

## Some issues in the strategic university management

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**Abstract.** Universiti Utara Malaysia (UUM) has been described as the first Malaysian university with a broad Management scope. Today, in the quest to be among notable universities in the nation and world, UUM is striving hard to be a comprehensive research university that blends the main elements of national agenda, education missions and sustainable research tradition. One of the core strategies is to develop a culture of excellence in scholarly activities. This paper describes how system thinking can help in developing a shared vision within the University for achieving the ambition.

**Keywords.** Strategic Planning and Management, System Dynamics, University Management.

### 1.0 Introduction

Since opened in 1983, Universiti Utara Malaysia (UUM) has produced numbers of graduates and postgraduates. Beginning with its first convocation in year 1988 till present, almost 60,000 graduates have been produced and mostly have succeeded in their professions respectively. Alumni are serving many sectors covers most sectors in country. To survive and prosper in higher education provision, universities are driven to engage in a strategic planning process. In the next decade, UUM success will depend on creating sufficient capacity for research activity without losing the quality of education. One of the four core strategies that stated is 'to develop a culture of excellence in scholarly activities'.

In the world today, higher education is a complex, demanding and competitive reality (Montez, 2004). Universities are driven to engage in a strategic planning process in order to survive and prosper in higher education provision. Raghunadhan (2009) stated that unlike business systems, the higher education institutions have peculiar dynamic nature that calls for effective strategic management for sustainable and competitive delivery of quality education.

Maintaining the right balanced between the dynamics and outcomes of education and research in compliance with the university mission is on of the key factors for success. Galbraith (1999) shows with examples that there is a need for more 'system thinking' in management of higher education process which are characterised by complex interactions of delayed multiple feedback loops.

A great portion of the existing research on university problems does not have a quantitative foundation, primarily because such problems involve qualitative (human) elements that are difficult to quantify and model (Barlas & Diker 2000). The use of linear statistical models and predictions by such means as

regression analysis, while appropriate in a variety of research domains, are inappropriate (Kennedy & Clare 1999; Galbraith 1999) when dealing with the dynamics of nonlinear systems.

In the information age, planning and control tools are often characterized by access to a huge volume of analytic data, which actually overloads the decision-making process (Todd & Palmer, 2001). A proper planning and control system design implies, on the contrary, focus on the key indicators of companies' efficiency and effectiveness, and on their dynamic interdependencies (Bianchi & Montemaggiore, 2008).

This study aims to offer empirical evidence of greater benefits university management can obtain by integrating the balanced scorecard (BSC) approach to performance measurement with system dynamics (SD) methodology in the analysis of cause-and-effect relationships between key variables of the university system.

## 2.0 Need for system dynamics view

Higher education institutions are continually evolving to meet government, employer, and student needs, hence the emergence of new management problems. Education has been facing a series of changes with legislation and changes in government policy as one the most important driver. Due to the difficulty in managing complex environments the whole picture in terms of developing interventions is difficult to interpret. The impact of various external interventions and strategies adopted by institutions to manage and control factors is difficult to evaluate and to observe the impact on the system as a whole has been problematic.

To guide management decision making, statistical linear models and spreadsheets are widely utilised. Kennedy & Clare (1999) contended that these essentially static modelling approaches are inadequate for this application domain because educational institutions are dynamic, complex, non-linear system. However, system dynamics methodologies have sought to redress this problem and find ways of encapsulating problem domain to assess the impact of various interventions on the system and its outputs. Such a system can be characterised by interactions of closed chains (or feedback loops) that, when combined, defined the structure of the system and hence how it behave over time. Therefore, we believe system dynamics to be an appropriate modelling technique for higher education strategic management.

This study introduces the concepts of System Dynamics Modeling in exploring some issues in strategic university management. Firstly we study the framework of problems in developing a culture of excellence in scholarly activities in a Universiti Utara Malaysia (UUM). Then we develop the System Dynamics Model of scholarly activities in a UUM, in the context of adopting balanced scorecard as a performance indicator. Later an alternative model of scholarly activities in a UUM is developed.

System Dynamics (SD) is a methodology for studying and managing complex feedback systems (Forrester, 1961). SD is a computer-aided approach for analysing and solving complex problem through policy design and analysis. The problem addressed by SD are based on the premise that the structure of a system, that is, the way essential system components are connected, generates its behaviour (Luna-Reyes & Anderson, 2003). These problems have at least two features in common. First, they are dynamic which involve quantities which change over time. Second, they involve the notion of feedback which item 'x'

affects another item 'y', and 'y' in turn affects 'x', perhaps through a chain of causes and effects (Forrester, 1998). Figure 1 presents the system dynamics modelling approach.

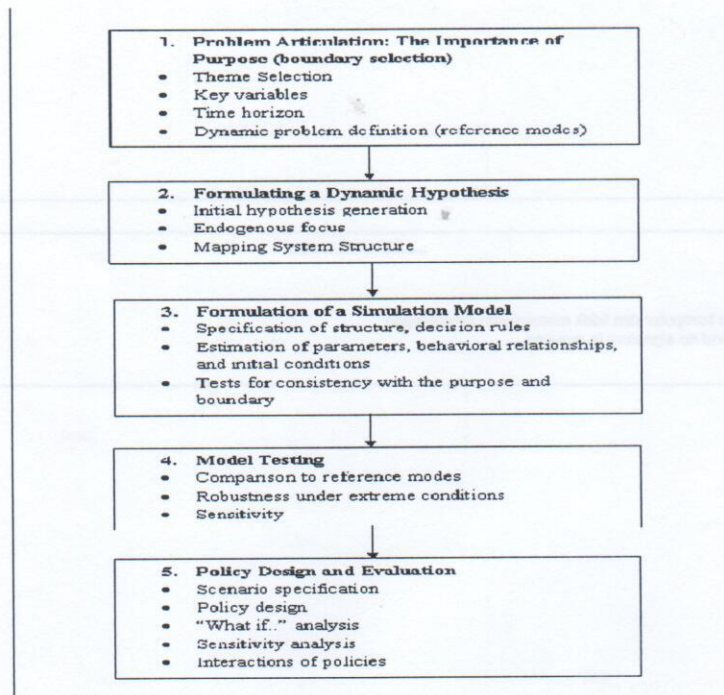


Figure 1: System dynamics modelling approach.

Balanced Scorecards (Kaplan & Norton, 1992) is a performance measurement system which enabling managers to translate strategy into a correlated set of performance indicators from several business perspectives; namely (1) financial, (2) customer, (3) internal process, and (4) learning & growth. Figure 2 illustrates the proposed dynamic framework which incorporates SD methodology and balanced scorecard approach in developing the feedback models of four major sectors representing the university strategic planning system.

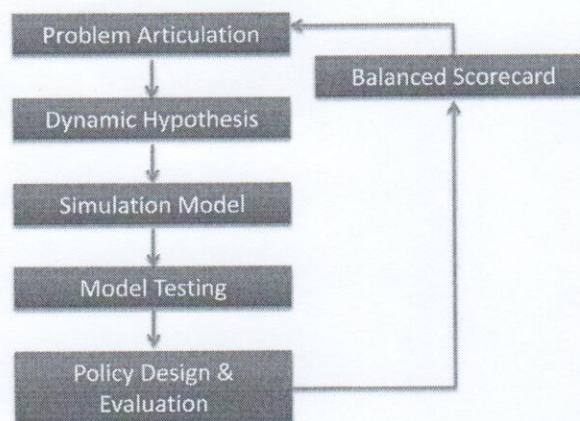


Figure 2: Dynamic framework.



staff, and research resource availability. Research growth factor is computed as  $\text{INIT}(\text{Research Resources Capacity})/\text{Research Resources Capacity}$ .

#### 4.0 Result and conclusion

For research to thrive, it must have a separate channel of funding. Low publications arise from few research projects run by a faculty or an academic unit irrespective of the quality/qualifications of academic staff. The actual staff publications of academic staff can be boosted by publications due to executing projects.

For research and publishing to be strengthened, governments, major donor institutions, NGO's, and bilateral organisations should and must demonstrate their willingness to invest in research that meets the needs of the immediate society. University need to develop a culture of aggressive research prospecting while strengthening graduate training base and ultimately achieving the dual aim of teaching and research.

This paper described how system thinking can help in developing a shared vision within the University for achieving the ambition which is to develop a culture of excellence in scholarly activities. The development of the dynamic framework can successfully enable university management to better understand cause-and-effect relationships between variables pertaining to the four traditional BSC perspectives.

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