Turkish online journal of distance education – TOJDE , January, 2000 ISSN 1302-6488 , Vol. 1 , No. 1 , Article No.: 4 .

Hill, D. (2008). Emotionomics: Leveraging emotions for business success.Revised Edition. London: Kogan Page.

Jeroen Wolters& U. Yeliz Eseryel&Deniz Eseryel,2018, Identifying The Critical Success Factors For Low Customized ERP System Implementations In Smes, Proceedings Of The 51st Hawaii International Conference On System Sciences.

Kahneman, D. (2011). Thinking, fast and slow. New York: Farrar, Straus and Giroux.

Kanchana V& Sri Ranjini S,(2018), Investigation And Study Of Vital Factors In Selection, Implementation And Satisfaction Of ERP In Small And Medium Scale Industries, International Journal Of Electrical And Computer Engineering (IJECE), Vol. 8, No. 2

LeDoux, L. (2002). The emotional brain: The mysterious underpinnings of emotional life. London: Phoenix…..

Leyh Christian,(2016), Critical Success Factors For ERP Projects In Small And Medium-Sized Enterprises—The Perspective Of Selected ERP System Vendors, Springer International Publishing Switzerland.

Maxwell, N. (2007). From knowledge to wisdom: A revolution for science and humanities. 2nd Edition. London: Prentice Hall

Mrini, Younous EL & Mustapha Belaissaoui & Issam Taqafi,2018, Critical Success Factors to Implement Enterprise Resource Planning in Morocco Large Companies' Case Study , American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS) Vol.39, No 1

Mufeti, Victoria Hasheela,2017, Current Prospects And Challenges Of Enterprise Resource Planning (ERP) Adoption In Developing Countries, ISTJN.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. Organization Science , 5(1doi:10.1287/orsc.5.1.14

Nonaka, I., Toyama, R., & Hirata, T. (2008). Managing flow: A process theory of the knowledge-based firm . Houndmills, UK: Palgrave Macmillan

Osman ,Nafsa & Sahraoui. Abd-El-Kader ,(2018), A Software Requirement Engineering Framework To Enhance Critical Success Factors For ERP Implementation, International Journal Of Computer Applications, Vol 180 – No.10.

Theebeh ,Ziad Abdul Halim AL& Tareq Hammad AL-Mubaydeen & Mahmoud Fawzi Ismael,(2018), The Effect Of Applying The Organization Enterprise Resource Planning System (ERP) In The Quality Of Internal Audit: A Case Of Jordanian Commercial Banks , International Journal Of Economics And Finance; Vol. 10, No. 5.

Totla, Kailash &Manju Mandot &Sanjay Gaur,(2016), An Insight Of Critical Success Factors For ERP Model , International Journal Of Emerging Research In Management &Technology, Vol.5, Iss-2.

Vaidyanathan, Ganesh & Fox, Mark ,(2018), Enterprise Resource Planning Vendor Selection: A Case Study, Issues In Information Systems, Volume 18, Issue 2