On Building a Dynamic BSC Model for Strategic Performance Measurement in Public Sector

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Abstract
The issue of performance measurement is getting more critical to the public-sector organizations as well as the private domain as environmental changes become more dynamic and complex. Recognizing the importance of intangible assets, the public organizations have started to introduce Balanced Scorecard as a means of managing and measuring their performance. Unfortunately, however, BSC, a wisdom of the private sector's, is not properly workable unless it is modified by reflecting the unique characteristics of the public organization. In addition, the traditional BSC fails to accommodate into its model the dynamic structure within which indicators are interrelated and interacting with time delays. Therefore this paper aims to devise a dynamic-BSC model appropriate for the public organizations by introducing the system dynamics concept with a focus on the effect of casual relations and the interactions among the key indicators and taking into account the impact of delayed feedback caused by new policy and legislative changes.

Keyword : Balanced Scorecard, System Dynamics, Public Sector.

Introduction
It is fact that financial performance measurement which was based financial statements have been serviced, more and less, scientific and objective results for a long time. Today, the invisible resource like as 'Knowledge' more create value than visible resource. The traditional financial performance measures worked well for the industrial era, but they are out of step with the skills and competencies companies are trying to master today.[4] These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation.[13]

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To remedy this deficiency, Kaplan & Norton devised "Balanced Scorecard"-a set of measures that gives top managers a fast but comprehensive view of the business.

The BSC approach has proved useful to all types of companies, both public and private; it provides a framework for any type of organization to monitor and influence the effectiveness of its strategies. However, as organizations become more service and knowledge-oriented, with less tangible desired outcomes, application of the BSC becomes more challenging.[3] Also, BSC have a basic limitation that fail to capture dynamic interactions among the key indicators involved over time and have no way of taking into account the impact of delayed feedback often caused by introducing new policies and legislative changes on the whole system under investigation like as almost performance measurement methods.[15]

Therefore this paper aims to devise a Dynamic-BSC model appropriate for the public organizations by introducing the system dynamics concept with a focus on the effect of casual relations and the interactions among the key indicators and taking into account the impact of delayed feedback caused by new policy and legislative changes.

The BSC Model

At the beginning of 1990 Robert Kaplan and David Norton along with representatives from several companies worked on project called 'Measuring Performance in the Organization of the Future'.[6] They affirmed that for correct assessment of performance, the Balanced Scorecard should comprise indicators grouped in four perspectives: finance, clients, internal processes and learning & growth. Strategic objectives must be established when an enterprise's vision and strategy are developed, to secure competitive advantage.[5] Now, the BSC is a management model which is used to translate an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system.[6][7]

Public Domain

   The BSC is widely diffused in business and probably also to some degree in public management. The BSC's acclaimed merits and prescribed design seem to be identical for both the business and the public management contexts.

   The BSC could have many important applications in public management as well as in business. However, uncritical adoption and implementation of the BSC in public management as it presently is prescribed for business strategy, could eventually turn out as reintroducing a Soviet-type, central planning model in political institutions.[1]

   Use of the BSC in the public sector has been researched by several governments, specifically regarding introducing performance measures to management and procurement. In the US, research identified that a fifth perspective, 'employee satisfaction', could be added to gauge personnel issues, and that the tool had been deployed widely in all sectors.[12]

   The key metric for government (or nonprofit) performance, therefore, is not financial in nature, but rather mission effectiveness. But mission effectiveness is not a definite and static thing. Usually, an agency has a rather broad general mission, which incorporates many specific sub-missions or departmental missions within it.[9]The following table was prepared for summarizing the similarities and differences of strategy between public and private-sector organizations.

<Table 1> Comparing Strategy in Private and Public-Sector Organizations

Feature	Private Sector	Public Sector
Strategic Goal	competitiveness	mission effectiveness
Financial Goals	Profit, Growth, Market share	Cost reduction, Efficiency
Values	innovation, creativity, goodwill, recognition	accountability to public, integrity, fairness
Desired Outcome	Customer satisfaction	Customer satisfaction
Stakeholders	Stockholders, Owners, Market	Taxpayers, inspectors legislators
Budget Defined by:	customer demand	Leadership, legislators, planners
Justification for secrecy	protection of intellectual capital, proprietary knowledge	National Security
Key Success Factors	growth rate, earnings, market share	best management practices
	Uniqueness	Sameness, Economies of scale
	Advanced technology	Standardized technology

The only clear similarity between the two is in the desire for 'customer satisfaction', but even here there is a difference, because the definition of "customer" is different in the two cases. This table illustrates the necessity for significant revision or 'translation' of much of the private-sector focused guidance commonly available for implementing the balanced scorecard and other strategic planning efforts. [9]

Most public sector scorecards focused upon excellence and sought to work more efficiently, for example, reduce costs, fewer mistakes and more effective use of resources. However, this operational approach was viewed as not being the best way to deliver customer needs. There is also a danger that the more straightforward customer profiles in the private sector will be applied to complex customer and stakeholder profiles in the public sector leading to overly simplified measures within the customer quadrant of the scorecard. [12]

McAdam and O'Neill[8] also reviewed the use of the tool in the public sector and concluded that, in contrast to traditional measurement, the framework had clear advantages for evaluating all aspects of the organization.

Dynamic Structure of Balanced Scorecard
According to Richmond [11], the strategy mapping system, the bubble diagram, has serious limitations which may result in strategy failure. He points out three main flaws of this system. [14]

First, it expresses only one-way relations, cause-and-effect logic, whereas very often factors within strategic initiatives influence each other in a feedback loop pattern.

Second, it may lead to incorrect conclusions about impact of strategic initiatives because it does not capture delays, fundamental factors of dynamics in any environment.

Third, Due to its static nature, the mapping system is unable to answers such questions as 'what will happen, if …?'. Despite much information gained through the performance measurement activities, managers may be still unable to react correctly to changes and

discrepancies between the goal and the result of initiatives undertaken to meet that goal. A more elaborate language is required to help managers check the consistency of their assumptions and actions.

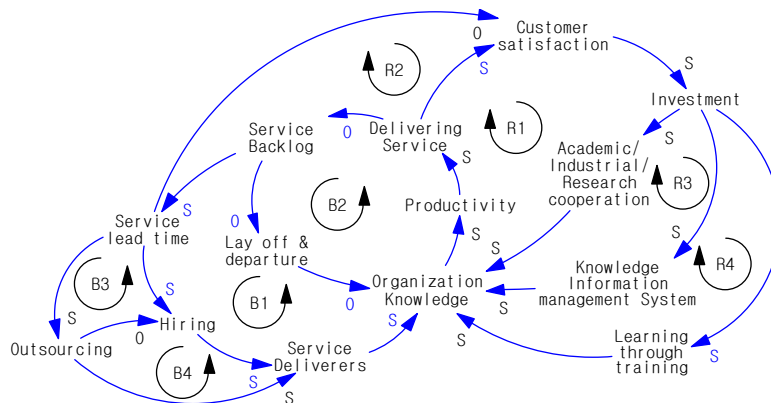Akkermans and Oorschot point out further limitations inherent in these flaws [2][14]:

(1)Performance measurement based only on few indicators may lead to troubles unless the most relevant indicators are chosen. Balanced Scorecard methodology does not possess any mechanism, which can assess the relevance of defined indicators.

(2)There are insufficient links between top level, strategic scorecard and operational-level measures, and the Balanced Scorecard does not consider an enterprise in the context of an extended value chain.

Causal Loop Diagram of BSC in Public sector

<Figure 1> is a Causal Loop Diagram of Balanced Scorecard only revealing the Internal Process and Learning& Growth in public sector.

If Delivering Service was not continued, Service Backlog, Service Lead Time and Hiring in public sector was increase. Collecting talented people, Service Deliverers, increase the Organization Knowledge and Productivity(B1).[15] But the decreased Service Backlog decrease the Service Deliverers and the Organization Knowledge in a long term with time delay (B2). The increasing of Customer Satisfaction strengthen the investment of Academic-Industrial- Research Cooperation, Knowledge Management System and Learning through training (R1, R3, R4). But the increasing of Service lead time decrease the Customer Satisfaction (R2).

<Figure 1> Causal Loop Diagram: Internal Process and Learn & Growth

In Profit organization, all scorecard indicators on Balanced Scorecards pursuit the advanced and improved financial performance. But in Non-profit and public sector, The top mission is not financial stakeholder but organization "Customers"(Paul R, Niven, 2003).[10] But financial measurement, like as budget, is constraints than performance indicator in public sector.

<Figure 2> is a Causal Loop Diagram that is reflected budget as constraint. Expenditure for customer satisfaction in public organization was constrained by the budget, and the effort for solving this problem, like as making the yield for taxes, decrease the customer satisfaction as making balance loop(R5, R6, B5).

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<Figure 2> Causal Loop Diagram: Constraint of Budget

Conclusion

This paper attempts first to brief the substance of Dynamic Balanced Scorecard of public sector and examine the nature of its complexity by using system dynamics simulation technique, followed by current problems of the public sector and the future directions to move. Rather than providing a detailed and specific research, this paper attempted to quickly identify promising movements with potentially significant effects on Balanced Scorecard in public sector. The findings presented in the paper would perhaps provide some ideas and directions for further study. Hopefully the information provided in this paper could be a useful initial clue. This paper is perhaps too simple to deal with Dynamic Balanced Scorecard in public sector and it will be refined and further developed, but it serves as a good starting point to clarify key relationships and issues. However, it has to be admitted that the problems mentioned before are yet to be refined and the solutions are expanded in greater detail in more rational manner.

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