
IMPLEMENTATION FACTORS INFLUENCING ELECTRONIC MEDICAL RECORDS SYSTEMS

Assion Lawson-Body, University of North Dakota, alawsonbody@business.und.edu

Lori Willoughby, Minot State University, lori.willoughby@minotstateu.edu

Eric Hoffner, University of North Dakota, eric.hoffner@und.nodak.edu

Kinvi Logossah, University of the French Antilles and Guyana, K.Logossah@martinique.univ-ag.fr

ABSTRACT

Healthcare systems implementation theorists reported that social responsibility issues are crucial for successful implementation. Healthcare technology and electronic medical records (EMR) have changed the healthcare industry drastically over the last decade. This study investigated the factors affecting implementation of EMR systems and identified which social responsibility factors influence strategic healthcare technology implementation. A case study has been conducted and content analysis has been used to identify healthcare IT implementation factors and social responsibility factors. Data was collected through in-depth interviews involving two large departments (Medical Records Department and Picture Archiving – Electronic X-ray Department) of a regional hospital in a state in the US. The hospital’s EMR system implementation process was found to be influenced by some of the traditional IT implementation factors as well as some social responsibility factors.

Keywords: Social Responsibility, Implementation, Healthcare and Technology.

INTRODUCTION

Even though many theorists said that implementation should be conceived in technical terms [27], the literature review of this research focuses more on the arguments presented by the theorists who said that implementation should be conceived in social responsibility terms [1, 2, 20]. In the same vein, healthcare systems implementation theorists reported that social responsibility issues are crucial for successful implementation [22, 31]. Healthcare technology and electronic medical records (EMR) have changed the healthcare industry drastically over the last decade as well as the last few years [22]. The forces of competition and advancements in healthcare technology are pushing hospitals to follow the trend. Paperless Healthcare systems become inevitable and any healthcare institute that doesn’t follow this trend will fall behind the rest of the industry. EMR is a must and the faster this is adopted the more successful the healthcare facility will be.

Attempts were made by many authors to discuss disadvantages and advantages that come from EMR processes. In terms of disadvantages, such electronic systems can compromise short-term physician office performance, intimidate physicians and their nurses and increase medical errors [22]. Morrison suggested that the addition of electronic media and increasing time spent by doctors utilizing electronic resources could result in decreased time spent with patients [23]. In contrast, the adoption rates of EMR are on the rise [22]. For instance the relevance of this information being available to the physicians at their fingertips from multiple locations helps the physicians and doctors and allows them to do a more efficient and successful job. Availability of information is increased with the removal of time spent searching physical documentation. Additionally, information can be transferred electronically. Pollak and Lorch [23] presented the results that EMR systems have on patient care or the quality of care. They found that with full systems or even some hybrid systems the quality of the healthcare was improved. Furthermore, Pollak and Lorch [23] stated that due to the fact that the technology can eliminate a portion of the staff needed, it can make up for the high costs of the technology. It also allows the medical staff to have more time to concentrate on the human elements and aspects of healthcare [23]. A survey was conducted on 1281 eligible physicians in the 50 US states and the District of Columbia [23]. The findings showed that 23.9% of physicians in 2005 reported using some type of EMR system compared to 18.2% in 2001. This trend has been on this increasing plane since 2005 as well.

While some healthcare institutes successfully implemented their EMR processes, others are likely to fail. Some authors raise the complexity of EMR implementation in healthcare institutes. As a matter of fact, it can be costly and complicated to implement EMR systems [23]. As it will cause a lot of downtime, education, trial and error, integration, moving to different software vendors, updating, and may not be as seamless as it should be. It can be very difficult for physicians who travel from one location to another and have to deal with multiple systems and their processes. Therefore, the biggest roadblock is implementation, which is defined by Klein and Sorra, (cited in [9]) as the process of gaining targeted organizational member's appropriate use of an innovation Ludwick and Doucette, [22] found that the quality of the implementation process of a healthcare system is as important as the quality of the system being implemented.

The goal of this study is to examine and understand factors affecting implementation of EMR processes into healthcare systems and identify which social responsibility factors influence strategic healthcare technology implementation and respond to the following research question: what social responsibility factors influence strategic healthcare technology implementation? For this purpose, a case study has been conducted and content analysis has been used to identify EMR implementation factors and social responsibility factors. We exhibit the complexity of implementing EMR via a case study of a healthcare organization. Lessons from this study should contribute to the successful implementation of healthcare technology at healthcare institutions.

LITERATURE REVIEW: IT AND EMR IMPLEMENTATION

EMR systems implementation theorists reported that the socio-technical issues are crucial for successful IT implementation [1, 2, 20]. There are contradictory explanations about this socio-technical view of EMR system implementation in the IT implementation literature because many theorists said that implementation should be conceived in technical terms instead of socio-technical terms. For instance, Hirschheim et al., [11] challenged the view that IT implementation should only be conceived in technical terms by presenting it as a form of social action. In the same vein, Aanestad and Jensen [1] stated that IT is subject to social construction that may have an impact on their implementation and use. They argued that there is a link between social context of implementation and organizational processes. Klein and Hirschheim [11] studied IT implementation framework by exploring four rationality concepts: formal, substantive, communicative, and emancipator. The first two rationality concepts are drawn from Max Weber's "theory of organization" and the latter two from the "critical social theory" of Jurgen Habermas. On their side, Wastell and Newman [32] developed a model of stress and emotion that can be applied to IT implementation process to form a framework. They believed that IT implementation is full of stress and motion because it includes risk, conflict, change, and uncertainty. They found that the stress perspective is fundamental in IT implementation process. After proposing substance-theory-oriented (STO) methodology to design and develop organizational decision support systems, Kivijarvi [16] developed a framework for the implementation of the decision support system. The implementation process is moved from technological aspects closer to managerial [16]. Kivijarvi's model has three phases: descriptive analysis, normative design, and directed change.

Aanestad and Jensen [1] found that EMR implementation strategies differ with respect to how stakeholders are mobilized to support the project. The contribution of stakeholders and their interests are central to the definition of social responsibility. They also found that a modular implementation strategy is an approach that addresses the challenges related to mobilization and organization of multiple stakeholders. Abraham and Junglas [2] describe how the IS implementation process itself contributed to organizational transformation in terms of changes in coordination, culture, and learning at a successful organization like Sentara Healthcare. Lawler et al [20] examined a wide range of cognitive ergonomics and socio-technical systems issues that impact the successful implementation of EMR technologies. More specifically, Lawler et al [20] reviewed evidence on the impact of EMR technologies on medication errors, EMR and clinical support, copying clinical exams and notes, computerized-provider order entry and clinical decision support systems, and bar-code medication administration systems. Lawler et al [20] concluded that important human factors must be considered for successful EMR systems implementation.

Even though many theorists said that implementation should be conceived in technical terms, the literature review of this research focuses more on the arguments presented by the theorists who said that implementation should be conceived in socio-technical terms.

Case Background and Motivation of the Study

The information that was collected for this case study came from multiple sources. One of the largest resources of information came from health system in a state in the US. Information was retrieved from IS staff, managers, specific end-users and personal job knowledge. The hospital employees approximately 3500 employees and contains 175 beds for patients

There is a huge variety in the size and types of healthcare facilities. There are also different aspects to measure the size of hospitals. One of the most popular ways is to measure them by the number of beds in the facility, others examples are number of employees, physicians, or revenue. An example of how complicated and different systems can be is how this regional healthcare institute has different systems for both the clinic and the hospital. When a patient is seen and is between both the clinic and the hospital they will receive two different bills. Certain hospitals also have different specialties and this also has a huge effect on the type of software that is selected.

The regional hospital was looking to replace its primary software with a new EMR system. The approximate cost was determined to be in the area of \$17-\$20 million following debates among interested parties. It took two months before anything was final and it took two years before everything could be implemented and the data could be fully transferred into the new system. Some conditions that had an effect on the price and the implementation time were all of the subsidiary programs that were currently used and were in place, and what subsidiary programs they could replace. This was part of the selection process, and it was given top priority.

The regional hospital used a product or software that was developed by a local company. The regional hospital has been growing very fast and the software has been experiencing many errors or malfunctions because of this. This is why the regional hospital was looking at two new EMR systems. Both of these software providers should allow the regional hospital to have the ability to cope with its growing capacity. This new solution should also give the regional hospital the ability to integrate all of the data and subsidiary programs. Another reason that the regional hospital was looking into these two new systems is their reputation of being so successful.

RESEARCH METHODOLOGY

Research Design

One of the authors is an employee of the regional hospital and was invited to monitor the implementation process. To obtain the whole story and prepare the interviews, the following research methods have been used: observations of meetings; collection of documents like internal papers, plans, agendas and minutes; annual reports from the hospital. The results of these investigations and explorations were used to set up an interview guide.

Data Collection

Interviews were conducted to gather information and personal opinions on the subject. The interviews, which lasted for about two hours, were unstructured and/or semi structured depending on participants' responses. Employees from two large departments (Medical Records Department and Picture Archiving – Electronic X-ray Department) were interviewed. The manager of the Medical Records Department and the coordinator of the Picture Archiving Department have participated in the interviews. A lot of the questions that were asked were open ended. The purpose behind this was to retrieve the information that was needed, but also to allow the interviewee to take a step further and give their personal opinions and thoughts within their expertise area. There were also a few texts on information systems, healthcare, and electronic data which were used and are referenced as well. The information that was collected was used to understand the

subject as a whole, display facts, thoughts, and opinions. This was also used to develop an implementation plan, and look into the future of EMR systems while implementing them into a healthcare institute.

ANALYSIS

Content Analysis

Content analysis aims to objectively characterize messages derived from speech by descriptive information [12]. In many businesses and social science applications, content analysis examines how people or a significant group of decision makers react to such qualitative information by quantifying document tone [12]. Typically, content analysis classifies some words as positive or negative words, and hypothesizes that people's reactions are function of the relative number of positive, negative and total words in a document, speech or interview [12]. Content analysis is an approach that assigns weights for each word, sentence, paragraph and text contained in interview messages or documents [12].

In this study, we use content analysis to identify social responsibility factors affecting EMR systems implementation success.

Following the guidelines provided by Krippendorff [19], we identified context units of analysis. According to Krippendorff [19], these units or observations must be independent from each other. In this study, we identified the sentence as the context unit and group together the observations that are dependent from each other but at the same time independent from the rest of the texts. To have a better reliability for our content analysis, we set rules that minimized the possibility that findings would reflect the analysts' subjective predisposition rather than the content of the documents under analysis [13]. To do so, we constructed this as a list of words that the analysts used to refer to specific concepts in the IT implementation and social responsibility literature.

FINDINGS

After the content analysis, all factors that were found fell in the following categories:

Table 1: Categorization of factors

Factors	Pressure to pursue category	Deciding activity category	Social responsibility category
Cost of paperless	*		
Security	*		
Recruitment competition between hospitals	*		
Time and space considerations	*		
Pressure from partners	*		
Cost-benefit analysis		*	
Installation strategy		*	
Testing capacity		*	
Compatibility with existing systems		*	
Social influence from stakeholders			*
Vendor selection			*

DISCUSSION

This article reports on social responsibility factors affecting EMR systems implementation success and failure and responds to the following research question: what social responsibility factors influence a strategic healthcare technology implementation? For this purpose, content analysis has been used to identify EMR implementation factors and social responsibility factors that impact the EMR implementation at a regional hospital in a state in the US.

Under pressure to pursue category, we found that cost of paperless was a factor in the state regional hospital decision to implement an EMR system. The initial costs associated with the implementation of such system are huge. Sharma et al., [27] drew on configuration theory to develop propositions identifying drivers of IS implementation costs. After testing the propositions, they found that organizations expend tremendous resources to successfully implement IS applications, in addition to the costs expended on acquiring and/or developing the application [27]. At the regional hospital, there are costs associated with maintaining and updating the EMR systems. In addition, there are also resources allocated to security and backups of the EMR systems. These all have an effect on the ability of a hospital to purchase this type of equipment and software. Most of our respondents admitted that the initial costs barrier needs to be resolved because these systems should enhance the hospital's profitability. This is reflected by one of the declarations collected during the interview:

When a paperless system is installed and ran correctly the advantages are endless. There are very high costs associated with the electronic healthcare system itself which can be very expensive to purchase. Although most of the facilities will admit that these systems will enhance their profitability, the initial costs are a huge barrier that needs to be passed.

Security is another factor found under the umbrella of pressure to pursue. Many studies suggest that the use of computerized systems enhances clinical privacy and security and may improve patient health outcomes overall [8]. Other studies suggest that the application of health information technology can actually cause security problems [8]. With today's technology, an effective system should be able to prevent suspicious and malicious activities. Most of the systems in hospitals are secure and backed-up multiple times due to security threats, information or hardware damage, and unplanned errors which potentially could occur. The technology today is becoming so advanced and has the ability to limit and easily overcome these security issues. The following statement derived from the interviews explains that:

Information that is stored at a healthcare system is very valuable and needs to be secure. With patients personal information in the system it needs to be protected in a whole different manner compared to paper records. If the security is breached on this information and the wrong people get their hands on it the hospital will be legally responsible. This is even more difficult when trying to send information to multiple locations while trying to keep it accurate and secure at the same time.

Another factor found in the pressure to pursue is recruitment competition between hospitals. Williams et al., [33] studied the potential impact of shortages of the surgical workforce on both urban and rural hospitals. They concluded that there is a predicted shortage of 30,000 surgeons by 2030 and the need to train and hire more than 100,000 surgeons. That means the regional hospital needs to compete with other healthcare institutes for recruiting high quality physicians. Hospitals need EMR systems in order to compete in the future. Not only will it help with the competition against other hospitals but it will help in recruiting top employees and physicians. A lot of the new upcoming physicians are getting trained for the use of paperless technology. Their decision to work for hospitals will depend on the technology that is in place and available in that hospital. The paperless process in the healthcare system increases quality of care. These new EMR systems allow the physicians to be more productive and perform a higher quality of work. This should always be the main focus and goal for healthcare facilities. A highlight from our interviews shows that:

When it comes to physicians it is going to be very difficult to please all of them. You are going to have the newer or younger physicians that use technology and then there are going to be the veteran physicians that want nothing to do with new technology and convincing them along with teaching them how to use these systems can be very difficult. It is not just physicians that use these systems, but it needs to start there and then work its way down to the rest of the employees such as nurses, medical records employees, transcriptionists, or registration employees.

Another factor found under pressure to pursue category was time and space considerations. Hignett and Lu [10] examined the hospital's bed space and defined it as the area around a patient's bed that offers privacy

either as a single room or a cubicle. They concluded that the bed space areas in recently built hospitals were less than in the old hospitals. This space presents a challenge due to the different people who will occupy the space (patients, clinicians, support staff, visitors etc.) and the wide range of task activities [10]. With the use of EMR systems in the hospitals, the drawers, desk table, bedside cabinets, etc. space should be saved. Time and space are fundamental to the shaping of social experience [26]. Brekke et al [5] stated that waiting times are a major health policy concern in many hospitals. Also, the problem of appointment scheduling and real-time capacity allocation in many hospitals become a challenging issue [7]. The regional hospital should use the new technology to address those issues by reducing patients' waiting times, better managing an increased number of daily visits. A highlight from the findings includes:

This new technology increases the number of visits that can take place each day and reduces the time between visits or the wait that comes after a visit for x-ray readings or second opinions, for example. The time that is saved here is enormous, and the amount of space that can be saved is enormous as well too. There will be no need for the large filing cabinets and rooms dedicated to the storage of all these records.

The last factor that was found under pressure to pursue category is pressure from partners. The imitation of other healthcare facilities that have already adopted EMR systems was another incentive for the implementation of EMR in the regional hospital. The hospital maintains relationships with many partners. Therefore, the EMR implementation project must be aligned with both the regional hospital and the partners' plans. A study shows that partnership attributes affect IT implementation [21]. According to Lee and Lim [21], partnership attributes encompass partner trust, interdependence, and commitment which affect the extent to which organizations undertake IT integration and increase the quality of IT exchange among partners. The regional hospital cooperates with many insurance companies, government agencies, nursing organizations and drug manufacturers which have adopted EMR systems. The regional hospital had no choice to do so if it wants to maintain trust, interdependence and commitment with its partners. A highlight from the findings indicates that:

A lot of the exterior companies that work with the healthcare facilities are going paperless as well. This is mainly associated with insurance companies, Medicare, Medicaid, and other government agencies. They all send their documents in electronically now and a capable system has to be set up to receive these documents and process them. Our healthcare institute is no different than any other business aspect when it comes to the direction technology is moving. It is the way of the future and there is no slowing it down.

The first factor found for the deciding activity category was cost-benefit analysis. Cost-benefit analysis often is required in the IT implementation process [18]. It necessitates a substantial data collection and analysis [18]. This analysis involves explicitly spelling out the costs and benefits in a formula such as equation for an investment that improves productivity [18]. Healthcare software or computer systems can cost multiple million dollars. This cost does not cover all accessories; this is just the main system. There are also many additional devices that need to be purchased and integrated. Most of these devices are very specialized to locations and departments, like picture archiving systems and computerized x-rays for example. The hospital needs to elaborate a budget and plan out the level of software that should be installed.

Many software companies will provide their estimates and show samples of their products. But it is not just the initial price that needs to be considered. The amount for yearly support, upgrades, and maintenance are also large portions of the bill. Contacting other hospitals as references can be an option as well as viewing statistical evidence of the previous installation of each prospective vendor. The following highlight from our interview supports the requirement of cost-benefit analysis in the EMR technology implementation in the regional hospital:

First and foremost they need to realize how much money they have and what they can afford? There are many different levels of software available at a variety of price ranges. The facility needs to find what is right for them at their price range. Every software vendor is going to come out and make their product look great so a lot of research needs to be done.

The installation strategy was another factor found under deciding activities category. Kwon and Zmud proposed installation as a phase of the IT implementation process [24]. There are different installation strategies available for the implementation of any health IT or software program. The installation methods most cited in the literature are: parallel, progressive, pilot, and radical or plunge. The parallel installation method is the simultaneous use of both systems (the old and the new) for a certain period of time or at least until the hospital is sure and positive about the performance of the new system; then it can get rid of the old one. The progressive installation is the implementation of the new system in several modules and each module can perform independently from other modules. The pilot installation or experimental one is used when the organization decides to implement the new system on one single site and observes the performance of the system until it becomes evident that the new system works perfectly. Then the new system is installed in the remaining parts or sites of the business. The radical installation is when the organization discards the old system and replaces it with the new system which is in use immediately. At the regional hospital, there was a complete replacement of the old system with the new one. That information discovered during our interviews allows us to conclude that the regional hospital has opted for a radical or plunge installation. This option has the advantage of being cheaper than the other options. A highlight from the findings indicates that:

A facility needs to understand what areas are of greatest need. If they can afford to implement a whole system from the start then they will be better off. It is a greater advantage to do it all at once rather than to implement different pieces at different times. This is due to the fact that all the problems can be worked out, and they are all on the current version, and have been proven to work together. There is one positive outcome of installing it in pieces and that would be to limit downtime to different sections, but for the overall future it is better to do it all at once.

Another factor found under the umbrella of the deciding activities was the testing capacity of the hospital. A new information technology (IT) is often subjected to conflicting requirements, therefore, a testing phase needs to be included in the implementation process. According to Ahmed et al [3], one of the issues in health care information systems is how to test the very data-intensive systems. They proposed an interoperability testing methodology to cope with the aforementioned issues in health care information systems. The challenge in this approach is how to automatically customize and configure the test platform to simulate an interoperability scenario. There are also a lot of detailed considerations that need to be considered when testing EMR because its implementation should have an impact on the medical processes. For instance, the implementation of the scheduling or registration system needs to be completed in the shortest time possible in order to satisfy all the patients. Early testing should be extensive but at the same time, the test system should be set up in order to make sure that the system will be running as smoothly as possible. A highlight from the findings indicates that:

You can never test these systems or educate too much, if something would go wrong during implementation, the results can be devastating as well as financially harmful. Each department needs to be educated on their part of the EMR system. To test the software, we may need to import data into the system, and test the actual processes and transactions with real patient data in real time. Another thing that is necessary to be tested with this system is all of the interfaces. This is a vital aspect to make sure all the systems work together and the data can be widely available to every employee.

Another factor found in the deciding factor category was the compatibility with existing systems. IT compatibility has been studied in the literature mainly by Roger [25], Tornatzky and Klein [30], and Kim and Nam [15]. Compatibility is the fit of new software or IT to the existing organizational applications, software, data and systems [29]. Organizations deploy IT to facilitate organizational work (Sun et al., 2009). Therefore, the implementation of new systems must motivate employees to establish a dependency between the new systems and the old systems in the organization. The compatibility among the entire hospital systems has been crucial in the decision of implementing the EMR system. The compatibility aspect of the paperless system allows it to be interoperable with other existing platforms. A highlight from the findings indicates that:

The new software needs to have the ability to interface and work correctly with the existing systems. Not only do these systems need to be compatible but the information that is stored by the old system needs to be brought into the new system. The process of transitioning the data and making it compatible can be one of the hardest aspects of implementing a paperless system in a hospital. There will be too much information or data to do it manually so an automated process which is compatible is necessary.

Under social responsibility factor, we found social influence from stakeholders. Social responsibility has been defined as the awareness of an organization of the impacts of its decisions on society and the environment through transparent and ethical behavior that contributes to sustainable development; it takes into account the expectations of stakeholders [31]. There are three major forms of social influence: normative influence, informational influence, and referent informational influence [14]. Normative influence is the pressure a group exerts on individual members to follow and respect prevailing group norms [14]. Informational influence is manifested through the recognition and acceptance of other viewpoints by communicating relevant information and arguments during group meetings and events [14]. Empathetic thinking theory can be used to explain informational influence. Empathetic thinking implies people who consider their view as one possible interpretation and actively works to learn what other people are thinking. Referent informational influence contradicts both normative influence and informational influence. Egocentric thinking can be used to interpret the referent influence. Egocentric thinking people center on self. They consider their view as the real view and reject any other viewpoints.

The normative influence of the social influence was found during the EMR implementation at the regional hospital because the implementation team listened to the stakeholders from the community. The seven principles that support social responsibility are: accountability, transparency, ethical behavior, and respect for a variety of aspects such as stakeholder's interests, rule of law, international norms of behavior and human rights [31]. An important consideration was given to respect for stakeholder's interests at the regional hospital because the steering committee in charge of the implementation project comes from inside the hospital and also outside the hospital. Members of the society were involved and participated to the implementation project. A highlight from the findings indicates that:

The first piece to this puzzle is for the IT department to form a committee which can come together from all sides to understand what their goals are, what they are looking for in a system, and what can fulfill their needs. Along with this the IT department needs to report to the state and private stakeholders of our immediate community

Vendor selection was another social responsibility factor found in this study. Prior research has used the business-to-business relationships theory to address the vendor selection challenges in the IT implementation process. However, selecting an appropriate vendor, software, technology, and brand was influenced by social responsibility. For instance, there is a norm stating that the new system being implemented must come from a selected vendor; but the priority should be given to the vendors in the state. When the hospital desires to buy computer hardware, software or database systems, bids or proposals should be solicited from a minimum of three vendors in the state as required by the state law and policy.

Another way to select vendors of a system is to contact other hospitals that are currently using these systems and get their opinions. These hospitals will send vendors to your location and setup demos to display how the system would actually look and work. When purchasing these expensive systems the hospital wants as much information and education as it can get. After the hospital gets an idea of what these systems can do, price negotiation is the next step.

Finally, social responsibility has pushed the hospital to not opt for offshoring solution and out of state vendors. IT offshoring is the transfer of part or all of an organization's computer science activities to an external specialized IT vendor in India or another country. Specifically IT offshoring addresses the challenge facing many firms between keeping the IT activities internally (in home country) and having them rendered by an external supplier [4]. The regional hospital also faced the same problem of keeping the EMR system in-house or offshoring it to an external vendor in another country. Since the regional hospital

decisions must be in conformity with the social responsibility culture in the state, the offshoring choice was left behind. A highlight from the findings indicates that:

Because of respect for our state law, the hospital does not opt for offshoring solution even though it was our first idea. Respect for the state law and the community requirements must be taken into account. Any investment must have a direct ramification on the development of the community. Analysis needs to be done to understand what the law is and what the hospital can afford. The IT department should search and analyze potential vendors and learn as much as they can about them. This can be the trickiest part due to the fact that IT personnel have the best knowledge and the board or administration leaders have the true hold on the budget. Research needs to be done to find all the vendors that have potentials in our state, whether they are a full system or partial providers. Most of them will come in to demo their product and negotiate prices. After a budget has to be established and software vendors from the state have been contacted to come in, the correct personnel should be at these demos and negotiations.

CONCLUSIONS

This work reports on the process by which a regional hospital has implemented EMR systems. The study tried to demonstrate whether or not the relationship between the hospital and the vendors is influenced by social responsibility. Therefore, the study investigated the factors affecting implementation of EMR processes into healthcare systems and identified which social responsibility factors influence a strategic healthcare technology implementation. For this purpose, data was collected through in-depth interviews involving two large departments (Medical Records Department and Picture Archiving – Electronic X-ray Department) of a regional hospital in a state in the US that recently implemented EMR systems.

The hospital paperless system implementation process was found to be influenced by some of the traditional IT implementation factors as well as some social responsibility factors. Those factors were grouped into three categories: pressure to pursue category, deciding activity category and social responsibility category. We found cost of paperless, security, recruitment competition between hospitals, time and space considerations and pressure from partners for the pressure to pursue category. We found cost-benefit analysis, the installation strategy, the testing capacity and the compatibility with existing systems for the deciding activity category. We found social influence from stakeholders and vendor selection for the social responsibility category. Surprisingly, an expected factor of IT offshoring was not found. That means, this hospital did not externalize its EMR system implementation; so it can concentrate more on its principal healthcare business activities in order to benefit society at large, have a positive impact on the economic development of the state, to be sensitive toward social, cultural and environmental growth.

The future of EMR is going to grow at a rapid rate. It is only a matter of time before healthcare facilities are totally paperless, and everything will be viewed via computers and available to everyone who has access from multiple locations. The only slowdown factor is the cost and the economy right now. The United States is not in a great economic shape right now, and the technology that is being used and developed is highly priced. The contradicting factor to the cost and economy is that the technology will lower their costs and increase their profits in the future. Technology is going to keep growing and advancing in the healthcare industry and competition is going to force the healthcare companies to continue to move forward with the new technology. Overall there are enough driving factors that are going to keep technology advancing in the healthcare industry and facilities are going to be forced to purchase it in order to follow the industry leaders into a paperless world. If they don't, not only will they be less efficient, lose patients, lose money, but they are not going to get the high quality medical staff needed to be successful and grow into the future. Although we may live in a lower populated region, this affects us equally if not more than highly populated areas.

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