

Evaluating the Adoption of Enterprise Application Integration In Healthcare Organisations

Khalil-ur-Rahmen Khoumbati

Researcher (PhD), Department of Information Systems and Computing
Information Systems Evaluation and Integration Network Group (ISEing)
Brunel University, Uxbridge, Middlesex, UB8 3PH, United Kingdom

Abstract

Healthcare organisations have turned to the use of Information Technology (IT) to automate and improve clinical and business processes. IT implementation decisions are often made at departmental levels, with each department choosing technologies and solutions based on its own needs and beliefs. As a result, the IT infrastructure consists of a number of autonomous and heterogeneous solutions, which cause integration problems. By nature, health care organisational structure is distributed, being a geographical spread of centers at different levels of complexity from general hospitals down to individual GPs. At a technical level the health care industry has been faced with the challenge of moving from mainframes to client-server computing with PCs. Due to numerous Information Systems (IS), health care institutions face the problem of heterogeneous computing systems. The integration of existing systems represents one of the most urgent priorities of health care information systems that allow the whole organisation to meet the increasing clinical, organisational and managerial needs. Many efforts have been made to resolve the integration problem in health care organisations, such as Health Level 7, CEN/TC251, Synergy Extranet (SynEx), Synapses, Enterprise Resources Planning (ERP) and Electronic Data Interchange (EDI) have been deployed in healthcare organisations to address integration problems. Many of these integration approaches are based on middleware technologies. Middleware technology aims at reducing the impact of problems related to the development of complex applications within heterogeneous environment. Middleware technology has a number of disadvantages which include: (a) creation of single point-to-point links between different applications, (b) requirement of altering the source and target application and (c) increased maintenance costs and complexity and. Enterprise

Application Integration (EAI) has emerged to provide significant benefits to the organisations to overcome integration problems and reduce the overall integration cost due to reduction of integration time and maintenance cost. It appears through a critical review of the literature that the adoption of EAI has not been widely studied in healthcare organisations. Therefore, the researcher has identified a gap in the literature dealing with the absence of theoretical model for EAI adoption in healthcare organisations. The research work, which will be carried out during this study, will evaluate the adoption of EAI in healthcare organisations. A model will be developed that identifies the several factors such as benefits, barriers and costs that are influencing the adoption of EAI in healthcare organisations.

An attempt to further expand this research by using the suitable modeling technique has also been made into the novelty of the presented model. Fuzzy Cognitive Mapping (FCM) is especially useful in solving the problem where many decision factors are causally interrelated with each other. In this way, valuable knowledge can be entered in the decision making process that otherwise remain hidden. Thus, FCM can help the decision makers to analyze the hidden causal relationship between the factors. Due to this FCM is considered to provide an insight into the complexity of inter-relationships amongst the key factors such as benefits, barriers and cost on the over all decision making process. The proposed model can provide the support to the decision makers while thinking to adopt EAI in healthcare organisation.