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Evaluation Framework for the Electronic Transmission and Processing of Prescriptions Project in the Iranian Social Security Organization

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Abstract

Fifty to seventy percent of information system projects fail. [1] Most of the failures are not the victims of flawed technology, but rather organizational and people related issues. According to a long term plan, Iranian Social Security Organization(ISSO) is going to enable the sharing of health related information in a secure environment by means of reliable data in the right time to improve health of insured people throughout the country. Electronic Transmission & Processing of Prescriptions (ETPP) project in this organization deals with the prescribed medicaments related information from around 7000 pharmacies throughout the country that ISSO contracted with them in order to deliver seamless services to 30 million insured people .It was crucial to define an evaluation framewrok for this nationwide project in order to apply formative and summative evaluation . [1][2][3] This framework facilitates scientific and practical multidimentional judgment about success or faliure of this project. [2][3]

Keywords:

evaluation framework, electronic transmission, processing prescriptions, ETPP, success, failure

Introduction

Introducing an innovation into a big organization such as ISSO evokes changes . In some cases these changes will be minor ones that hardly affect the organization and the people working in it. [3] In other cases, those having to use the innovation might experienece major changes. ISSO is responsible for delivering direct & indirect medical services to thirty million insured people through the ISSO's health care network in the country . In the ISSO healthcare network , there are more than 350 owned medical centers in addition to 40000(including 7000 pharmacies) contracted healthcare institutions. ETPP project has been designed in order to enable sharing of valuable prescription information using a secure electronic environment to improve health and safety of insured people based on scientific approach alongside the facilitation of tracking the financial loads & risks. This electronic environment brings facilities for different stakeholders in the ISSO by means of reducing chances of abuse and redundant inspections, simplification of outpatient procedures, increasing the accuracy of medical expenses report information, holding the reimbursement information, medical records, etc. However, only a thorough evaluation study can show whether or not a specific system was successful in a specific setting. [3] With having this insight, a wide range of attributes shall be measured in evaluation of the ETPP project. These attributes vary from purely technical factors to outcome measures such as quality of services and from end user evaluation to extent of diffusion into the organization. It is likely that no single criterion can account for success or failure of the project. [2][3]

Methods

After a robust literature review, the ETPP evaluation framework has been developed mainly based on Delone and McLean multidimensional success model. [3][4] Delone and McLean proposed to subdivide success measures of management information systems into six distinct categories: 1) system quality, 2) information quality, 3) usage, 4) user satisfaction, 5) individual impact, and 6) organizational impact. Within each category several attributes could contribute to success. [3] Delone and McLean concluded that success was a multidimensional construct that should be measured as such. [4] In addition, they argued that the focus of an evaluation depended on factors such as objectives of the study and the organizational context. [4] The comprehensive evaluation information could be emerged from each entity by different qualitative and quantitative data collection methods such as questionnaire, chart review, interview, time sampling, work sampling, focus group and observations. [3]

Results

The system development, system quality, implementation, information quality, system usage, user perspective, individual impact and organizational impact are entities of ETPP evaluation framework. The attributes of each entity have been customized. The system development entity has several attributes as: system design, system architecture, development methodology, data modeling and normalization, extent of user group involvement. The system quality entity has several attributes as: ease of use, response time, timesavings, creating extra works, perceived ease of use, usability, up-time, ease of learning, complicated built in business rules, reliability, security, help, data accuracy.

The implementation entity has several attributes as: user group ownership, training efficacy, time delay for maintenance. The information quality entity has several attributes as: completeness, accuracy of data, legibility, timeliness, perceived usefulness, availability, comprehensiveness, consistency, reliability and format. The system usage entity has several attributes as: frequency of use, number of entries, duration of use, location of data, frequency of use of specific functions, frequency of report generation. The user perspective entity has several attributes as: user satisfaction, user attitude, user friendliness, expectations, competence. The individual impact entity has several attributes as: direct benefits, changed documentation habits, information use, efficiency and effectiveness of work, job satisfaction. The organizational impact entity has several attributes as : communication and collaboration, social accountability, time savings, cost, reduction of staff, number of procedures reduced . [3]

Discussion

The framework can be circulated between different parties and is a perfect evaluation tool from different perspectives when a large scale information system as ETPP is designed, developed and implemented. A good evaluation should include multiple, carefully selected periods of data collection and should include all stakeholders' points of view. [3] Kaplan suggested the following methodological guidelines for evaluations: 1) focus on a variety of concerns, 2) choose a longitudinal study design, 3) use multiple methods, 4) choose a study design that can be adapted to the study findings whenever necessary, and 5) be both formative and summative. [3][5]

Conclusion

Among healthcare professionals, new innovations are predominantly judged by their direct value for patient care. Information systems with a practical utility for patient care or diagnostic procedures are relatively easily accepted, sometimes even without any scientific evidence of their value. [3] However, systems like ETPP that support the process of healthcare without being directly relevant to patient care are less easily accepted. [3] To address a blending approach to formative and summative information systems evaluation, it should start before system development and should have no fixed end. [3] This is the nature of evaluation which is a dynamic process in information systems life cycle.

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