

## **Mitigating IS Implementation Challenges in Government Hospitals through Integrated Change Management Approach**

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**Abstract:** This study highlights how important change management (CM) is to the effective adoption of information systems (IS) in public hospitals. An integrated preventative approach that incorporates Lewin, Kotter, and Prosci techniques is suggested in light of the difficulties associated with the adoption of IS. The essay highlights the importance of managing time, money, scope, and risk and emphasizes the necessity for a complete strategy to reduce implementation issues. The concept encompasses pre-, during-, and post-implementation stages and aims to manage user resistance, encourage commitment, and guarantee ongoing integration. With the goal of preventing project failure and increasing efficiency, it provides strong guidelines for IS project managers and healthcare administrators. Future studies should look into ways to overcome infrastructure and technological limitations in order to successfully integrate IS and promote organization expansion.

**Keywords:** Change Management (CM), Information System (IS) , Government hospitals

### **1. Introduction**

The implementation of Information Systems (IS), which is essential for administering a variety of healthcare services, presents distinct problems for healthcare organizations, particularly government hospitals. Implementation difficulties are frequently caused by the complexity of these systems and the vital nature of healthcare. Notably, a thorough plan is required to solve these difficulties due to the high stakes involved. The topic is "Mitigating IS Implementation Challenges in Government Hospitals through Integrated Change Management Approach." In light of the critical role that Change Management (CM) plays in managing human-related complications, this study suggests a

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comprehensive strategy to reduce implementation errors. This article examines the existing situation and highlights the necessity for a thorough plan to guarantee the effective deployment of IS, with a focus on the particular circumstances of Malaysian government hospitals [1]. The following sections explore the complexities of Change Management theory and how it is used in the healthcare industry, offering techniques and insights for successful execution.

## **2. PMBOK Knowledge**

Good time scheduling is the main factor in the success of a project. In order to implement the information system (IS) in the government hospital, adhering to the set time schedule is important to avoid delays [2]. Delays in project timelines can have far-reaching consequences, not only in terms of budget overruns but also for patient care and administrative processes. If the project schedule is not met, it can cause disruptions in IS development where there are risks such as increased budgets as well as the possibility of the project being stopped [2]. Moreover, government hospitals often deal with tight budgets and limited resources, making it essential to optimize the use of available resources within the scheduled timeframes.

Change Management (CM) plays a crucial role in addressing time-related challenges in project management, as emphasized in the case study. CM offers a set of tools and structures that can streamline the implementation of change, thereby promoting efficiency and timely project execution. This is particularly important during software development, where changes to project requirements frequently occur. The article's case studies reveal that CM can significantly influence project outcomes: projects with CM achieve successful implementation and full user adoption, while those without it experience partial success and extended implementation periods. CM is instrumental in overcoming challenges and limitations during project implementation, contributing to a more efficient utilization of time and resources.

Any Information Systems (IS) project needs a project scope, and the project's success depends on its appropriate definition and management [3]. The case study draws attention to a number of concerns regarding the extent of IS deployments in Malaysian government hospitals, where Hospital Information Systems (HIS) are not properly utilised or connected with other systems. These difficulties highlight how crucial it is to handle project scope properly. The paper presents case examples in which CM made a substantial contribution to the effective execution of IS initiatives.

Change management may be utilised in IS projects to successfully handle the scope challenge. Any scope modifications must be carefully considered, handled, and shared with stakeholders, according to change management procedures. CM may aid in improving user acceptance, avoiding scope creep, and coordinating project scope with organisational objectives. It is a useful tactic for handling modifications and making sure the system's scope stays in line with the goals of the project. Apart from the CM methodology, a more thorough initial requirements analysis might be another way to address the scope issue in IS initiatives. To ensure that the scope is set based on a complete understanding of the hospital's needs and integration requirements, this study should engage key stakeholders from multiple departments. Preventing scope-related problems and improving the effectiveness of IS implementations may also be accomplished by periodically evaluating and updating the scope as the project advances and technology changes. Moreover, maintaining the breadth of the

project's relevance may be ensured by cultivating an organisational culture that values adaptation and ongoing development.

Project cost management knowledge areas in general involve project cost estimates to create project budgets. To do so, costing tools and techniques must be used to ensure that funds cover project expenses, and they must be monitored on a regular basis to keep stakeholders or sponsors informed [6]. The cost management plan, like other project management knowledge areas, is the document that explains the method for establishing the budget, including how and if it will change and what procedures will be used to control it [6]. Each project task must be costed, which includes all resources such as labor, materials, equipment, and anything else required to complete the task.

According to the case study “Mitigating IS Implementation Challenges in Government Hospitals through Integrated Change Management Approach”, cost management is critical in the implementation of information systems (IS) projects in government hospitals [5]. It includes tasks like budgeting for the IS project, estimating costs, managing expenses, and ensuring that the project stays within the budgeted financial resources. This is essential to avoiding overspending and ensuring the successful implementation of the IS. With this, with the change management concept being incorporated into the model by adapting the CM models, the proposed model will be beneficial in ensuring the success of IS implementation in government hospitals [5]. It is believed that if the model is being used accordingly, it can help to prevent the failure of IS implementation. Hence, the addressed problems can be avoided and prevented. Preventing the failure will ensure the cost and effort given in worth spent.

For project risk management it encompasses the processes of risk management planning, identification, analysis, response planning, and risk control on a project by increasing the impact of positive events and decreasing the impact of negative events [4]. There are six types of risk management. To begin, risk management is the process of determining how to carry out risk management activities for a project. To ensure that the risk management plan performed effectively throughout the project life cycle, it is critical to communicate with and obtain agreement and support from all stakeholders. Following that, for identifying risks, the process of documenting existing risks, determining which risks may affect the project, documenting their characteristics, and documenting the knowledge and ability it provides to the project team to anticipate events is used [4]. Aside from that, conduct qualitative risk analysis, which is the process of shortlisting risks for further analysis or action by assessing and combining their likelihood of occurrence and impact on the project. Other than that, perform quantitative risk analysis, plan risk responses, and control risk.

In the context of the case study, in a sensitive environment such as a hospital, it is quite risky because patient lives may be put at risk if the systems fail [5]. Patient information obtained from the Hospital Information System (HIS), for example, is critical in order to prescribe appropriate medication to patients. Previous research in Malaysia indicates that IS projects in Malaysian government agencies inevitably fail due to a variety of factors. Based on the discussion, an appropriate approach is required to avoid the failure of IS project implementation in Malaysian government hospitals [5]. As a result, the focus of this article is on how Change Management can be used to help prevent the failure of IS project implementation in a human context and so on, specifically in Malaysian government hospitals. Furthermore, due to frequent staff relocation within healthcare agencies, reliance on specific users or champions in IS implementation in hospitals is extremely risky. In his CM approach, Kotter emphasized the importance of continuous assessment in order to sustain change. An evaluation procedure must be developed to identify what is working and what needs to be improved [5]. The assessment must be performed on a regular basis to ensure that the change is embedded in the organization's culture. Aside

from that, regular auditing can be viewed as a type of enforcement and monitoring to ensure that IS is consistently implemented by practitioners.

The article delves into the critical role of Human Resources (HR) management within project management, notably emphasizing its significance in the PMBOK framework and its application to information system implementation in Malaysian healthcare institutions. It not only highlights the challenges encountered but also underscores the pivotal role of effective HR strategies in ensuring the successful deployment of these systems. Among the significant hurdles faced, one major issue pertains to staff resistance to change and training inadequacies [7]. This challenge can be effectively addressed through the development of tailored training programs, a collaboration between project managers and HR. This collaboration allows for the adjustment of performance metrics, ensuring that employees understand their roles in the implementation process and the functionalities of the system [8]. Moreover, communication gaps and inadequate stakeholder engagement are identified as common contributors to implementation failures [8]. To combat this, close collaboration between project managers and HR is essential in crafting robust communication strategies that keep all stakeholders informed and involved throughout the process. Regular updates, workshops, and feedback sessions become crucial components to address concerns and cultivate a supportive environment for change. Recognizing the toll that prolonged and demanding system implementations take on employee morale and potential burnout, the article suggests that project managers, in partnership with HR, can implement strategies to manage workload, offer incentives, and acknowledge employee efforts. This approach ensures a healthier work-life balance and fosters sustained motivation among the team. Insufficient staffing or competency gaps represent another hurdle hindering system implementation success in Malaysia. Collaboration between project managers and HR becomes imperative to assess staffing needs, identify skill gaps, and possibly arrange for additional recruitment or retraining programs. Redefining job roles and responsibilities may also be necessary to accommodate the new system and streamline processes effectively [8].

The article further emphasizes that hospitals effectively managing HR aspects through change management practices reported lower instances of staff resistance, improved skill alignment, and smoother team dynamics, thereby emphasizing the bridge between HR and overall project success. On the other hand, the article also underscores the pivotal role of Quality Management within the PMBOK framework. It provides insights into its application in the context of information system implementation in Malaysian government hospitals. Quality management ensures that project deliverables align with specified quality standards, meeting stakeholder expectations [9]. The article particularly stresses the importance of thorough system testing, robust stakeholder engagement, and effectively addressing resistance to change. Continuous monitoring, user feedback, and ongoing improvement initiatives post-implementation become crucial to ensure the system evolves in line with the hospital's changing needs [9]. Effective stakeholder engagement, comprehensive user training, and fostering a culture of continuous improvement stand out as essential aspects in ensuring a successful implementation in Malaysian government hospitals. By actively addressing these quality management issues, a project manager can significantly reduce the risk of information system implementation failures. Collaborating with stakeholders, utilizing robust testing and validation procedures, engaging users through effective training, and fostering a culture of continuous improvement are crucial steps in ensuring a successful implementation and sustained high-quality system performance.

### 3. The Proposed Solution

The study identified four main factors that contributed to IS implementation failure: human issues, technology and infrastructure issues, software limitations, and support issues. There are thirty-six challenges that have been discovered. Fourteen challenges are from human issues, six challenges from support and technology issues, and twelve challenges are from software limitation issues [3]. By implementing the Change Management approach, two from four main factors that contributed to IS implementation failure are tackled: human issues and support issues.

Change Management has been employed in designing a prevention model to cater the challenges when implementing an Information System. The model caters three main phases of implementation: pre-implementation, during implementation, and post-implementation. All thirteen elements of three selected CM models are embedded into relevant processes in the three sub-phases as depicted in Figure 1.

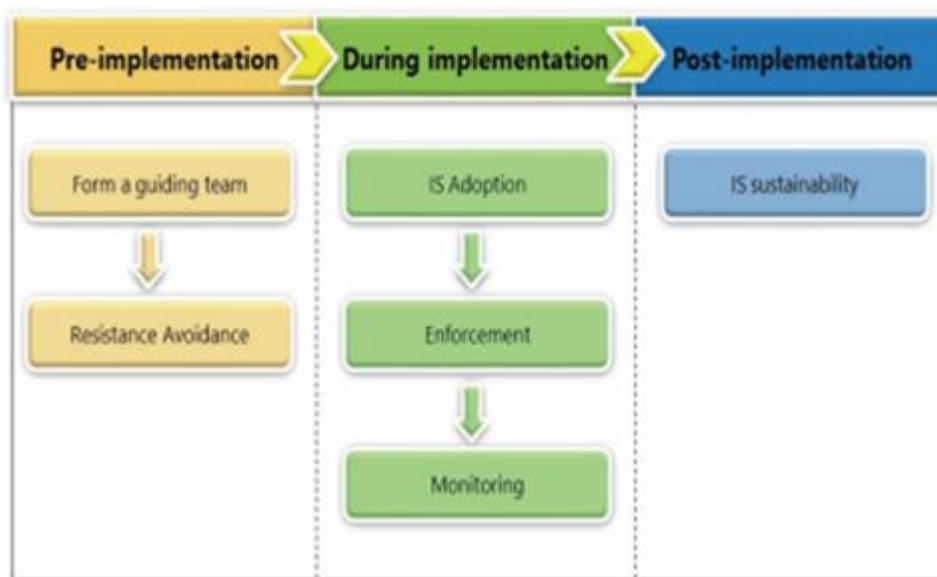


Figure 1 IS projects implementation guideline.

Based on the guideline, a prevention model is designed by mapping the human issues and support issues of IS projects implementation to the CM elements from CM model introduced by Lewin, Kotter and Prosci in 1951, 1996 and 1999 respectively to prevent the failure of IS project implementation [5]. Based on the proposed model, IS projects implementation guideline has been produced. The whole idea of preventing the failure of IS implementation is modeled as shown in Figure 2.

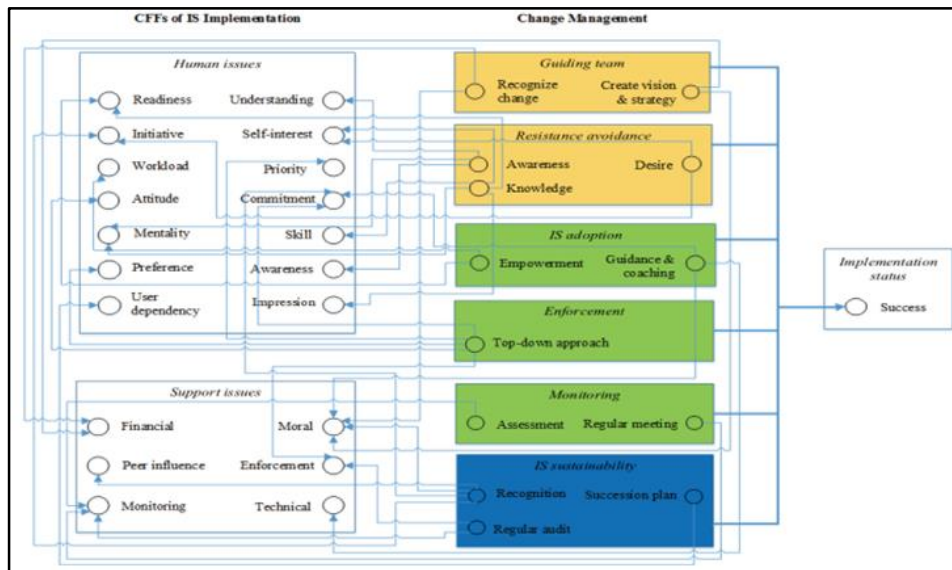


Figure 2 A proposed CM-based Prevention Model for IS Projects Implementation Failure in Malaysian Government Hospitals

The first phase, pre-implementation, involves two key processes: forming a guiding team and implementing resistance avoidance activities. The guiding team sets the vision and strategies for the new IS, while resistance avoidance focuses on preparing individuals for the change [10]. When a new IS to be implemented, the guiding team need to recognize the change; what will be changed and whom will be affected with the new approaches; any changes or adjustment need to be done to any work procedures or policies to fit the new approaches; and what is the impact of the new IS to the practitioners as well as the organization. To prevent user resistance, we adopt elements from Prosci's ADKAR model: awareness, desire, and knowledge [10]. Creating awareness is crucial to change mindsets and demonstrate the positive impact of the new IS.

The second phase, during-implementation, is where the actual implementation occurs, with three key processes: IS adoption, enforcement, and monitoring [10]. IS adoption involves applying knowledge and skills to use the new IS in daily tasks. Enforcement ensures user compliance and is followed by monitoring to keep things on schedule and remove obstacles. Guiding team guidance and coaching, along with top management involvement, provide support and encourage practitioner commitment [10]. In government hospitals, top-down management, as suggested by Lewin in 1951, is effective in enforcing IS usage, especially for those resistant due to manual systems or patient care priorities.

The last phase, post-implementation, is about maintaining IS use in the organization and integrating it into the culture. Recognition and rewards, as suggested by Kotter, Lewin, and Prosci, are vital for appreciating contributors and inspiring others to support the IS [10]. This approach not only offers moral support but also motivates practitioners to take initiatives and commit to the IS's success. To ensure IS continuity, Kotter emphasizes developing a succession plan to avoid dependence on specific users, especially in healthcare settings with staff turnover. Continuous assessment, as recommended by Kotter, is crucial to sustain the change, identifying what's working and what needs improvement []. Regular audits serve as enforcement and monitoring to ensure ongoing IS implementation by practitioners.

#### 4. Conclusion

In conclusion, the study emphasizes the critical importance of preventing and controlling challenges in the implementation of Information Systems (IS) to ensure success. It introduces a prevention model, incorporating Change Management concepts inspired by the models of Lewin, Kotter, and Prosci, to address the challenges faced in IS implementation in government hospitals in the Northern Region of Malaysia. This prevention model serves as a comprehensive guideline for IS project managers, helping them plan and execute IS projects effectively to avert failure. It is not limited to Hospital Information Systems (HIS) but can be applied to other IS projects in the same region. The model also assists top management in planning and executing IS projects, ultimately aiming to avoid project failure, which can be a costly and resource-draining setback. By addressing the challenges and implementing the prevention model, it is anticipated that IS implementation in government hospitals will be successful, enabling data sharing and integration, benefiting medical practitioners, improving work efficiency, and enhancing stakeholder satisfaction and confidence. Future work should focus on addressing all identified Critical Failure Factors (CFFs) and considering various approaches to resolve technology, infrastructure, and software issues to further enhance the success of IS projects.

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