

An Investigation of Challenges in Enterprise Resource Planning (ERP) Implementation: The Case of Public Sector in Malaysia

Dahlia Fernandez^{#1}, Zaini Zaino^{*2} and Hawa Ahmad^{*2}

[#] Faculty of Business, Finance and Hospitality, MAHSA University

¹dahliafernandez111@gmail.com

²Universiti Islam Antarabangsa

Abstract— The implementation of enterprise resource planning (ERP) system to surge the performance has induced various organizations towards its adoption. Even though the government may perhaps strive for enhancements from ERP adoption, however, the organizations may experience adverse effects. The aim of this study is to investigate the challenges in implementing the ERP system on public sector organizations. This study was conducted using questionnaires survey with 52 local authorities in Malaysia which have implemented the system. It is found that the main challenge to implement ERP in public sector organization is due to the complexity of existing working structure (i.e. protocols, bureaucracy, etc.) in meeting ERP requirements. It is followed by the difficulties in adapting to the change brought by this system where its change the way people work, and lack of experience and appropriate skills in implementing this complex system.

Keywords: Enterprise Resource Planning, Automation Technology, Accounting system, Public sector, Challenges, Issue.

1. Introduction

In early 1980s, government throughout the world started to attempt with numerous methods of governmental reform. A number of these effort have tried to implement the principal of management concepts in private sectors into the public sectors (Rosacker & Rosacker, 2010). This type of reform can be coined using the phrase “new public management” (NPM) which is the public sector reformation in emulating the practices of the private sector towards a significant degree (Rosacker & Rosacker, 2010). One of the reformation is through an automation system called as Enterprise Resource Planning (ERP) system. The original use if this system was to assist in the work process of the manufacturing company. Nevertheless, due to the tremendous benefits from the utilization of ERP, public sector has begun to

make a move by adopting this automation system in their organizations (Rosacker & Rosacker, 2010).

Even though the government may perhaps strive for enhancements from the adoption of ERP, however, the organizations may experience adverse effects. About 90% of ERP implementations are late or over budget (Otieno, 2008) and the success rate of ERP systems implementation is only about 33% (Arif, Kulonda, Jones & Proctor, 2005).

Challenges represent major pitfalls which if not addressed then a project stands little chance of success (Otieno, 2008). This study is conducted to investigate the challenges in implementing the ERP system on public sector organizations in Malaysia. Accountants from each local authority’s organizations, who were identified to have experienced in using the ERP system were given a survey to assess the criticality of the selected challenges that perceive to have a high risk towards the successful ERP implementation.

2. A Review of the Literature Overview of ERP

The evolution in technologies gives significant impact on accounting in business organization functions. The growths in information and communications technologies (ICT) have improve the economic in the market globally (Scapens & Jazayeri, 2003). Among the main automation tool that supports the organizations to deal with their resources is ERP. ERP is defined as configurable application software encompasses of integrated business modules that is designed to assist the main practices and functions of business, with the key aim is to present a holistic view of an organization by the use of a single system (Klaus, Rosemann, and Gable, 2000). Besides that, ERP is

management process business software that integrates comprehensively the applications in the organizational management and whole functions such as product planning, development, manufacturing, sales and marketing and it automate the back office functions that are related to technology, human resources and services (Gelogo & Kim, 2014). ERP has been implemented by the public sector comprehensively in order to improve the services to citizens, better work process, and to deliver efficient governance and transparency (Kumta, 2009). Among the main benefits of ERP system are evade data and operations redundancy, cost reduction, reduction of delivery and cycle time, reliable access to information, easy adaptability, enhance scalability and global outreach (Fernandez, Zainol, and Ahmad, 2017).

3. Issues and Challenges of ERP

The decision to adopt ERP should be consider accurately. Even though the government may perhaps strive for financial improvements from ERP adoption, however, the organizations may experience adverse financial effects. This is due to the high cost involved in implementing this system. For instance, the Malaysian government has provided RM15 million under the Ninth Malaysian Plan for developing the ERP (Jidwin & Mail, 2015). This system adoption requires substantial amount of money and considerable amount of human resources to ensure successful implementation. Furthermore, there are great difficulties for organization that implementing the ERP system such as they are facing issues in integrating the ERP software with the operating systems, telecommunications, hardware and database management systems, in order to make it fit with the needs of organization (Markus, Axline, Petrie, and Tanis, 2000).

Besides that, the ERP models emphasize on the order and streamlined processes, which possibly could suppress the creativity and the innovation (Arnold, Hunton & Sutton, 2000). Additionally, the "best practice" models which are implemented by the ERP vendors are constructed from the past decades of successful organizations and it possibly not suitable for the forthcoming necessities of evolving organizations (Arnold, Hunton & Sutton, 2000).

Lastly, as the key feature of ERP system is to assist in integrating all the functions in the organizations, the data faults that occur in the system are not restricted to that specific area, but instead it will be extent in all over the organization (Lynn & Madison, 2000). Due to the features of ERP there is complex and required a large investment, it is essential for the organisations to pay attention towards the experiences and the challenges face by the others organizations, and to learn from their challenges and practices (Fernandez, Zainol & Ahmad, 2017). Due to these reasons, organizations should put emphasis on the importance of recognizing the relevant challenges as an initiative to enhance the probabilities of a successful ERP implementation.

4. Research Method and Methodology

The sample of this study encompasses of accountants in local authority's organization in Peninsular Malaysia that are currently using the ERP system. They are a front-line agency that is most frequently dealing with the people including developers, traders, and investors. Currently, there are 99 local authorities in Peninsular Malaysia which include 10 from City Council, 32 from Municipal Council and 57 from District Council. A structured questionnaire was designed and used for data collection. The questionnaire comprised of a set of questions developed to measures respondent's perception of the challenges of implementing ERP. This study is using a five-point semantic Likert scale. The scale value is design as 1 = strongly disagree, 2 = disagree, 3 = average, 4 = agree, and 5 = strongly agree.

5. Findings and Discussion

A total of 99 questionnaires were distributed to those agencies, 52 (52.53%) were returned back. 47.47% (47 questionnaires) were not returned back. The types of organization involved are city council (9.6%), municipal council (28.8%) and district council (61.5%). This shows that the sample was a mixture of all types of organizations in the local authorities. As shown in Table 1.0, the highest mean score is complexity of existing working structure (i.e. protocols, bureaucracy, etc.) in meeting ERP requirements (mean score 3.8077) and followed by change the way people work after

ERP implementation (mean score 3.6731), lack of experience and appropriate skills in implementing ERP (mean score 3.6154), insufficient ICT infrastructure to implement ERP in the local authority (mean score 3.4423), lack of technical support from appointed ERP consultants (mean score 3.4231), and inadequate budget for ERP project (mean score 3.2500). The lowest rank is confusion over issues in accounting treatments due to migration from cash to accrual accounting basis, with a mean score of 3.1923.

The results indicated that all means were higher than 3 which showed that all of the items considerably contribute to the challenges to ERP implementation. Firstly, the high complexity of working structure (i.e. protocols, bureaucracy, etc.) in meeting ERP requirements is found to be the main challenge of this system to be well implemented. This result is consistent with a study conducted by Weerakkody, Baire, and Choudrie (2006) where they have found that a legacy of bureaucracy is inhibiting the government from expediting their system integration initiative. These glitches are more challenging in the public sector, where the disorganised and bureaucratic working structure and incongruent legacy systems have to be integrated in a new system environment (Weerakkody, Baire, and Choudrie, 2006).

Table 1.0

Construct	N	Min	Max	Mean	Std. Deviation
Complexity of existing working structure (i.e. protocols, bureaucracy, etc.) in meeting ERP requirements.	52	1	5	3.8077	0.9083
Change the way people work after ERP implementation.	52	2	5	3.6731	0.6484
Lack of experience and appropriate skills in implementing ERP.	52	3	5	3.6154	0.5991
Insufficient ICT infrastructure to implement ERP in the local authority.	52	2	5	3.4423	0.7253
Lack of technical support from appointed ERP consultants.	52	1	5	3.4231	0.9568
Inadequate budget for ERP project.	52	1	5	3.2500	0.9676
Confusion over issues in accounting treatments due to migration from cash to accrual accounting basis.	52	1	5	3.1923	0.8174
Total				3.4863	0.8033

The second main challenge is regarding the difficulties in adapting to the change brought by this system where it changes the way people work. This is due to the change brought by ERP which require accountants not only to have knowledge of

financial accounting, nevertheless it also require them to have knowledge of IT and management after its implementation (Chen, Huang, Chiu & Pai, 2012). It is undeniable that the ability of this integrated system to substitute or merge various works of accountants will consequently change the nature of their job. In order to solve this problem is they have to look at the new environment with a positive perspective.

The third main challenge is lack of experience and appropriate skills in implementing ERP. It occurs as a result of the absence of capacity to cope with the new system due to the lack in training. This end result is consistent with Teittinen, Pellinen and Järvenpää (2013) which indicated that the modern and complex ERP system needed special skills in order for them to cope with this new system.

Insufficient ICT infrastructure to implement ERP in the local authority and lack of technical support from appointed ERP consultants are found to be situated in fourth and fifth rank respectively. Due to the complexity of software functionality and lack of knowledge and experience, the best solution is to seek assistance from external consultants. Thus, the local authorities' organizations should accentuate to solve this matter as it has possibility to lead towards the unsuccessful implementation of ERP.

A study conducted by Kamhawi (2008) found that the cost of implementation is among of the main challenges in ERP implementation as it required a high cost. However, this paper found a contradict result. Inadequate budget in implementing this system is situated in the second least challenges for

ERP implementation. Budget is proved as not the main challenge in the public sector organization as compared as in private sector organization. This is because for public sector organization, the government has provided a considerable fund for each organization to implement this system.

Finally, the least challenge of ERP implementation is found to be the confusion over issues in accounting treatments due to migration from cash to accrual accounting basis. Even though there are changes in the accounting treatment, it is proved that this system facilitates the change that has been made in local authorities' organizations and signalling to the efficiency and flexibility of this system.

6. CONCLUSION

The findings of this study should provide to management of firms implementing ERP systems a better understanding of the likely challenges they may face and put in place appropriate measure to help in mitigating the risk of implementation failures. These challenges indicated that all organizations are necessitate to do thorough analysis of the companies' strengths and weaknesses before any decision to adopt ERP is taken. Some issues should be undertaken such as the organizations' readiness capacity in the aspect of technical, management and financial terms. It is essential for the adoption agendas to be realistic and have a subtle balancing act in order to reduce the unavoidable disturbance and to ensure the implementation will be sustainable. Numerous studies have suggested that training and education are both important to be delivered to staffs or the system's users (Umble, Haft & Umble, 2003; Ward, Hemingway & Daniel, 2005; Kraemmerand, Møller & Boer, 2003). Training and education act as important process in this circumstance as it is critical in assisting the staffs to adapt to the current system more speedily (Ngai, Law & Wat, 2008). Besides that, it facilitates the staffs to realize the comprehensive notions of the ERP system and to make certain their acceptance and readiness towards the new system.

References

- [1] Rosacker, K. M., & Rosacker, R. E., "Information technology project management within public sector organizations", Journal

- of Enterprise Information Management, Vol. 23, No. 5, pp. 587-594, 2010.
- [2] Otieno, J. O., "Enterprise Resource Planning (ERP) systems implementation challenges: A Kenyan case study", Business Information Systems, Vol. 7, No. 12, pp. 399-409, 2008.
- [3] Arif, M., Kulonda, D., Jones, J., & Proctor, M., "Enterprise information systems: technology first or process first?", Business Process Management Journal, Vol.11, No. 1, pp. 5-21, 2005.
- [4] Scapens, R. & Jazayeri, M., "ERP systems and management accounting change: opportunities or impacts? A research note", European Accounting Review, Vol. 12, No.1, pp. 201-33, 2003.
- [5] Klaus, H., Rosemann, M. and Gable, G., "What is ERP?", Information Systems Frontiers, Vol. 2, No. 2, pp. 141-62, 2000.
- [6] Gelogo, Y. E., & Kim, H. K., "Mobile Integrated Enterprise Resource Planning System Architecture", International Journal of Control & Automation, Vol. 7, No. 3, pp. 379-388, 2014.
- [7] Kumta, G. A., *E-Government and ERP: Challenges and Strategies Handbook of Research on Enterprise Systems: Concepts, Methodologies, Tools and Applications*, pp. 112-127, 2009.
- [8] Fernandez, D., Zainol Z., & Ahmad, H., "The Impacts of ERP Systems on Public Sector Organizations", Procedia Computer Science, Vol. 111, pp. 31-36, 2017.
- [9] Jidwin, A. P., & Mail, R., "The Concept of New Public Management: The Adoption Case in Malaysian Public Sector", *Proceedings of 4th European Business Research*, Imperial College, London, UK, ISBN: 978-1-922069-72-6, 2015.
- [10] Markus, M. L., Axline, S., Petrie, D., & Tanis, S. C., "Learning from adopters' experiences with ERP: problems encountered and success achieved", Journal of information technology, Vol. 15, No. 4, pp. 245-265, 2000.
- [11] Arnold, V., Hunton, J. E., & Sutton, S. G., "On the death and dying of originality in the workplace: a critical view of enterprise resource planning systems' impact on workers and the work environment", Working Paper, University of South Florida, 2000.
- [12] Lynn, M., & Madison, R., "The role of ERP software revisited", Journal of Accountancy, Vol. 190. No. 1, pp. 104-105, 2000.
- [13] Weerakkody, V., Baire, S. and Choudrie, J., "E-government: the need for effective process management in the public sector", Proceedings of the 39th Hawaii International Conference on System Sciences, IEEE Computer Society, Kauai, HI, pp. 1-10, 2006.

-
- [14] Chen, H. J., Huang, S., Chiu, A. A., & Pai, F. C., "*The ERP system impact on the role of accountants*", *Industrial Management & Data Systems*, Vol. 112, No. 1, pp. 83-101, 2012.
- [15] Teittinen, H., Pellinen, J., & Järvenpää, M., "*ERP in action—Challenges and benefits for management control in SME context*", *International Journal of Accounting Information Systems*, Vol. 14, No. 4, pp. 278-296, 2013.
- [16] Kamhawi, E. M., "*Enterprise resource-planning systems adoption in Bahrain: motives, benefits, and barriers*", *Journal of Enterprise Information Management*, Vol. 21, No. 3, pp. 310-334, 2008.
- [17] Umble, E. J., Haft, R. R., & Umble, M. M., "*Enterprise resource planning: Implementation procedures and critical success factors*", *European Journal of Operational Research*, Vol. 146, No. 2, pp. 241-257, 2003.
- [18] Ward, J., Hemingway, C., & Daniel, E., "*A framework for addressing the organisational issues of enterprise systems implementation*", *The Journal of Strategic Information Systems*, Vol. 14, No. 2, pp. 97-119, 2005.
- [19] Kraemmerand, P., Møller, C., & Boer, H., "*ERP implementation: an integrated process of radical change and continuous learning*", *Production Planning & Control*, Vol. 14, No. 4, pp. 338-348, 2003.
- [20] Ngai, E. W., Law, C. C., & Wat, F. K., "*Examining the critical success factors in the adoption of enterprise resource planning*", *Computers in Industry*, Vol. 59, No. 6, pp. 548-56, 2008.