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Effect of ERP Usage on Transparency, Ethical Work Climate and Organizational Performance

Wafa Elgarah

Hicham Achchakour

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Short Paper

Introduction

With the increase of globalization and competitiveness, companies are adopting ERP systems to improve their efficiency and their operations effectiveness. ERP systems are complex information systems designed to integrate the whole spectrum of an organization's operations and processes (Klaus et al. 2000). They offer a holistic perspective of the organization using a centralized data repository. Several studies have shown the positive impact of ERP implementation on organizational performance (Nicolaou and Bhattacharya 2006; Ruivo et al. 2020). Despite the benefits offered by ERP systems several organizations failed to gain these benefits. Some of the reasons for ERP implementation failure are user resistance evidenced by low usage rate. ERP usage has been shown to be directly related to ERP benefits (Nwankpa 2015). Additionally, system use has been identified as a key factor in the evaluation of information systems performance and success (Delone and Mclean 2003; Leem and Kim 2003; Petter et al. 2013).

ERP systems offer several tangible and intangible benefits. These benefits are only achieved if the system is used effectively. Several studies have looked at the antecedents of system use (Venkatesh et al. 2003) since usage is an importance indicator of system quality and success (Sirsat and Sirsat 2016).

Some of the tangible benefits include organizational performance (Staehr and Staehr 2007). The intangible benefits identified in different research studies include improved information transparency (Al-Jabri and Roztocki 2015) and ethical behavior (Asamoah and Andoh-Baidoo 2018). Because ERP systems enhance information visibility, its implementation may lead to increase in perceived transparency.

The main goal of this study is to identify the relationships between ERP usage, perceived transparency and ethical work climate as well as perceived organizational performance. Nwankpa (2014) posits that understanding ERP systems usage has received little attention. Our study attempts to contribute to filling this gap. We are interested in the actual use of the ERP as opposed to intention to use especially that the focus of our study is on the outcomes of ERP usage and not its antecedents.

Our thesis is that the employees who tend to interact with the ERP system more will tend to perceive higher transparency within the organization and have a positive ethical work climate and in turn perceive a high organizational performance.

Research Model and Hypotheses

Figure 1 presents the research model of our study. Given that ERP usage is the focus of our study, we integrate the construct within a nomological network of organizational performance based on prior research. Particularly, we investigate how ERP usage influences the perceived ethical work climate, perceived transparency and perceived organizational performance. These constructs have been studied separately in the context of ERP in different settings.
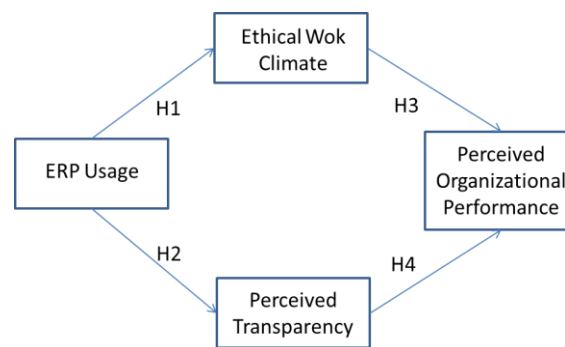
Figure 1 Research Model

ERP Usage

Simply put, ERP usage can be defined as the degree to which users use the ERP system capabilities and functionalities to perform their work. In fact, if an ERP is not used by the intended users then it cannot achieve its benefits. Several studies stipulate that system usage is a key factor in determining the success of the system and have an impact on organizational performance (Delone and Mclean 2003; Petter et al. 2013). Ruivo et al. (2020) empirically shows that ERP use together with ERP capabilities has an impact on ERP value.

It is important to note that IT usage in general is simply included as a dependent variable in current IT usage models, with little consideration of its influence on performance (Sun et al. 2009). Additionally, most studies that have looked at the outcome of IT usage focused on user performance. Rajan and Batal (2015) have empirically demonstrated that ERP usage has a significant impact on individual users' panoptic empowerment and performance.

In our study, we focus on ERP usage and its outcomes. The construct of interests are perceptual organizational variables which we will be measuring at the individual level.

ERP usage and information transparency

Information transparency is defined as "the convergence of information streams and their delivery to interested parties (stakeholders) at the time of perceived information need" (Simon, 2006, p.1030). Street and Meister (2004) identified two types of transparency: internal and external. They defined internal transparency as "'an outcome of communication behaviors within an organization that reflects the degree to which employees have access to the information requisite for their responsibilities" (p.477). It is this definition that we are adopting in our study. Information sharing and information access are inherent capabilities of most enterprise systems such as ERP, CRM, SCM.

Several researches have studied the perceived information transparency as an antecedents to perceived attitude towards system use (Al-Jabri and Roztocki 2015; Elbelkacemi et al. 2017; Brunk et al. 2019). Staehr and Staehr (2007) found that in all four businesses investigated in the case study research, the adoption of ERP software enhanced user accountability by increasing visibility, transparency, and discipline.

In our study, we argue that perceived information transparency is an outcome of ERP usage. Basically, it is only after frequent interaction with the system that users can have an idea about the information transparency within the organization. Based on this, we hypothesize that:

H1: ERP usage has a positive significant effect on the perceived information transparency.

ERP usage and ethical work climate

The ethical climate theory was conceptualized by Victor and Cullen in 1988. This theory has been the subject of several research studies especially following the many corporate ethical scandals in the last decade. In fact, Arnaud (2010) estimate that this theory provided the basis for over 75% of ethical climate research in the previous 25 years. According to Victor and Cullen (1988), Ethical work climate is defined as "the shared perception of what is correct behavior and how ethical situations should be handled in an organization"(p. 51).

Several countries have adopted e-government initiatives as a strategy to fight against corruption. Shim and Eom (2009) concluded that ICT is an effective tool in reducing corruption. More specifically, ERP implementation has been found to be positively associated with greater ethical behavior (Asamoah and Andoh-Baidoo 2018). This is because ERP implementation does result in greater control within the organization. Additionally, ERP systems allow for tracking of employee behavior on the system which may deter from unethical behavior. Thus, we posit the following:

H2: ERP usage has a positive significant effect on the ethical work climate.

Ethical work climate and perceived organizational performance

It is clear that unethical behavior affects negatively organizational performance. This is evidenced by the many ethical scandals in large corporations which lead to huge financial loses and in some cases to bankruptcy, as in the case for Volkswagen, Enron, Anderson Consulting, MCI Worldcom, etc... According to Berrone et al.'s (2007) findings, the corporate ethical identity has direct and indirect positive impact on the financial performance of the organization. They argue that strong ethical climate generates 'positive externalities' and 'intangible gains" such as good image, reputation, stakeholder trust and commitment within organizations and consequently enhance their performance. Concomitantly, Sroka and Lőrinczy (2015) empirically confirmed that "business ethics is regarded as a significant factor which has an influence on both the success and profits of modern companies" (p.156) Additionally, Schminke et al. (2007) assert that ethical behavior leads to improved organizational performance.

Organizational performance is a multidimensional construct (Combs et al. 2005). It is often measured using objective measures such as financial indicators (e.g. profitability, return on investment, return on assets, etc..). However, organizational performance can also be measured using subjective measures such as customer satisfaction. Additionally, several research studies have operationalized organizational performance as perceived by employees (Delaney and Huselid 1996; Reisel et al. 2007; Berberoglu, 2018). Perceived organizational measures have been found to correlated positively with objective measure of firm performance (Delaney and Huselid 1996). In fact, Riesel et al. (2007) used perceptual measure for performance and found that it correlates significantly with an objective measure, Earning per share.

To operationalize the ethical work climate, we adopt Arnaud's (2010) Psychological Process Model which includes four dimensions, namely collective moral sensitivity, collective moral judgment, collective moral motivation, and collective moral character. Psychological Process Model happen to explain 12% of the variance in firm performance (Arnaud 2010). As for the organizational performance, we opt for the perceptual measure used by Delaney and Huselid (1996) where they assessed perceived organizational performance relative to other firms in the same industry.

Given the above, we trust that the corporate ethical work climate will have an important impact on the perceived organizational performance. Hence, we hypothesize the following:

H3: Ethical work climate has a positive significant effect on perceived organizational performance

Perceived information transparency and perceived organization performance

As discussed above, information transparency is enabled through flow of information and communication. This data visibility and availability of information by information transparency especially in an ERP context may lead to better decision making and hence better company performance. Increased transparency leads to increased efficiency which drives company performance (Berggren and Bernshteyn 2007). Using a simulation, Wadhwa et al. (2010) demonstrated, in the context of supply chain, that information transparency is a key component in a firm's competitiveness. Additionally, in a recent study, Kumar and Gangaly (2020) concluded that information transparency plays an important role in improving organization performance. Thus, we posit the following:

H4: Perceived information transparency has a positive significant effect on perceived organizational performance.

Research Method

To validate our model, we will adopt the quantitative approach using an online survey. The survey was disseminated through social media. The target population is users of ERP systems. In the questionnaire, we used a filter question to only collect data from ERP users. We operationalized the constructs using pre-validated instruments from the literature. Table 1 provides the variables, scale items and the source of each scale. All scales used a 6 likert scale. Since data is to be collected in Morocco, an emerging economy where French is the mostly used language in business, the questionnaire was translated to French by a bilingual expert and then back translated to English by another expert to ensure consistency. Both versions, English and French were distributed on social media.

The hypothesized model will be tested using structural equation modeling which is known to be a powerful technique than regression analyses. We hope to have some preliminary results to present at the conference.

Variables	Items	Source
ERP Usage	- I use the ERP system installed in my organization very intensively to support my work - I use the ERP system installed in my organization very frequently to support my work - Overall, I use the ERP system a lot	Nwankpa (2015)
Perceived Transparency	- The ERP allows me to track my activities - The ERP provides information on the organization rules and regulations - The ERP provides information about the organization decisions and actions - The ERP promotes monitoring of the organization financial expenditures - The ERP disseminates information on the organization performance - The ERP promotes openness of the organization processes, like hiring & promotion - Overall, the ERP system has enhanced transparency in my organization	Al-Jabri & Roztocki, 2015; (Bertot et al. 2010)
Perceived Organizational Performance	*" How do you compare your organization's performance over the past 3 years to that of other organizations that do the same kind of work ? "* - Quality of products, services, or programs ?	Delaney and Huselid, 1996

	- Development of new products, services, or programs ? - Ability to attract essential employees ? - Ability to retain essential employees ? - Satisfaction of customers or clients ? - Relations between management and other employees ? - Relations among employees in general ? - How do you compare your organization's Marketing activities to competition? - How does the Sales growth of your organization compared to that of competition ? - How does your organization's Profitability compare to that of competition ? How do you compare your organization's Market share to that of competition?	
Ethical Work Climate	1. People around here are aware of ethical issues. 2. People in my department recognize a moral dilemma right away. 3. People in my department are very sensitive to ethical problems. 4. People in my department sympathize with someone who is having difficulties in their job. 5. For the most part, when people around here see that someone is treated unfairly, they feel pity for that person. 6. People around here feel bad for someone who is being taken advantage of. 7. In my department people feel sorry for someone who is having problems. 8. People around here are mostly out for themselves. 9. People in my department think of their own welfare first when faced with a difficult decision. 10. In my department people's primary concern is their own personal benefit. 11. People around here have a strong sense of responsibility to society and humanity. 12. The most important concern is the good of all the people in the department. 13. In my department people are willing to break the rules in order to advance in the company. 14. Around here, power is more important than honesty. 15. In order to control scarce resources, people in my department are willing to compromise their ethical values somewhat. 16. People I work with would feel they had to help a peer even if that person were not a very helpful person. 17. People in my department feel it is better to assume responsibility for a mistake. 18. No matter how much people around here are provoked, they are always responsible for whatever they do	Arnaud, 2010 (short form of EWC)

Table 1 Variables' Measures

Conclusion

In this study, we attempt to understand the role of ERP usage as an independent variable and shed light on its relationship in enhancing perceived organizational performance through improved ethical work climate and perceived information transparency. It extends the existing literature on ERP usage and its benefits. Our unit of analysis is the ERP user since users are key elements in the success or failure of ERP implementation.

References

Arnaud, A. 2010. "Conceptualizing and Measuring Ethical Work Climate: Development and Validation of the Ethical Climate Index," *Business and Society* (49:2), pp. 345–358. (https://doi.org/10.1177/0007650310362865).

Asamoah, D., and Andoh-Baidoo, F. K. 2018. "Antecedents and Outcomes of Extent of ERP Systems Implementation in the Sub-Saharan Africa Context: A Panoptic Perspective," *Communications of the Association for Information Systems* (42:1), Association for Information Systems, pp. 581–601. (https://doi.org/10.17705/1CAIS.04222).

Berberoglu, A. 2018. "Impact of organizational climate on organizational commitment and perceived organizational performance: empirical evidence from public hospitals." *BMC Health Services Research*, 18(1). doi:10.1186/s12913-018-3149-z

Berggren, E., and Bernshteyn, R. 2007. "Organizational Transparency Drives Company Performance," *Journal of Management Development*, pp. 411–417. (https://doi.org/10.1108/02621710710748248).

Berrone, P., Surroca, J., and Tribó, J. A. 2007. "Corporate Ethical Identity as a Determinant of Firm Performance: A Test of the Mediating Role of Stakeholder Satisfaction," *Journal of Business Ethics* (76:1), pp. 35–53. (https://doi.org/10.1007/s10551-006-9276-1).

Bertot, J. C., Jaeger, P. T., and Grimes, J. M. 2010. "Using ICTs to Create a Culture of Transparency: E-Government and Social Media as Openness and Anti-Corruption Tools for Societies," *Government Information Quarterly* (27:3), pp. 264–271. (https://doi.org/10.1016/j.giq.2010.03.001).

Brunk, J., Mattern, J., and Riehle, D. M. 2019. "Effect of Transparency and Trust on Acceptance of Automatic Online Comment Moderation Systems," in *Proceedings - 21st IEEE Conference on Business Informatics, CBI 2019* (Vol. 1), Institute of Electrical and Electronics Engineers Inc., July 1, pp. 429–435. (https://doi.org/10.1109/CBI.2019.00056).

Combs, J. G., Crook, T. R., and Shook, C. L. 2005. *The Dimensionality of Organizational Performance and Its Implications for Strategic Management Research*, pp. 259–286. (https://doi.org/10.1016/s1479-8387(05)02011-4).

Delaney, J. T., and Huselid, M. A. 1996. "THE IMPACT OF HUMAN RESOURCE MANAGEMENT PRACTICES ON PERCEPTIONS OF ORGANIZATIONAL PERFORMANCE," (Vol. 39), Academy of Management.

Delone, W. H., and Mclean, E. R. 2003. "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update," *Information Systems Research, Journal of Management Information Systems* (Vol. 19).

Elbelkacemi, Y., ElGarah, W. and Ibrahimi, A. 2017. "The Adoption of e-Procurement with the Moroccan Health Sector," *30th IBIMA Conference*, Madrid, Spain.

Klaus, H., Rosemann, M., and Gable, G. G. 2000. "What Is ERP?," *Information Systems Frontiers* (Vol. 2).

Kumar, N., and Ganguly, K. K. 2020. "External Diffusion of B2B E-Procurement and Firm Financial Performance: Role of Information Transparency and Supply Chain Coordination," *Journal of Enterprise Information Management* (34:4), Emerald Group Holdings Ltd., pp. 1037–1060. (https://doi.org/10.1108/JEIM-02-2020-0060).

Leem, C. S., and Kim, I. 2003. "An Integrated Evaluation System Based on the Continuous Improvement Model of Is Performance," *Industrial Management and Data Systems* (104:1–2), Emerald Group Publishing Ltd., pp. 115–128. (https://doi.org/10.1108/02635570410522080).

Nwankpa, J. K. 2015. "ERP System Usage and Benefit: A Model of Antecedents and Outcomes," *Computers in Human Behavior* (45), Elsevier Ltd, pp. 335–344. (https://doi.org/10.1016/j.chb.2014.12.019).

Nwankpa, J., and Roumani, Y. 2014. "Understanding the Link between Organizational Learning Capability and ERP System Usage: An Empirical Examination," *Computers in Human Behavior* (33), pp. 224–234. (https://doi.org/10.1016/j.chb.2014.01.030).

Rajan, C. A., and Baral, R. 2015. "Adoption of ERP System: An Empirical Study of Factors Influencing the Usage of ERP and Its Impact on End User," *IIMB Management Review* (27:2), Elsevier Ltd, pp. 105–117. (https://doi.org/10.1016/j.iimb.2015.04.008).

Reisel, W. D., Chia, S.-L., Maloles, C. M., and Slocum, J. W. 2007. "The Effects of Job Insecurity on Satisfaction and Perceived Organizational Performance," *Journal of Leadership & Organizational Studies* (14:2), SAGE Publications, pp. 106–116. (https://doi.org/10.1177/1071791907308055).

Ruivo, P., Johansson, B., Sarker, S., and Oliveira, T. 2020. "The Relationship between ERP Capabilities, Use, and Value," *Computers in Industry* (117), Elsevier B.V. (https://doi.org/10.1016/j.compind.2020.103209).

Schminke, M., Arnaud, A., and Kuenzi, M. 2007. "The Power of Ethical Work Climates," *Organizational Dynamics* (36:2), pp. 171–186. (https://doi.org/10.1016/j.orgdyn.2007.03.005).

Shim, D. C., and Eom, T. H. 2009. "Anticorruption Effects of Information Communication and Technology (ICT) and Social Capital," *International Review of Administrative Sciences* (75:1), pp. 99–116. (https://doi.org/10.1177/0020852308099508).

Sirsat, S. S., and Sirsat, M. S. 2016. "A Validation of The Delone And Mclean Model On The Educational Information System Of The Maharashtra State (India)." (http://iaras.org/iaras/journals/ijels).

Sroka, W., and Lőrinczy, M. 2015. "The Perception of Ethics in Business: Analysis of Research Results," *Procedia Economics and Finance* (34), Elsevier BV, pp. 156–163. (https://doi.org/10.1016/s2212-5671(15)01614-7).

Street, C. T., and Meister, D. B. 2004. "Small Business Growth and Internal Transparency: The Role of Information Systems," *MIS Quarterly: Management Information Systems* (28:3), pp. 473–506. (https://doi.org/10.2307/25148647).

Sun, Y., Bhattacherjee, A., and Ma, Q. 2009. "Extending Technology Usage to Work Settings: The Role of Perceived Work Compatibility in ERP Implementation," *Information and Management* (46:6), pp. 351–356. (https://doi.org/10.1016/j.im.2009.06.003).

Victor, B., and Cullen, J. B. 1988. "The Organizational Bases of Ethical Work Climates," *Administrative Science Quarterly* (33:1), p. 101. (https://doi.org/10.2307/2392857).

Wadhwa, S., Mishra, M., Chan, F. T. S., and Ducq, Y. 2010. "Effects of Information Transparency and Cooperation on Supply Chain Performance: A Simulation Study," *International Journal of Production Research* (48:1), pp. 145–166. (https://doi.org/10.1080/00207540802251617).