Chapter 4.27

Management Information System in Higher Education

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INTRODUCTION

The communication and implementation of a strategic plan is typically based on various measures in educational institutions. The balanced scorecard approach has in the 1990s attained an important role worldwide in private and public sector organisations. Large organisations have different organisational levels, where it is useful to apply the balanced scorecard. This emphasises the need for the automation of the measuring system. The information is typically collected from various data sources. These characteristics underline the

need to plan a management information system (MIS) to support the management process.

Strategic management is bridge building between the perceived present situation and the desired future situation (West-Burnham, 1994; Wheale, 1991). Strategic management involves taking stock of the educational policy, local economy, and other factors in the organisation's environment. It adapts the organisation to its environment but, on the other hand, tries to exert a positive effect on the development of its local community (Bush & Coleman, 2000; Kettunen, 2003; Middlewood & Lumby, 1998).

The balanced scorecard approach developed by Kaplan and Norton (1996, 2001) is an approach to communicate and implement the strategic plan.

The approach creates strategic awareness among the management and members of the organisation and translates the strategy into tangible objectives and measures. It also aligns the strategies of different administrative units and aggregates the lower organisational levels to the upper levels. If the MIS does not support management, the introduction of the balanced scorecard is easily left halfway finished.

The purpose of this article is to show how the MIS can be planned to support the management process using the balanced scorecard approach. An example is given from the Turku University of Applied Sciences (TUAS), which introduced the balanced scorecard in 2002. The entire management process was described in 2004, and the MIS was implemented from 2004-2006. The development project is clearly strategic because it directly supports and shapes the competitive strategy of an organisation as explained by Remenyi (1990). The new system is also open to the personnel, which enhances strategic dialogue and supports the commitment of the personnel to the chosen strategic outlines.

BACKGROUND

The balanced scorecard approach translates the strategy into objectives and places them typically in four different perspectives:

- Customer
- Finance
- Internal processes
- Learning

Each objective placed in the perspectives is described by the measures, and their target values are typically set for several years. The management of an organisation sets the objectives, measures, and targets for the organisational units responsible. The MIS is planned to support the balanced scorecard approach.

When the balanced scorecard approach was introduced in 2002 at the TUAS, it was evident that utilising the new management tool properly would require a more sophisticated information system. The first difficulty was the ambiguity of measures in applying the balanced scorecard. The interpretability was high because the content and definitions of measures were ambiguous. This inhibits reliance on strategic management. The second difficulty was the manual maintenance, which required automation to be reliable and efficient. The data could not be directly transferred from the basic data sources. The use of measures combining data from several basic systems needed manual calculation, which was not reasonable in a large organisation.

Management in a knowledge intensive organisation applying the balanced scorecard requires organised and controlled information technology architecture. The data warehousing approach was selected to provide an integrated database. This integrates data derived from various data sources. It is an effective means of handling the large amounts of data needed in the management process. A management portal was planned to utilise the data warehouse, support the management process, and communicate the implementation of the strategy throughout the institution.

Our experience shows that the balanced scorecard may easily be an insufficient tool to communicate and implement the strategic plan due to troublesome calculation and unreliable measures. A proper MIS is necessary in large organisations having many organisational levels. A proper MIS presupposes modeling and developing the entire management process and tailoring the information system to meet the specific needs of the organisation.

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