

Abstract

Background:

The sustainability of healthcare information technology projects depends on successfully integrating new technologies into day-to-day operations using strategies that combine technologies, processes, and people. Sustainability should be incorporated into IS (Information System) evaluation and Information Communication Technology (ICT) projects to improve operations and flexibility, as well as to encourage system utilisation. Stakeholder involvement in IS projects is becoming increasingly important for any organisation looking to achieve operational excellence. Performing a comprehensive stakeholder analysis requires identifying who these people are and how they relate to an organisation. The research applied the Critical Systems Heuristics (CSH) perspective, which is recognised as a philosophical framework that uses boundary critiques to define the boundaries of social system design, including the people involved and affected in it. This study aims to develop a strategy for practitioners to identify and engage key stakeholders to ensure the sustainability of DHSs.

Method:

The research uses a mixed-method, case-study analysis of a Digital Health System (DHS) in the public health care sector of Sri Lanka. In the context of IS sustainability assessment, CSH, with its foundation of theoretical, methodological guidelines based on systems thinking, provides a basis for identifying and gathering stakeholder views on various aspects of sustainability dimensions of IS being evaluated. A review of the literature was done to identify key aspects of sustainability and a suitable tool or method to evaluate the sustainability of the DHS. Programme Sustainability Assessment Tool (PSAT) was chosen because it included most of the key aspects of health information system (HIS) sustainability. The selected sustainability assessment tool, PSAT, was then adapted to the Sri Lankan context using a modified Delphi study with eight experts. The modified sustainability evaluation tool was then applied to the four Sri Lankan health care facilities, where the Hospital Health Information System (HHIMS) was introduced initially. The sustainability domain scores were compared, and the sustainability score for each of the four institutions and the average score was computed. Key informant interviews were undertaken to gain a better understanding of the stakeholder's perspective on system sustainability gaps using the CSH perspective of "should be" and "is" scenario. Finally, a strategy for identifying and engaging stakeholders to improve the DHS's sustainability was presented and tested.

Results:

Stakeholders of the HHIMS were identified by their own participation, using the tool given by the CSH methodological framework, based on their social roles. This classification aids in the identification of those stakeholders who were overlooked in the existing stakeholder identification process but must be included. During the initial rounds of the Modified Delphi study, expert comments were taken into account, and changes were made. The Modified Delphi study also found that $I-CVI > 0.8$ for 40 total items, $S-CVI/Avg = 0.99$, $S-CVI/UA = 0.925$, and Cohen's $\kappa = 0.722$, all of which indicate excellent content validity. The updated tool was used to assess sustainability capacity in four hospitals using HHIMS. BH-Avissawella, BH-Homagama, BH-Panadura, and DH-Dompe received sustainability scores of 4.3, 4.3, 5.0, and 4.7 out of 7, respectively. The four institutions have an average sustainability score of 4.6. BH-Panadura has nearly full extent environmental support (6.2) and organisational capacity (6), whereas BH-Homagama and DH-Dompe have partnership support and communication capacity to the nearly full extent. The key informants' interviews offered a thorough insight into stakeholders' perceptions of desired sustainability needs compared to current levels of sustainability support to reach a high degree of sustainability capability. The interviews with key sources revealed that HIS in Sri Lanka confronts the same kinds of sustainability challenges as other developing countries. The major two obstacles HHIMS face in the movement are a lack of long-term funding and system-wide strategic planning. By successfully implementing the recommended strategy, Castle Street Hospital for Women's Health Information Management System (HIMS) was able to produce a partnership action plan.

Conclusion:

The CSH methodological framework can be used to identify and engage stakeholders of a DHS. Four hospitals have a mid-extent sustainability capability, according to their sustainability scores. In Sri Lanka, currently, there is no institute practising sustainability evaluation and strategy in the preventive and curative sectors. According to this study, the updated and validated PSAT can be used to evaluate the sustainability of DHS Sri Lanka. Furthermore, it has been demonstrated that CSH principles can be used to identify sustainability gaps. The proposed strategy for identifying and engaging stakeholders to improve the long-term viability of Sri Lanka's DHS has been proven in practice, but it should be evaluated and tested further.

Key Words: Sustainability, Digital Health System, Stakeholders, CSH, Stakeholder engagement, PSAT