

Information Systems Strategic Planning For Healthcare Organizations Using Ward And Peppard Model

Yosep Septiana, Asri Mulyani, Dede Kurniadi, Dudy Mohammad Arifin

Abstract: Healthcare organizations can use differentiation and cost reduction strategies to gain a competitive advantage and can survive in the fierce competition by implementing information system strategies. The research aims to build an information system for strategic planning in healthcare organizations. The information system strategic planning method used is the Ward and Peppard Model with a formulation framework and strategic planning process covering the stages of input, output, and evaluation of information system interpretation. The input stage includes an analysis of the business and information systems environment. Output stages include business information system, information system management strategies, and information system strategies. The evaluation phase of information system interpretation is modified by the use of Balance Scorecard Information Technology, and the evaluation stages are carried out after the information system planning and application mapping so that the application portfolio is aligned with the corporate contribution perspective, user orientation, operational excellence, and future orientation. The result of this research produced a recommendation for healthcare organizations in the form of development priorities which include the establishment of an information system unit and the development of an application portfolio that will support the business processes sustainability.

Index Terms: Balance Scorecard; Healthcare; Information System; Strategic Plan; Ward and Peppard.

1 INTRODUCTION

Changes in the concept of the role of information systems for an organization that previously only served as a support in the productivity and efficiency of operational costs are now turning functions into strategic resources to increase competitiveness for the continuity of the operations of an organization [1]. Information system strategy is an important thing as a guideline for an organization in formulating strategies for business units to achieve organizational goals [2]–[4]. In terms of increasing competitiveness, the development of information systems, organizations can use the strategy of implementing information systems as supporting the organization's operations. Strategic planning is a comprehensive long-term plan, providing the formulation of an organization regarding direction and how resources are allocated to achieve objectives over some time in various possible environmental conditions [5]–[7]. Several studies that examine information system strategic planning, especially those that use a formulation framework and planning process based on the Ward and Peppard Model have been carried out. The framework becomes a standard for every organization both profit and non-profit in the preparation of the organization's strategic planning based on the development of information systems to support the sustainability of its business processes [8], [9]. In several studies that examined the system's strategic planning using the Ward and Peppard Model, most of them carried out evaluation of information system translation after the compilation of information system planning and application formation, as well as in the evaluation of information systems using the Traditional Balance Scorecard technique [8],

[10], [11], so that sometimes the application portfolio was not in line with the priorities and strategies applied by an organization. Then in the evaluation of information systems, still using the Traditional Balance Scorecard technique, which in its evaluation is still based on the management perspective, it is not suitable to be applied at this time. Evaluation of information system translation will be more optimal if using the Balance Scorecard IT, where evaluation is carried out with the perspective of organizational contributions, user orientation, operational excellence and future orientation [6], [12]. This study aimed to analyze information system strategies, develop information systems strategic planning, and evaluate the elaboration of information systems strategic planning in a health organization. There are several benefits obtained by conducting information system planning, including information systems to be implemented, application portfolios will be produced according to the needs of each clinical unit business so that the investment that will be issued by the management is expected to contribute positively to business continuity. Another benefit obtained by the existence of this research is that the implementation of information systems will be in line with business strategies that are run and aligned with the business objectives that have been previously set, and the system can be integrated between parts or business units. Also, information system planning or information system architecture can help companies avoid crises now and in the future. Planning and thinking ahead will help organizations or companies get resources, capabilities, and can better serve the community.

2 METHOD

The formulation framework and planning process based on the Ward and Peppard Model has three stages [13]:

1. Input Stages, including analysis of internal and external business environments, and analysis of the internal and external information system environment using Value Chain, PEST, Five Forces Model, and SWOT Analysis.
2. Output Stages, including covering business information systems strategies, information system management strategies, and information system strategies using

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Strategic Grid McFarlan.

3. Evaluation Stages, at this stage evaluation of the translation of the information system, is carried out by using Balance Scorecard IT which includes a corporate contribution perspective, user orientation, operational excellence, and future orientation.

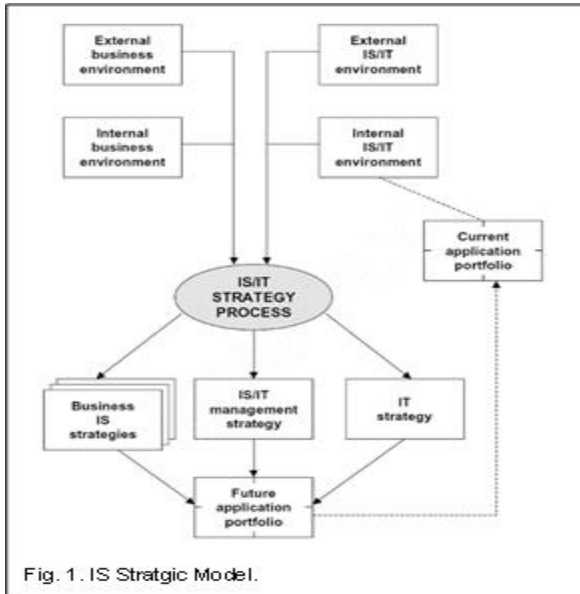


Fig. 1. IS Strategic Model.

The information system formulation framework and strategic planning process using the Ward and Peppard Model are presented in Figure 1, where in detail the framework includes the organization business model preparation, business strategy determination, information system planning, application mapping, evaluation of information systems strategic planning and information evaluation portfolio application.

3 RESULTS AND DISCUSSION

Formulation framework and information system strategic planning process using the Ward and Peppard Model is presented in Figure 2.

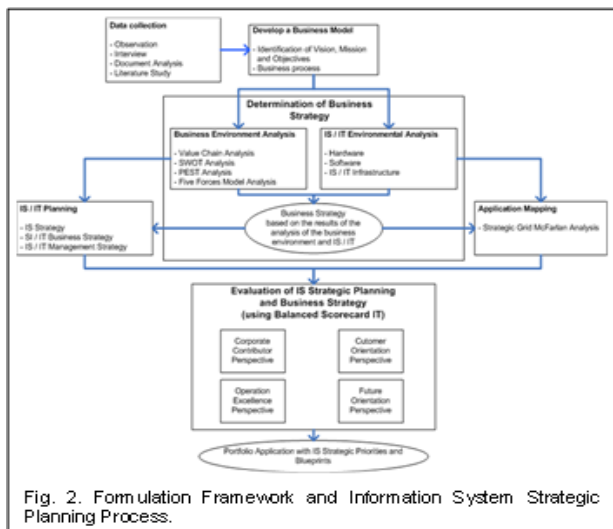


Fig. 2. Formulation Framework and Information System Strategic Planning Process.

The formulation framework and information system strategic

planning process are presented in Figure 2, where in detail the framework includes the develop business models, determination of business strategy, information system planning, application mapping, information system strategic planning evaluation and Portfolio Applications.

3.1 Develop Business Model

Identify the vision, mission, and objectives to be achieved by the organization, then compile what business processes exist in the organization and describe them in the business process model [14]. Health organizations must commit to develop information systems to be able to assist the operations of the organization so that it can improve the effectiveness of administering health services.

3.2 Determination of Business Strategy

At this stage, an internal and external business analysis is carried out as well as an analysis of the internal and external environment of the information system.

3.3 Information System Planning

Design the IS strategic plan using the following framework:

1. Develop an IS Strategy, including policies and strategies for the management and information system resources [15]–[17];
2. Compile the SI Business Strategy, covering how each business unit/function will utilize IS to achieve its business objectives, application portfolios and information architecture descriptions [18]–[20];
3. Compile the SI Management Strategy, covering the general elements expected through the organization/company to ensure consistency in the application of the required IS policies [21]–[23].

Preparation of application requirements is based on the results of an analysis of the SI business environment and the environment in health service provider organizations. The following are proposed application needs that will later be applied:

1. Expert System Diagnosis Application;
2. Supply Chain Management Application;
3. Executive Information System Application;
4. Health Service Information System Application;
5. Medical Record Application;
6. Financial Application;
7. Pharmacy Application;
8. Inventory Application;
9. Distributed Database Application;
10. Human Resource Information System;
11. Website Application;
12. Performance Decision Support System Application;
13. Document System Application.

3.4 Application Mapping

Based on the results of the preparation of application requirements in health service provider organizations, the application needs are formulated into the Mc Farlan Strategic Grid analysis, where each application is classified based on the influence of the application, namely strategic, key operational, high potential and support [13].

1. Strategic Quadrant Mapping
 - a. Expert System Diagnosis Application
 - b. Supply Chain Management Application

- c. Executive Information System Application
- d. Health Service Information System Application
2. Key Operational Quadrant Mapping
 - a. Medical Record Application
 - b. Financial Application
 - c. Pharmacy Application
 - d. Inventory Application
 - e. Distributed Database Application
3. High Potential Quadrant Mapping
 - a. Human Resource Information System
 - b. Website Application
4. Support Quadrant Mapping
 - a. Performance Decision Support System Application
 - b. Document System Application

3.5 Information System Strategic Planning Evaluation

From the results of the SI planning and application mapping formulation, the next step is to evaluate the translation of SI by using the Balance Scorecard IT. There are several perspectives in evaluating SI performance, namely:

1. Corporate Contribution;
2. User Orientation;
3. Operational Excellence;
4. Future Orientation.

3.6 Portfolio Applications

Based on the results of the SI strategy and business strategy elaboration, portfolio applications are formed with priorities and strategic blueprints that are guided by the Strategic Grid McFarlan based on four quadrants: strategic, key operational, high potential and support as in Figure 3.

STRATEGIC	HIGH POTENTIAL
<ul style="list-style-type: none"> - Expert System Diagnosis Application - Supply Chain Management Application - Executive Information System Application - Health Service Information System Application 	<ul style="list-style-type: none"> - Human Resource Information System - Website Application
<ul style="list-style-type: none"> - Medical Record Application - Financial Application - Pharmacy Application - Inventory Application - Distributed Database Application 	<ul style="list-style-type: none"> - Performance Decision Support System Application - Document System Application
KEY OPERATIONAL	SUPPORT

Fig. 3. Portfolio Applications.

The application portfolio can be used as a recommendation for health organizations that will later support the sustainability of business processes to compete in providing health services.

4 CONCLUSIONS

Based on the results of research on information system strategic planning in health organizations, it can be concluded that for organizations engaged in health care providers, to be

able to gain competitive advantage and be able to survive in fierce competition, the strategy that can be done is differentiation and cost reduction with the application of information technology with careful planning so that it can help, support and align with the business objectives of the organization. In compiling an information system strategic planning, the evaluation phase of the information system description using the Balance Scorecard IT is a very important stage. They were based on the evaluation; an application portfolio will be prepared by the priorities of business needs and information system strategies. Evaluation of information system translation will be more optimal if it is implemented after the compilation of information system planning and application mapping so that the application portfolio is produced in line with the corporate contribution perspective, user orientation, operational excellence, and future orientation.

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