Performance measurement models: an analysis for measuring innovation processes performance

Cristian-Ionuț Ivanov*a, Silvia Avasilcăia

“Gheorghe Asachi” Technical University of Iași, Department of Engineering and Management, Blvd. Mangeron, No. 29, 700050, Iași, România.

Abstract

Most companies are trying to improve their performance in any way possible. The winning card will be hold by those who are trying to innovate, to obtain and sustain performance.

This paper aims to analyze the criteria from four of the most important performance measurement models that can be used to measure the performance of the innovation process: Balanced Scorecard, Malcolm Baldrige, Performance Prism and European Foundation for Quality Management (EFQM).

The study will be a theoretical one and it will on one hand emphasize the innovation elements from every model, and on another hand it will suggest the most adequate model to measure the performance of the innovation processes.

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1. Introduction

In recent years, because of the dynamic of the environment where organizations compete, more and more of them developed a considerable interest for performance measurement. The main role of performance measurement is to assess the current position of the organization and also to help managers create and implement a better strategy.

On a changing market, where many companies adopt about the same strategies, or have similar products or services, the only way to obtain long-term performance is to innovate.
Innovation can be viewed as an important component of performance measurement, and the proof stands in the fact that most of the performance measurement models have some components that can measure the innovation process.

2. Performance measurement models

2.1. Balanced Scorecard

Kaplan and Norton (1996) present the Balanced Scorecard model as a useful tool for the managers to obtain a competitive advantage. These days, organizations are competing into a complex environment where understanding the objectives and the way they can be achieved it’s vital. The Balanced Scorecard translates the mission and the organization strategy into a set of performance indicators that offers a model for the performance measurement system. The model assets the organizational performance through four perspectives: financial, clients, learning and growth and internal processes (Kaplan & Norton, 1996).

The indicators represent a balance between external indicators for stakeholders and the internal indicators of critical processes, innovation learning and development.

![Fig. 1. The Balanced Scorecard model](image)

2.1.1. Customer perspective

It is very important to know what customers want in terms of quality, costs and distribution, and the most important thing, what they want in the future from the organization.

Many times, the customer perspective is seen as a set of objectives which organization has to achieve to get and maintain the customers.

The objectives are the result of hypothesis made on the clients and their habits, on the markets which they represent and the value they perceive related to the organization.

2.1.2. Financial perspective

Managing financial resources it very important for the success of the organization. Knowing how to attract the money and how to invest them as good as possible is vital. The most common mistake that most of the organizations do is to focus on financial results totally or partial ignoring the other perspectives.
2.1.3. Internal processes perspective

Understanding how internal processes work will help the organization achieve its objectives and how to add the expected value to the products or services that the customers buy.

Improving the internal processes will help the organization to improve its all-around performance.

2.1.4. Learning and growth perspective

In a shrinking budget, training and development are eliminated first. During a crisis, the organizational capabilities are often sacrificed.

This is one of the most important perspectives because it influences all the other perspectives. All the results from the customer, internal processes and financial perspective are strictly related to training and development of human resources.

With the Balanced Scorecard model, the innovation can be analyzed through internal processes and learning and growth perspectives.

2.2. Malcolm Baldrige model

Malcolm Baldrige National Quality Award was created in 1987 by the U.S. Commerce Department and has the role to encourage the American businesses and all other organizations to practice an efficient control of quality for products and services. The model was created to offer an excellence quality standard and also to help companies to achieve a high level of performance (Garvin, 1991).

The prize is offered annually for three categories: industry, services and small and medium businesses, offering at least two prizes for each category.

The model allows any organization to attain its objectives, to improve its results and become more competitive, aligning its plans, processes, decisions, peoples, actions and results (http://www.nist.gov/baldrige/publications/upload/Baldrige_20_20.pdf).
The seven criteria of the model are: leadership, strategic planning, customer focus, measurement, analysis and knowledge management, workforce focus, operations focus and results.

Malcolm Baldrige can measure innovation performance through the following criteria: leadership, strategic planning, operation focus, workforce focus.

2.3. Performance prism

The interest for performance measurement has been bigger in the last years.

Performance prism was created to be more flexible and to offer a wider or a narrow focus, in accordance with the organization’s needs (Neely, 2004).

Performance prism has five interrelated perspectives that present vital aspects:

- Stakeholder satisfaction – which are the key stakeholders and what are their wants and needs?
- Strategies – what are the strategies that the organization has to apply to satisfy not only the stakeholder’s wants and needs but their requirements also?
- Processes – what processes needs to be applied by the organization to execute its strategy?
- Capabilities – what are the competences needed by the organization to be able to make the processes work?
- Stakeholder contribution - what needs has and what does the organization wants from the stakeholders, on a mutual basis? (Neely, 2002)

![Fig. 3. The performance prism](adapted after A. Neely, C. Adams, M. Kennerley, The Performance Prism: The Scorecard for Measuring and Managing Business Success, Financial Times Prentice Hall, 2002)

The performance prism is a tool used by the management teams to influence their thinking when the key questions that need to be asked are established.

This model is not very developed on analyzing innovation performance, but it can still be measured through two of its components: processes and competences.

2.4. European Foundation for Quality Management (EFQM)

The EFQM excellence model allows the understanding of cause-effect relationship between what is the organization doing and its results. It contains three integrated components: the fundamental concepts of excellence, the criteria
To obtain long time success an organization needs a good management team with a clear strategic direction. They have to invest in employee’s training and their professional development, to improve their relation with partners and the processes to raise the value of their products and services.

The five criteria of determinant factors are:

- **Leadership** – organizations with high level of excellence have leaders that build a great future and achieve their objectives, act like ethics models and inspire trust.
- **Strategy** – organizations with high level of excellence apply they mission and vision by developing and implementing a strategy based on stakeholders.
- **People** – organizations with high level of excellence have a higher interest in their people, continuously looking to improve their capabilities and promoting fairness and equity. They are trying to motivate the employees to obtain better results that will help the organization grow.
- **Partnerships and resources** – organizations with high level of excellence are planning and manage very well the relation with suppliers and the internal resources to support the strategy and make the processes more efficient.
- **Processes, products and services** – organizations with high level of excellence are trying to improve their processes to add more value to their customers and other stakeholders (Armstrong, 2000).

EFQM is one of the most complete models that can be used to measure the performance of the innovation process, because it can be done through all of its criteria: leadership, people, strategy, partnership and resources and processes, products and services.

### 3. Measuring the performance of innovation processes: a conceptual framework

#### 3.1. Performance models analysis

The connection between innovation and the changes from the economic environment concerns many organizations.

After analyzing the most important models for performance measurement, the criteria that can measure the performance of the innovation process are presented in table 1.

<table>
<thead>
<tr>
<th>Innovation criteria</th>
<th>Balanced Scorecard</th>
<th>Malcolm Baldrige</th>
<th>Performance prism</th>
<th>EFQM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td></td>
<td>Leadership</td>
<td>Processes</td>
<td>Leadership</td>
</tr>
<tr>
<td>Learning and growth perspective</td>
<td>Operations focus</td>
<td>Competences</td>
<td>People</td>
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<tr>
<td>Strategic planning</td>
<td>Workforce focus</td>
<td>Strategy</td>
<td>Partnership and resources</td>
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<td></td>
<td></td>
<td>Processes, products and services</td>
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</tr>
</tbody>
</table>

As it can be seen in the table above, all four models have some important elements that can measure the innovation performance. Malcolm Baldrige and performance prism are good, but are still a few criteria that have a big importance when innovation performance has to be analyzed.

Balanced Scorecard and EFQM are the most complete models for the continuous improving of the organization’s performance that can be used also to measure the performance of the innovation processes.
Both of them are specific, requiring managers to find the proper measures in order to be applied. The main goal of EFQM is to achieve organizational excellence and Balanced Scorecard’s to obtain a good strategic position.

EFQM is more on evaluating its current condition and Balanced Scorecard is trying to focus on future results of the organization.

EFQM is based on TQM and Balanced Scorecard on organization expected strategy.

It can be said that Balanced Scorecard is more specific because it can be applied into a specific area of the organization.

As theory and practice is showing, Balanced Scorecard is the most important performance measurement tool. The fact that it can be adapted according to the needs of the organization in any of its areas, Balanced Scorecard is better than EFQM when it comes to measure such a complex process like innovation.

After a detailed analysis, a new model will be proposed, that will include all important aspects from presented models.

### 3.2. Innovation performance measurement framework

The personal model created as a result of performance measurement models analysis includes five criteria:

- Strategy
- Processes
- Leadership
- Competences
- Organizational culture

The selected criteria include about all the important aspects that have to be taken in consideration when innovation processes performance is measured.

All of them are interrelated and the strategy is the main criterion.

**Strategy**

In order to take place or to create a considerable impact on firm’s performance, the innovation has to be integrated in its strategy, with other words, the strategy has to be focused on research and development.

A very good way to improve or support the current activities of the organization is to focus on research projects. Of course, without a good plan on resources usage, for most of the companies will be hard to bring improvements to current products, processes or services or to create new ones.

Another important aspect that can help companies to improve their products or services is to create partnerships
with universities, research centers or other organizations from the same field.

**Processes**

Innovation helps in developing new knowledge that can lead to new products development or new fabrication methods that can offer a higher efficiency. Technological knowledge are very important, but are not absolutely necessary to develop new products or to improve current processes.

The main concern of the organization when processes are the main subject, should be the capability of current technology to create new products or to improve the existent ones, to maintain or to improve customer satisfaction by keeping a decent price for products or services and of course their quality.

**Leadership**

In the organizational environment leadership is very important because it has a big influence on employee’s innovation capability.

One of the biggest values that leadership promotes is trust, which is the most important element from the inside of the organization that can have a serious influence on the capacity of employees to create more than incremental innovations.

A better communication between the management team and employees might help in improving the level of confidence, motivating people to innovate.

**Competences**

The human resource will always be the most important advantage of any organization because without a capable team long term success cannot be obtained.

For the innovation process, one of the most important ability is the creativity. Creative people can offer many ideas or solutions to current problems.

In order to innovate, people should be opened to risk taking and new ideas.

**Organizational culture**

Organizational culture is very important because it makes people respect in a natural way higher standards and in the same time to promote them.

To be able to say that an organization is promoting innovation through its organizational culture, it has to allow value exchanges from inside and to promote lifelong learning.

### 3.3. Conclusions and practical proposals

The model was designed after a detailed analysis of classic performance measurement models and not after the innovation performance measurement model created by OECD (Organisation for Economic Co-operation and Development) because OECD suggests a model based on the main types of innovation.

The current model tries to emphasize the most important characteristics that have to be analyzed when innovation performance is measured.

This model can be used not only as a measurement tool, but for establishing the degree of innovation also. As a measurement tool, the organization will have to define and measure a set of key performance indicators for every criterion.

To establish the degree of innovation, can be used a questionnaire with questions focused on the criteria of the model, applied to key people from organization.

The model will be tested in a few innovative organizations from Romania, from different industries. The number and the type of indicators will be different according to the size and type of any of them.

After analyzing the results, a company should be able to see how effective are the strategy, the processes, the leadership, the organizational culture and the competences related to the innovation process.

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References


