ERP Systems in Healthcare

Institutional Affiliation

Table of Content

Introduction 3

Business Requirements 3

System Design 4

Development and Unit Testing 4

User Acceptance Testing 6

Implementation 6

References 7

Introduction

Information Systems have been known to develop gradually over the recent years in attempts to develop a system that avails the relevant information precisely, timely and easily throughout an organization. Healthcare is an integral part of our community, and there is great importance placed on the efficient and effective operations of health providers. The high numbers of patients visiting the hospitals daily pose direct challenges in the administration of a facility forcing most hospitals to adopt information systems such as ERP. Enterprise Resource Planning (ERP) in medicine has mostly been used by large organizations, but we seek to apply its use in small-sized healthcare facilities.

Business Requirements

Enterprise Resource Planning systems promote significant change in different areas of a healthcare facility including finance, human resource, capability, revenue and admission resources. In healthcare organizations, these systems are famed for increasing profitability and efficiency of services. Some of the business processes that these systems have been designed to promote include the reception area where patient records and details are maintained. These systems help receptionists to easily obtain information that may be needed by patients and their families. It also helps in keeping updated information on schedules such as appointment, admission dates, and discharge details. Healthcare facilities survive on the circulation of information from different professionals and between different departments. The ERP systems ensure that there is an easy transmission of data by ensuring that all authorized personnel’s have access to all relevant information in the fastest way possible. The availability of this data is crucial in processes such as developing diagnostic reports. When information recorded on electronic medical reports (EMR) is transmitted in a fast way, physicians are able to use details such as health background and previous diagnoses in order to formulate educated diagnosis decisions (Botta-Genoulaz, 2006).

System Design

Modern hospital information systems are information systems that are integrated, comprehensive and specialized. They are also designed to manage the administrative, financial and clinical aspects of hospitals and healthcare facilities. Information systems have become crucial and referred to as focal points on which the healthcare provision within hospitals and other types of medical institutions depends. The popularity of these systems is attributed to their importance regarding keeping and maintaining all types of patient data and other information such as medical information of patients; recording all medical services that have been provided to the patient such as investigations, diagnoses, treatments, follow up reports and important medical decisions. Henry (2016) believes hospital information systems can improve the performance of health care providers and in turn improve the health of a patient. They also have the potential to reduce costs, improve quality and allow for patients to be more involved in their healthcare procedures. Even with these benefits being evident the utilization of the systems of ERP by physicians' and hospitals' is still significantly low. Researching the response of medical professionals to the use of ERP systems is important especially in understanding the success and failure of ERP development and implementation project.

Development and Unit Testing

Many studies have come to view ERP to be quite challenging especially due to the presence of multiple screens, options as well as navigation aids. Similarly, these studies have noted the problems in usability especially in regard to the documentation of progress notes and other components that are proven labor extensive to cause healthcare providers to spend extra time at work learning how to use these systems. These substantial initial time costs, however, are regarded as very crucial barriers towards achieving successful implementation. Poba-Nzaou et. al (2014) says the reason they are considered barriers is that they put a time stress on healthcare providers and staff by increasing their time at work, this extra time used in training reduces their use of the ERP systems and could in some cases increase resistance towards the systems translating to the lower success of ERP implementation.

While vendors are making effortless attempts to gradually improve ERP usability, the analysis that vendors contributed to show that they believed that newly innovated technology such as voice recognition, mobile devices, and tablet computers could not make significant changes in simplifying ERP usage. Stefanou (2006) feels that the development and designing of user-friendly information software to be used by professionals have become a challenge for many industries other than the healthcare industry. Failures in ERP implementation and use such as inexistence of integration between the ERP and clinical data systems such as referral systems and lab systems has been attributed to barriers of inadequate electronic data exchange and weak integration. Having health care professionals work using both electronic and paper-based systems has proven quite challenging in that maneuvering through both systems during the performance of their work tasks has become very time-consuming thereby slowing down the workflow. It can also lead to an increase in errors of information conveyance and organization and can as well lead to an increase in the resistance to EMR use amongst the healthcare professionals.

User Acceptance Testing

The implementation of information systems adoption, as well as its use, has remained a major issue affecting both research and practice. Even with the major innovations and technological evolution for both hardware and software the problem facing information systems persists. The last two decades have brought about significant progress especially in the prediction and determination of user acceptance of information systems. Numerous researches have proven Technology Acceptance Model (TAM) to be effective in explaining about forty percent of the variance in components relative to usage intention as well as behavior (Ahlan, 2014).

This Model believes that behavioral intention to use by an individual can be determined by the belief of perceived usefulness and the belief of perceived ease of use. Perceived usefulness can be used to describe as the level at which a person believes the information system will increase their job performance. Perceive ease of use, on the other hand, is referred to as the level at which a person believes the use of these information systems will be easy to use and require minimum effort. The TAM model also views perceived usefulness to be influenced by perceived ease of use since the easier it is to use the systems the more useful it becomes to the work performance (Ketikidis, 2012).

Implementation

Ahmadi (2013) believes that people react differently to changes and with the implementation of the new ERP systems, healthcare facilities cannot expect all positive feedback. Some employees are opposed to changes and prefer thing to remain in a status quo, therefore, developing a resistant attitude which may even affect their training to use the system of they may just refuse to use the system all the same. New system implementations also come with new strategic plans, and if a healthcare facility has not developed a different strategic plan aligned with the ERP system, it would mean that implementation would not succeed. ERP systems require things in an organization to be done differently than before hence it needs proper prior planning. The inflexibility of the ERP software may also lead to the unsuccessful implementation since it proves hard to use and the users opt not to use it at all (Ahlan 2014).

Healthcare facilities need information systems for proper functionality, and in this effect, they must consider the best way to make these systems work especially with implementation proving really hard to get through. There are a few ways to ensure proper implementation. A pre-implementation assessment should be conducted before purchasing an ERP system. Strategic planning for an implementation plan should be made to map out the changes that will occur during the implementation while allocating and moving duties of staff so as to make sure that everything runs smoothly during this transition (Ball, 2003). Proper training for the staff should be done if an implementation is to go through. They must be made familiar with the HIS and taught how to operate and use it to avoid implementation failure due to lack of knowledge. The staff who are resistant to change should be made to feel included in the change by involving them as much as possible to have them change their minds and support implementation (Ball, 2003).

References

Ahlan, R, A., Ahmad, I, B. (2014). User Acceptance of Health Information Technology (HIT) in Developing Countries: A Conceptual Model 1287 -1296. Elsevier.

Ahmadi, H., Rad, M. S., Nazari, M., Nilashi, M., & Ibrahim, O. (2014). Evaluating the factors affecting the implementation of hospital information system (HIS) usingAHP method. *Life Science Journal*, *11*(3), 202-207.

Ball, M. J. (2003). Hospital information systems: perspectives on problems and prospects, 1979 and 2002. *International journal of medical informatics*, *69*(2), 83-89.

Botta-Genoulaz, V., & Millet, P. A. (2006). An investigation into the use of ERP systems in the service sector.*International journal of production economics*, *99*(1-2), 202-221.

Henry, J., Pylypchuk, Y., Searcy, T., & Patel, V. (2016). Adoption of electronic health record systems among U.A. non-federal acute care hospitals: 2008-2015. ONC Data Brief, no.35. Office of the National Coordinator for Health Information Technology: Washington DC. Retrieved from https://dashboard.healthit.gov/

Ketikidis P, Dimitrovski T, Lazuras L, Bath PA. (2012). Acceptance of health information technology in health professionals: An application of the revised technology acceptance model. Health informatics journal; 18(2):124-34.

Poba-Nzaou, P., Uwizeyemungu, S., Raymond, L., & Paré, G. (2014). Motivations underlying the adoption of ERP systems in healthcare organizations: Insights from online stories. *Information Systems Frontiers*, *16*(4), 591-605.

Stefanou, C. J., & Revanoglou, A. (2006). ERP integration in a healthcare environment: a case study. *Journal of Enterprise Information Management*, *19*(1), 115-130.