

A study on how ERP systems transform hospital Decision-Making

¹B Uma Maheswari, R Sujatha and D Kavitha

ABSTRACT

Decision-making in hospitals is very crucial, and for the process to happen effectively, leveraging of information technology is essential. Enterprise resource planning systems is one such application which could be deployed and utilized effectively to aid decision making. While large hospitals have the financial resources to quickly adopt new technologies, the small and medium category of hospitals still struggle to do so. This study aims to understand the factors that influence the adoption of ERP and how the adoption impacts decision-making in small and medium hospitals. Ease of use, top management attitude, employee involvement, data security, and data storage are factors that have been analyzed in this study. Data for the empirical study was collected from 150 hospitals in the southern state of India. Once the convergent and discriminant validity of the questionnaire was ensured, structural equation model was built using Warp PLS software. The results show that ease of use, top management attitude, data security and data storage have a positive relationship with the adoption of ERP. The study also found that the adoption of ERP has a positive relationship with the decision-making process in hospitals. This study contributes to the domain knowledge of ERP implementation in hospitals.

Keywords: Enterprise Resource Planning (ERP), Health care, Technology adoption, Top management, Data security, Decision making

How ERP Systems Transform Hospital Decision-Making

1. Introduction

Recent technological advancements have changed the way traditional operations are carried on in many industries. Though the healthcare sector is also impacted by such technological advancements, the proactive adoption of technology in hospitals is, however, a relatively new phenomenon. Hospitals that have embraced technology vouch for the fact that adoption of new technology has aided them in numerous ways, such as easy data storage and access, improved decision-making, and lower operational costs. Capturing data using electronic health records and application of analytics in decision-making has helped hospitals not only improve operational efficiency but also patient care. One such development is the adoption of Enterprise Resource Planning (ERP) systems. ERP helps hospitals by assisting the everyday processes and ensuring operational excellence. The acceptability of ERP systems in hospitals is influenced by a number of factors, including the hospital's nature (government or private), size, and specialization of the hospital. In India, hospitals are categorized based on various factors, including the size of the facility, ownership, specialization, and the nature of the treatment they offer. Hospitals are divided based on their size into small (up to 100 beds), medium (100–300 beds), and big (greater than 300 beds), based on ownership by government or private, and based on specialty into eye, ENT (ear, nose, and throat), orthopedic, and cardiac hospitals. They can also be classified on the basis of the type of treatment they use, such as Siddha, Unani, or Homeopathy.

¹PSG Institute of Management, PSG College of Technology, India, Coimbatore 641004. Email: uma@psgim.ac.in

The implementation of an ERP system in hospitals has been gradual and steady. Hospitals with more than 300 beds have demonstrated that they are capable of implementing an ERP system for data processing. Smaller hospitals, on the other hand, are still in the process. There are a number of factors, like better business decision making, reduced hospital operational costs, information exchange, and access efficiency, that encourage the hospital to adopt technologies like ERP. Increasing population and the subsequent emergence of new diseases, the management of diversity of data and other factors also contribute to the need for technology adaptation. With the increase in demand for health care services, it has become necessary for hospitals to adopt technology to improve their operational efficiency. In comparison to the past, 90 percent of hospitals now have an electronic health record (EHR) system, which would be the first stage in technology adoption and demonstrates hospitals' growing interest in implementing technology in their operations. Apart from data access and cost savings, ERP offers hospitals a number of other advantages, like cost monitoring, process integration and confidentiality of sensitive data relating to patients. Though transitioning from traditional techniques to ERP-based systems will definitely help hospitals improve their performance, many hospitals are still having difficulty adapting to ERP due to the cost involved, lack of trained personnel, and data security issues. The comprehensive review of literature showed scope for further study in this domain especially in the small and medium category of hospitals. With this interesting premise, the goal of this paper is to identify and analyze the factors that lead to ERP adoption in hospitals and its impact on hospital decision-making.

2. Literature Review

Enterprise resource planning as a concept has evolved from the concept of Materials resource planning (van Merode et al., 2004). The objective of both was to predominantly facilitate resource planning and scheduling. In the hospital scenario, the ERP system evolves into a hospital resource planning system. Adoption and implementation of the same involves multiple factors which are discussed below.

2.1 Ease of Use

With technological advancements in every sector, the health sector is not an exception. The healthcare industry's operational procedures have evolved dramatically in recent years as a result of technological advancements (Emhmed et al., 2021). Electronic health records (EHR) and enterprise resource planning (ERP) are two examples of technologies that have gained widespread acceptance in hospitals. The goal of implementing technology in hospitals is to improve patient care. Physicians have been optimistic about electronic health records. According to the qualitative study, physicians see EHRs as a potential means of storing and retrieving patient data. It also allows for quick access to data from any part of the company. The new adaptation has altered how physicians have previously practiced (Sieck et al., 2020). The data gathering methods, appointment bookings, remote data access, and redundancy involved in the process are all used to determine how easy an ERP system is to use. With ERP implementation in hospitals, it has now become important that the employees feel comfortable working with the ERP system.

The degree to which employees feel comfortable adapting to a new system or practice is referred to as "ease of use," and it plays a vital role in the adoption of new technologies in any organization. Employees who feel comfortable adapting to the new system have a high chance of accepting the system (Thu-Huong et al., 2018). However, this is not easy as there is a high possibility that employees will face difficulties when exposed to new technologies. Knowledge and training in such technologies would aid them in overcoming their resistance to technology. Management is also responsible for involving and engaging personnel in training sessions. Depending on the system's complexity, it may require practice for staff to become accustomed to the new system. An employee's performance will always be hampered by a disruption in their typical work schedule, and how efficiently they adapt themselves to the new system (Spatar et al., 2019) will determine its ease of usage. The employees must realise the utility as well as the benefits the new system may offer to the firm. This aids employee acceptance of new technology implementation in the workplace. Because ease of use of the system will have a direct effect on the productivity of the system (Chirchir et al., 2019).

Considering the following factors, the following hypothesis has been proposed:

H1 Ease of use of ERP has a positive relationship with adoption of ERP

2.2 Top Management Attitude

Top management of an organization is the decisive power that frames new strategies and undertakes new decisions. The authority and power, from designing the organization's practices to deploying a plan, remain in the hands of the top management. This is all the more challenging because changing the way in which a hospital is already accustomed to operating is a difficult endeavor. From adoption to implementation, it requires support from different entities in the hospital, and it is the responsibility of the top management to ensure successful implementation. So, management's support becomes inevitable in adapting to any new technologies in the organisation (Hsia et al., 2019). Support and training provided by the management play a vital role in the successful implementation of the ERP system (Alsyouf and Ishak, 2018). If proper training sessions are provided, employees will be able to understand and accept technology much more quickly and readily. The motivation given by the management boosts the employee's confidence towards technology adoption (Handayani et al., 2018). The positive support from them acts as a driving force for the employee to cope with the new challenges implemented in the organization (Alhuthaifi, 2018).

Decisions made by the top management help in the effective functioning of the organization. So, the attitude of the management is the key factor when it comes to the adoption of new technologies (Vogt et al., 2018). The benefits of adoption of technology in hospitals would be in terms of operational excellence, cost efficiency, and patient satisfaction. It also helps in reducing the redundancy involved in the routine. The use of ERP in hospitals allows them to take a more comprehensive approach to dealing with patient data. ERP provides hospitals with several insights, ranging from appointment scheduling to decision-making on the technique of treatment. This enables hospitals to operate more efficiently. Despite the willingness to adopt technology-oriented practices directly, physicians and health care professionals need to be given a suitable atmosphere in which to collaborate and utilize the output derived from information technology. Various factors like the positive attitude of the management, technology affiliation, steps taken in support and training help in measuring the attitude of the top management. As the top management attitude and the adoption of ERP can be interrelated with each other, the following hypothesis has been framed.

H2 Top management attitude towards using ERP has a positive relationship with adoption of ERP.

2.3 Employee Involvement

Although the efficacy and efficiency of technology adaptation are high in hospitals, the issue of skilled human resources for operationalizing the same is a cause for concern. Employee involvement is critical for the execution of management decisions in any firm. The employees who execute the plan are responsible for its success. So, employee involvement is of immense importance to any organization. In the case of technology implementation in hospitals, employee involvement relates to the employee's attitude toward the ERP deployment in their daily routine. The ERP makes it easier for employees to provide better care for patients (Yen et al., 2017). The employee's level of involvement is determined by the system's complexity, management's level of training, and the individual's willingness to learn new technologies. Employees must be introduced to technology, technical know-how, and the key benefits associated with the same. It will be impossible for the organization to use technology-based initiatives in the hospital unless the professionals are trained (Zhang et al., 2019). Learning allows people to get more familiar with technology while also encouraging the adoption of the same.

Involvement of employees also includes obtaining insights from the employees and trying to modify the system based on feedback. This helps both the organization and the employees work efficiently. One of the most common issues among employees in every firm is resistance to change. As a result, using

new technology in the workplace is tough for businesses at first. The application of the new procedures requires staff training and involvement (Alrahbi et al., 2021). It has also been demonstrated that technical methods save time and are incredibly useful in obtaining the desired decision from the available data (Irisarri et al., 2019). The current use of healthcare information technology systems is still below what is expected. This is the appropriate time for hospitals to think about incorporating technology into their operations to provide better health care and formulate better plans (Shabaz et al., 2019). This requires support from the healthcare staff. Implementing the technology would not be effective unless the employee recognized the potential of the technology. This helps the organization enhance its operations. Considering the relationship between employee involvement and the adoption of ERP in hospitals, the following hypothesis has been framed.

H3 Employee involvement in using ERP has a positive relationship with adoption of ERP.

2.4 Data Security and Storage

In the health care industry, data is generated in huge volumes and in several formats, like structured, semi-structured, and unstructured. To process such a huge volume and variety of data, technologically advanced methodologies need to be implemented. Big data analytics has been shown to be an effective method of data analysis in such circumstances, and the analysis of data would provide valuable insights to hospitals (Johri et al., 2017). The deployment of data analytics can be used to improve hospital organizational procedures, data collection, information processing, and treatment decisions (Wang et al., 2018). When compared to traditional data gathering and storage methods, technology such as ERP systems can help hospitals collect and store data more efficiently. At the same time, this also cuts down on the amount of redundancy in the data collection and retrieval process, while allowing for remote access of data. Manual errors, data loss due to physical damage, and other factors can all affect data stored manually in hard copies and registers. Data stored in ERP systems, on the other hand, can be maintained without risk of destruction.

The technical components of data security and storage include how data is stored, protected, and applied in the ERP system. This includes the patients' perspectives on the hospital's ERP system, as well as their privacy and security concerns. In recent times, increasing data theft and cyber-attacks pose a threat to the ERP system (Meri et al., 2019). This creates concern from the patient's perspective concerning the security of their data. Patients are hesitant and expect more privacy regarding their data as cyber security issues become increasingly prevalent (Shabaz et al., 2019). Hospitals should ensure the accessibility and integrity of patients' data. The ERP system should be highly secured and have the capability to detect any suspicious activity before it becomes a cyber-attack. Unauthorized access to system data can be prevented by encrypting data. Frequent updates and testing of the software help in the early detection and correction of errors, which prevents the occurrence of further complicated issues. The confidence the patient has with regard to the safety of their data in the hospital impacts the adoption of the ERP system. It is the responsibility of the hospitals to gain trust among the patients by using the ERP system (Abdallah, 2021). This shows how data security and storage affect the adoption of ERP systems in hospitals. Hence, the following hypothesis has been proposed, which relates the issue of data security and storage with the adoption of ERP systems.

H4 Data security and storage have a positive relationship with the adoption of ERP.

2.5 Adoption of ERP

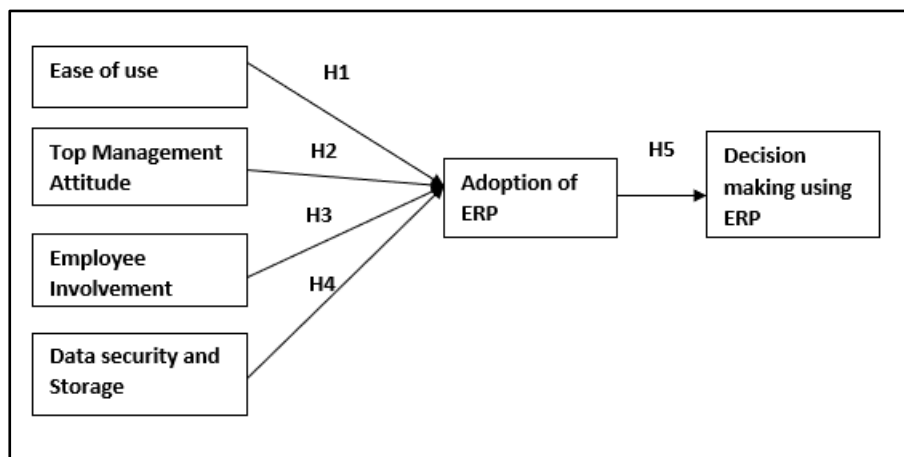
The rate at which technologies are adopted is determined by several factors. The socio-technical environment at the hospital has a significant impact on the success of the healthcare information systems. To realize hospital technology adaptation, an integrated strategy is required (Yen et al., 2017). In hospitals, sustainable practices have been shown to save the organisation millions of dollars in the long run. Patients' chronic diseases can be predicted with the help of deep learning neural network algorithms. The earlier the disease is identified, the easier it is for doctors to treat it without making it more complicated. It also aids in the forecast of a patient's length of stay in the hospital, which aids in

planning the resource allocation in hospitals (Zolbanin et al., 2020). In the private healthcare industry, ERP has been widely used. Concerns have been raised about the public health care sector's ability to adapt to technology-oriented approaches in hospitals. Patient happiness, stakeholder satisfaction, operational efficiency, and strategic management are four major benefits enjoyed through ERP implementation. The technology accessible to the health care sector can also be used by large public hospitals. It aids in the improvement of the organization's performance and efficiency (Chiarini et al., 2018). The ERP system has proven useful not only in data processing but also in surgery planning for patients. It provides detailed information on a patient, allowing for the development of a customized treatment plan targeted to that particular patient's needs. It also enhances the efficiency of patient care in general (Ametowobla & Prechelt, 2020).

Adaptation of ERP offers its own set of benefits and criticalities (Chiarini et al., 2018). Hospitals have to decide on the amount of financial capital that has to be invested. This necessitates a top-level management decision. Obtaining an ERP will serve as a centralization hub for information sharing and will also assist hospitals in lowering their operational costs (Naqi et al., 2021). The use of ERP in hospitals also demands personnel training and upskilling. Employees should be able to operate with the ERP system. The ERP system's safety and security are also crucial considerations in the adoption process. Hospitals have begun to implement the ERP system in their operations, while others are in the process of developing their ERP system. Adoption of ERP plays a significant role in helping hospitals make decisions regarding patient care, their time of stay in the hospital, and earlier prediction of deadly diseases. Considering the relationship between adoption of ERP and decision-making using ERP systems, the following hypothesis has been framed.

H5 Adoption of ERP has a positive relationship with decision-making using ERP.

Figure 1: Conceptual Model



3. Methodology

In this study, quantitative research design (Leavy, 2017) has been used to validate the theory derived by the literature through empirical evidence and determine the relationship between the constructs proposed. The study was conducted in the state of Tamil Nadu which is the forerunner in the Indian health care sector. Chennai, the capital of Tamil Nadu is considered the health capital of India. The state is well known for providing quality healthcare at an affordable cost. (<https://thelogicalindian.com/history/tamil-nadu-healthcare-system-33860>). TamilNadu Model remains the prototype healthcare delivery system that other states replicate to improve healthcare delivery (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5112973/>). Therefore, the state of Tamil Nadu was chosen for the purpose of this study. The list of hospitals was taken from the Government of Tamil Nadu website (Chief Minister's Comprehensive Health Insurance Scheme (cmchistn.com) and the small and medium hospitals were identified. The hospitals that had implemented ERP solutions was considered

for the study. The respondents were the employees who had a minimum of 3 years of experience. This was to ensure that the employees were aware of the work practices in the hospital. Only one employee per hospital was included in the study and around 250 hospitals were contacted, out of which 150 respondents (response rate of 60%) completed the questionnaire with persistent follow up.

3.1 Measures

There are two sections to the questionnaire. The first section covers the demographic information regarding the hospital, comprising of name, location, category, bed size, operational years of the hospital, age, and gender of the respondent.

Table 1: Demographic Characteristics

Demographics		Percentage
Location of the hospital	Tier 1	34%
	Tier 2	56%
	Tier 3	10%
Age of the Respondent	22 - 35 years	32%
	Above 35 - 45 years	42%
	Above 45 - 55 years	24%
	Above 55 years	2%
Gender	Female	38%
	Male	62%
Category	General	32%
	Multi-specialty	18%
	Specialty	50%

Specialty	Cardiovascular	22%
	Nephrology	10%
	Neurology	12%
	Ophthalmology	12%
	Orthopedic	10%
	Women's health	17%
	Pediatrics	5%
	Others	12%
Bed size	0 - 100 beds	68%
	100 - 300 beds	30%
	Above 300 beds	2%
Years of operation	0 - 5 years	30%
	5 - 15 years	46%
	Greater than 15 years	24%

The second part of the instrument consisted of seven sections comprising questions relating to the constructs: ease of use, top management involvement, employee involvement, data security and storage, adoption of the ERP system, and decision-making using ERP. A total of 22 questions make up this section. The questions were formulated using a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

3.2 Data analysis procedure

The structural equation modelling for this study was formulated using the software WarpPLS (Kock, 2019). WarpPLS is a graphical user interface software based on the partial least squares method. The effect of the constructs: ease of use, top management involvement, employee involvement, data security and storage on the adoption of ERP in hospitals is first studied. Then the effect of the adoption of ERP on decision making is also analyzed. A correlation analysis is undertaken to study the positive and negative relationships between the constructs used in the study. The reliability and validity of the

model are tested using convergent validity and discriminant validity. Convergent validity was measured using Cronbach's alpha, average variance, and composite reliability.

4. Results

4.1 Reliability analysis

The correlation among the indicators of latent variables is measured using Cronbach's alpha, and values of 0.7 and higher are preferred (Hair et al., 2010). All constructs have a Cronbach's alpha value greater than 0.7, indicating that all the constructs employed in the study are reliable (Table 2). The average variance extracted (AVE) explains the amount of variance that is present in a construct with the amount of variance caused by measurement error. The recommended threshold value for average variance is 0.5, and all the constructs displayed values greater than 0.5. Composite reliability explains the capacity of the indicators to capture the variance of the latent variable. A threshold value larger than 0.7 is necessary for composite reliability, which examines the internal consistency of scale items. From table 2, all constructs have a composite validity higher than 0.7.

Table 2: Data reliability

Construct	Cronbach's Alpha	Average Variance	Composite Reliability
Ease of use	0.911	0.739	0.934
Attitude	0.773	0.540	0.793
Employee	0.769	0.684	0.866
Security	0.728	0.581	0.738
Adoption	0.889	0.818	0.931
Decision	0.781	0.699	0.874

Table 3: Correlation matrix

Construct	Ease	TopMgt	Employee	Security	Adoption	Decision
Ease of use	0.860					
Attitude	0.169	0.664				
Employee	0.145	0.006	0.827			
Security	0.204	0.090	0.034	0.693		
Adoption	0.726	0.323	0.145	0.073	0.904	
Decision	0.731	0.338	0.107	0.144	0.803	0.836

Discriminant validity measures how distinct the constructs of the model are. If the square roots of the average variances extracted (AVEs) are less than the square of the correlation between the constructs (the off diagonal values), then the constructs exhibit discriminant validity. In Table 3, the square root of the AVE is shown in the diagonal. As the values are less than the square of the correlation between the constructs, discriminant validity is established. Cross loadings are used to identify if components in the same construct have high loadings. The questionnaire items have higher loadings with their respective constructs than with the others (Table 4). This demonstrates that the correlation of variables within a construct is very strong.

Table 4: Combined loadings and cross loadings

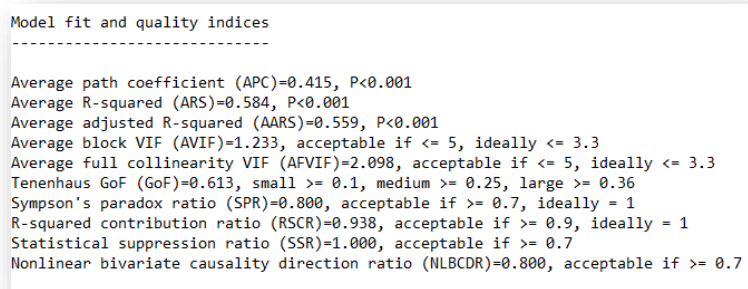
	Ease of use	Top Management Attitude	Employee involvement	Data Security	Adoption of ERP	Decision making
E1	0.914	0.019	0.040	0.114	0.204	-0.047
E2	0.805	-0.010	0.096	-0.207	-0.311	0.251
E3	0.877	0.102	-0.079	0.078	0.196	-0.450
E4	0.878	-0.026	-0.073	0.159	0.193	-0.125
E5	0.821	-0.092	0.024	-0.176	-0.338	0.422
A1	0.238	0.712	0.281	-0.157	-0.485	0.342
A2	-0.062	0.778	-0.014	-0.133	0.073	0.170
A3	-0.003	0.769	-0.176	-0.013	0.003	-0.134
A4	0.094	0.795	-0.033	-0.047	0.201	-0.224
A5	-0.350	0.819	-0.005	0.425	0.178	-0.052
EM1	-0.111	0.001	0.808	0.032	0.182	-0.064
EM2	-0.031	0.151	0.838	0.150	-0.159	-0.006
EM3	0.139	-0.153	0.835	-0.181	-0.016	0.069
S1	-0.156	0.054	-0.077	0.849	0.172	-0.038
S2	0.738	0.565	0.048	0.839	-0.392	-0.444
S3	0.190	-0.028	0.079	0.848	-0.190	0.018
A1_2	-0.059	0.036	-0.045	0.001	0.907	-0.118
A2_2	0.111	-0.082	-0.057	0.080	0.902	-0.262
A3_2	-0.052	0.046	0.102	-0.081	0.905	0.380
D1	-0.378	-0.048	0.007	-0.029	-0.038	0.897
D2	0.466	0.132	-0.068	-0.277	0.223	0.737
D3	-0.005	-0.063	0.050	0.266	-0.151	0.865

4.2 Model quality indices

Various quality indices for the model have been tested and their results are shown in Table 5. The average path coefficient is a direct measure of all the factors' combined effect on the dependent variable. Furthermore, a p-value of less than 0.05 is acceptable. Average R-squared is a goodness of fit metric that describes how much variance in the dependent variable is explained by the independent variables. The value of adjusted R-squared is adjusted based on the number of independent variables in the specified model. The average block Variance inflation factor (VIF) is the measurement of the amount of multicollinearity in a set of multiple regression variables. The average variance inflation factor (AVIF) is measured at 1.233, which is within the threshold value of 5, and so accepted. The average full collinearity variance inflation factor (AFVIF) has a value of 2.098, which is less than the threshold value of 5. Tenenhaus Goodness of Fit (GoF) is a metric that assesses how well the produced model matches the observed data. The closer the GoF number is to 1, the better the model's performance.

The GoF value of 0.613 indicates that the model fits the data. Simpson's paradox ratio in the proposed model is 0.8, which is close to the ideal value of 1. The model's R-squared contribution ratio was 0.938, which is close to 1, indicating model fitness. Statistical suppression happens when the relationship between the independent variable and the dependent variable increases as a result of the removal of irrelevant variance in the regression model. For the model, the statistical suppression ratio is 1, which corresponds to a threshold value of greater than 0.7. The NLBCDR index is a measure of the extent to which bivariate nonlinear coefficients of association provide support for the hypothesized directions of the causal links in a model. The NLBCDR value is 0.8, which is greater than the threshold value of 0.7. Therefore, the model is statistically fit.

Figure 2: Model Fit and Quality indices

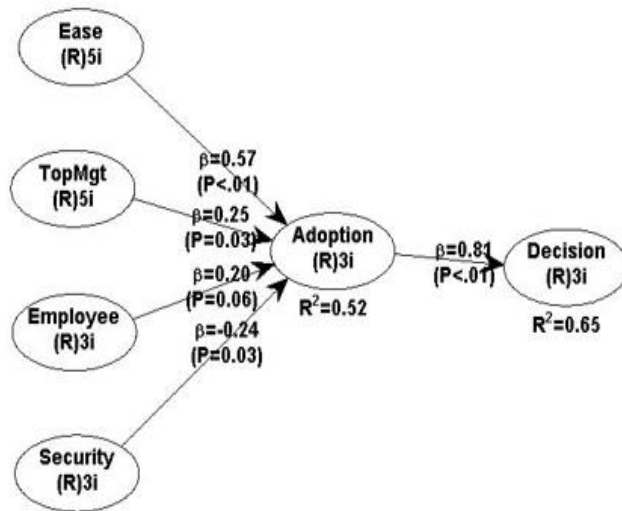


Once the validity and reliability of the questionnaire were tested, the model was built and the validity of the model was tested and the results are presented in Table 5. All the hypotheses except hypothesis 3 had a p value less than 0.05, indicating the statistical significance of the structural paths. The adoption of ERP in hospitals is positively correlated with ease of use, top management attitude, and data security and storage. Similarly, the adoption of ERP also has a positive relationship with the decision-making using ERP in hospitals.

Table 5: Results of hypothesis testing

Hypothesis	P value	Accepted/ Rejected
H1: Ease of use of ERP has a positive relationship with adoption of ERP	<0.001	Accepted
H2: Top management attitude towards using ERP has a positive relationship with adoption of ERP	0.030	Accepted
H3: Employee involvement in using ERP has a positive relationship with adoption of ERP	0.064	Rejected
H4: Data security and storage has a positive relationship with adoption of ERP	0.032	Accepted
H5: Adoption of ERP has a positive relationship with decision making using ERP	<0.001	Accepted

Figure 3: ERP adoption model



5. Discussion

Decision-making in hospitals is extremely critical and needs to be taken very prudently. ERP plays a crucial role in capturing and analysing data for decision-making. This study adds further evidence to the hypothesis that ERP adoption positively impacts decision-making in hospitals. The successful adoption and integration of ERP for decision making in a hospital requires the cooperation of multiple stakeholders including the top management, employees, and the information technology team. This study was conducted to analyse the factors that influence the adoption of ERP in hospitals, and the results show that factors like ease of use, top management attitude, data security and storage influence the same. Ease of use influences ERP adoption as it involves the compatibility between employees and the system. When the system is easy to use, it simplifies the data collection procedure and eliminates redundant work, which ultimately leads to saving time which could be used more prudently. This result aligns with the findings of other studies (Gerdri and Suebsin, 2020). When access to data is simplified, it streamlines the process paving way for remote access and consequently efficient decision making.

The study also found that the involvement of top management plays a vital role in ERP adoption (Bhattacharya et al., 2019). Openness in adopting and implementing new techniques like ERP system, allocation of adequate funds, providing adequate training to employees, addressing challenges based on employee feedback, and motivating employees to adapt to changes arising due to the implementation of ERP are key responsibilities of top management. Apart from these aspects, data security and storage contribute to the system's trustworthiness. Storage and maintenance of data are very important for hospitals. Patients are concerned about the threats involved in data storage and trust that hospitals will take necessary precautions regarding the same. Hospitals need to ensure that the data containing patient details is safeguarded from cyber-attacks. Patients' trust and concern regarding the measures taken by the hospitals and a robust data security system highly influence the adoption of ERP in hospitals (Nikolopoulos et al., 2018).

The study also showed that employees' involvement does not directly impact the adoption of ERP. However, it is extremely important to have the employees' acceptance and buy-in at every stage of the implementation process. Employees might be hesitant to involve themselves in the process due to fear of disruption in their work flow due to the new technology. Their apprehensions need to be addressed by creating awareness of the benefits of implementing ERP systems. In the context of small and medium category hospitals, this is all the more crucial because, typically employees play multiple roles and

handle manifold responsibilities. In that case such technological interventions drastically disrupt their work flow, making them resistant to change. It is therefore essential that hospitals provide adequate training and handholding especially in the initial phase. A constant feedback mechanism and involvement of employees in the discussions frequently would make them feel more confident. This would motivate employees to adopt new technology and ensure that employees willingly involve themselves in implementing the ERP system. Employees who feel comfortable and motivated to use new technologies show greater interest in technology adoption. The adoption of ERP in hospitals helps the organization in all aspects, from monitoring patient data to decision-making for better care and treatment (Aggarwal et al., 2021). This study suggests that the adoption of ERP helps in achieving operational excellence and ensures strategic decision making in hospitals.

The study proposed a conceptual model with a set of variables that determine the adoption of ERP in hospitals, which would further help in decision-making. The study explains the relationships between ease of use, top management attitude, data security and storage, and employee involvement with the adoption of ERP. The findings of the study give empirical evidence that ease of use, data security, and top management attitude strongly influence the adoption of ERP. It also shows that the adoption of ERP in hospitals would also aid them in their decision-making regarding better care for patients. The findings of the study aids hospitals in deploying the ERP system. The results would aid hospitals in implementing appropriate measures to motivate the employees by providing adequate encouragement, training, and support. The factors identified would give input to the top management to formulate plans for technology adoption in the hospitals. This would encourage the employees to adapt to the implementation of new technologies in hospitals. The findings would help the ERP solution providers to design their marketing strategies in accordance with the output of this study. As the study shows that data security is a crucial factor in influencing ERP adoption, it is important for hospitals to invest in adequate and appropriate technologies and prioritize aspects relating to the same.

The research adds to the body of knowledge in this domain and also paves the way for future studies. The research can also involve hospitals from other regions of the country. This would help with extensive data collection and research methods. Including more variables could perhaps aid in a better understanding of ERP adoption in hospitals. The study could be further extended to understand the potential benefits such as cost savings, reduction in turnaround time, etc. Qualitative research using observation and interviews is also encouraged. This would help in understanding the personal views about ERP adoption. In this aspect, the study could be broadened in the future, resulting in even more relevant discoveries.

Several practical implications for hospitals can be derived from the research. Patient centric healthcare is the need of the hour to improve the general quality of life of the society (Ugajin, 2023). According to a report by Mc Kinsey on the Future of healthcare in Asia (The future of healthcare in Asia | McKinsey), the continent of Asia will witness a growth of 14% in the senior citizen category belonging to the age group of 65 or more by the year 2025, which also indicates the need to strengthen the health care infrastructure of the country. Effective policies and procedures are needed in hospitals to provide better patient care and to cater to the increasing demand expected in the forthcoming years. Hospitals need to be prepared to cater to contingencies especially post the pandemic. With patients having increasing access to new age digital healthcare solutions, their expectations from the hospitals have evolved. A research report by the consultancy firm Bain shows that more than 50% of the patents in the Asian countries are starting to trust technology firms for their health care needs. ([Asia-Pacific Front Line of Healthcare Report 2022 | Bain & Company](#)).It is the turn of the hospitals to gear up accordingly to meet the evolving needs.

The study points out that adopting ERP systems help in better decision making in turn leading to increased operational efficiency. Businesses in the health care domain need to invest in ERP technology which would provide for seamless data access leading to informed and timely decision making. Hospitals could also use the ERP system for standardizing workflow and optimum utilization of resources. ERP systems provide for data sharing among different departments which is all the more relevant in the context of hospitals which operate from multiple locations. An effective ERP system plays a crucial role in the adherence process including audit trials and customized reporting. Compliance

becomes less cumbersome and the risk of penalties is eliminated. Integration of technology in the operations of the system helps develop empowerment and foster innovative practices (Malik et al., 2023). This was all the more evident during the pandemic and studies showed that hospitals who leveraged technology could show improvement in operational performance (AlBrakat et al., 2023). A unified data management solution system would set the base for capturing and analyzing data for better decision making (Ashok et al., 2022)

The effective management of available resources helps improve the operational efficiency of hospitals. According to the study, implementing ERP in hospitals will enable organizations to improve the quality of patient care. Proper training and motivation of the healthcare workers initiated by the top management would play a significant role in the adoption of ERP systems. Furthermore, the study has also developed a theoretical model which helps in understanding the major factors that contribute to the adoption of ERP systems in hospitals. This also assists health-care businesses in moving forward to satisfy the increasing demands in the industry. The report also proposes that, in light of technological improvements, hospitals should ensure the safety and security of patient data. It would be impossible for hospitals to install an ERP system without trusting the system. The study helps in designing a patient-centric health care approach for hospitals. Moreover, the study suggests that the phase of health care has to be accelerated and the adoption of ERP systems in hospitals would help the organization achieve its goal.

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