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Using the BSC and the EFQM EXCELLENCE MODEL as a combined Roadmap for Dignosing and Attaining Excellence

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Abstract:

The objective of the research presented in this paper is to identify relations and strength of relationships between elements of two models - the Balanced Scorecard (BSC) and the EFQM Excellence model. For that purpose a framework, which indicates the relationships between the mentioned models, has been developed. The hypothesis to be tested is whether the EFQM Excellence model may be used as an indicator of BSC implementation success. Hypothesis testing is based on data from a sample of 150 Serbian organizations. The results suggest that there are strong positive correlations between the BSC perspectives and the EFQM Excellence model criteria. Since the regression coefficients for the relationships between the BSC perspectives and the EFQM criteria are significant with high positive values the research results indicate a strong justification of the developed framework.

Key words: BSC model, EFQM model, perspectives, criteria, relationships.

1. Introduction

There is no magic recipe for providing a competitive advantage because competitive advantage is today mainly based on non-material resources. Due to that management systems have to include both financial and non-financial resources as well as appropriate objectives and measures to assure continuous improvements and optimization of the used resources. Financial objectives and measures of their achievement still represent significant indicators of success, but the achievement of such objectives depends on the achievement of a number of non-financial objectives which may be related to customers, processes and employees.

The connection between different objectives and measures of their achievement has been a motive for Norton and Kaplan to develop the BSC model (Kaplan & Norton, 1992, 2000). The BSC enables managers to establish connections between objectives from different perspectives related to different stakeholders, to make such objectives obvious and more attainable (Kaplan & Norton, 2006).

It is interesting that another model which explains possible relationships between enablers and results was presented in the same year as the BSC. The EFQM Quality Award model, which was introduced by the European Foundation for Quality Management in 1992 (Santos et al. 2007), includes the self-assessment criteria for achieving the European Excellence Award. The EFQM Quality Award model was renamed in 1998 to the European Excellence model signaling that quality is not sufficient for attaining excellence.

While the BSC helps managers to identify objectives, measures and connections between them, the EFQM Excellence model is primarily used for assessment of an organization's success in the achievement of the objectives, or to check whether the organization is on the right track for attaining excellence.

When observed in this way, the BSC and the EFQM Excellence model may be considered as complementary models and therefore the questions that arise are: Do these models represent alternative ways for measuring and improving performances? Which one gives the best basis for management control (Dahlggaard, 2008)?

In order to provide answers to such questions one must familiarize with the characteristics of both models, identify relations between them and evaluate the level or significance of those relations.

2. Managing and measuring business quality: The framework of research

Some of the main characteristics of contemporary organizations are interconnection and interdependence between their organizational units as well as their employed individuals. Such characteristics imply the usage of comprehensive models for business management and performance measurements (Hogue & James 2000). As there are several models to facilitate business management and performance measurements there seems to be a need or temptation to use more than one model (Goldratt & Cox, 2004). One such possible use is the parallel application of BSC and the EFQM Excellence model.

A few authors have analyzed connections between the BSC and EFQM Excellence model. Shahin et al. (2012) tried to integrate those two business models while other authors tried to show the synergic effects of their parallel implementation (Lamotte & Carter, 2000; Dror, 2008, Yang, 2009; Lua, Bettsa, & Croom, 2011). However, Wongrassamee et al. (2003) adopted a critical attitude towards those models and suggested instead the adoption of strategic frameworks to specific types of organizations, since the BSC and EFQM model are considered as non-prescriptive models which they regarded as a weakness.

In the above mentioned researches the BSC and EFQM Excellence model were regarded as management tools with the same overall purpose. However, even if the BSC model includes measures of defined objectives in different perspectives, BSC is primarily a managerial tool intended for setting directions for an organization. The EFQM model, on the other hand, was primarily developed as a self-assessment tool intended for evaluation of efforts taken and the results achieved as a consequence of those efforts (Dahlggaard et al. 2013). However, gradually more and more successful organizations have learned how to extend the usage of the EFQM Excellence model to become a managerial tool for setting directions and for performance measurements like the BSC model – for example the Danish pump manufacturing company Grundfos (Dahlggaard & Dahlggaard, 2008).

Today EFQM claims that (2012, p. 2):

“Whilst there are numerous management tools and techniques commonly used, the EFQM Excellence model provides a holistic view of the organization and it can be used to determine how these different methods fit together and complement each other. The model can therefore be used in conjunction with any number of these tools, based on the needs and function of the organization, as an overarching framework for developing sustainable excellence.”

With this background, it is the research objective to analyze the relationships between the BSC and the EFQM Excellence model in order to discover the character and strength of the relationships between various levels of BSC implementation and results according to the EFQM model.

The validity of the assumed relationships has been evaluated through analysis of empirical data collected from managers of Serbian organizations. The research is based on the assumption that the EFQM model can be implemented and used for evaluation of business performance in organizations that have already implemented the BSC model.

In order to accomplish the research objective the following framework has been created. This framework shows which EFQM model criteria are directly influenced by certain perspectives of BSC model (Figure 1).

Figure 1: Framework of Relationships between BSC perspectives and EFQM model criteria.

As indicated in figure 1, the BSC model assumes a segmented management approach through four perspectives, and the establishment of cause-and-effect relationships between these perspectives (Davis & Albright, 2004). The success in accomplishment of any defined objectives under the BSC model can be confirmed or denied through the appropriate criteria of the EFQM Excellence model. Seen through this lens, activities taken under the BSC perspective *Learning and Growth* reflect the EFQM Excellence model criteria *Leadership*, *Strategy*, and *People*. Success attained in the BSC perspective *Internal Processes* can be related to the following criteria of the EFQM Excellence model: *People*, *Partnerships & Resources*, and *Processes, Products and Services*. Results achieved under the BSC *Customer perspective* reflect *Processes, Products & Services*, *Customer Results*, and *People Results*, as

criteria of the EFQM Excellence model. Finally, *People Results*, *Society Results*, as well as *Business Results* reflect the results of activities taken under the BSC *Financial perspective*. Hence, by using the framework in figure 1, the character and strength of relationships between the four BSC perspectives and the EFQM Excellence model may become apparent, so the research hypothesis is formulated as follows:

The EFQM Excellence model may be used as an indicator of a company's success or non-success with implementing the BSC.

The test of the above hypothesis is based on data measuring senior managers' perceived experiences from organizations in the Republic of Serbia that have used the BSC model for at least two years. The sample frame included organizations from a list of the 300 best companies in Serbia (according to the business revenue: www.proorg.fon.rs).

A questionnaire was filled out by managers of the 162 organizations which had used the BSC model for at least two years. However, only 150 senior managers fulfilled the whole questionnaires, and therefore only those data have been included into the analysis. Hence, the response rate in relation to the 162 companies which have used the BSC model for at least two years was as high as 92.6%. Since the EFQM Excellence model has been observed as an assessment tool for evaluation of efforts and results achieved due to implementation of the BSC model, experience with the EFQM Excellence model was not a precondition for participating in the research. Managers of all companies (162) were familiar with the EFQM Excellence model, however only 57 have actually used it for self-assessment.

The analysis of the relationships in figure 1 is based on the evaluation of parameters and variables preceded from explanations of the BSC perspectives and the EFQM Excellence model criteria. The questionnaire comprised closed-type questions in the form of statements describing the perspectives and criteria elements of the BSC and EFQM Excellence model, respectively. Participants were asked to evaluate the statements related to their organization on a Likert scale from 1 to 5, where 1 means that the interviewee completely disagrees with the statement and 5 that he/she completely agrees with the statement. Hence, the evaluation of the statements represents the respondents' perceptions of the level of presence/implementation of each parameter or variable in their own organization.

Due to the fact that managers of the organizations in Serbia do not have data concerning society's satisfaction and that they did not want to comment on financial results of their organizations - the analysis included only seven criteria of the EFQM Excellence model. Therefore, since the evaluation of statements concerning the last two criteria of the EFQM model is missing, the financial perspective of the BSC model has also been excluded from the analysis. Hence, the analysis of the relationships between the BSC perspectives and the EFQM model criteria is based only on non-financial variables and parameters.

The first questionnaire (see Appendix A) concerns the BSC perspectives and includes five statements for each of the three analyzed perspectives: *Learning & Growth*, *Internal Processes*, and *Customers*. The second questionnaire, which concerns the EFQM Excellence model criteria (see Appendix B), includes five statements for each of the seven analyzed EFQM criteria: *Leadership*, *Strategy*, *People*, *Partnerships & Resources*, *Processes*, *Products & Services*, *Customer Satisfaction*, and *People Satisfaction*. The statements for evaluation of the relationships between the EFQM Excellence model and the BSC model have been formulated based on previous published research (Lo, Wong, & Cheung, 2006; Foster, 2004; Jou et al. 2007), and the final statements have been minor modified in order to be understood by the participating managers.

Data analyses have been carried out applying the logical thinking methods of induction, deduction and quantitative analysis tools - primarily statistical tools. The methods for data analyses used in the following pages were: Descriptive statistics, ANOVA, correlation and

regression analysis. In order to provide comparability of results and conclusions, the methods used were the same as the ones used in the previously mentioned research studies.

3. Research results

In order to provide insight into the organizations' dedication to BSC and the EFQM Excellence model five statements for each of the 3 BSC perspectives and the 7 EFQM criteria have been defined. For the BSC model those statements are called variables (since in this research they are treated as enablers or factors), while for the EFQM model statements are called parameters (since they are treated as results, influenced by BSC perspectives).

To test the reliability of the questionnaire Cronbach's Alpha has been calculated (Zafiropoulos & Vrana, 2008). If Cronbach's Alpha is higher than 0.70 the reliability is considered acceptable in social science research situations (Trochim & Donnelly, 2006).

For the items included in the BSC questionnaire Cronbach's Alpha is equal 0.954 suggesting that the items have high internal consistency, and because Cronbach's Alpha for individual items are higher than 0.70 internal consistency is confirmed (see Appendix A).

The same test has been used for evaluation of the EFQM questionnaire. For the items in this questionnaire Cronbach's Alpha is equal 0.973 suggesting that the items have high internal consistency, and because Cronbach's Alpha for individual items are higher than 0.70 internal consistency is confirmed (see Appendix B).

By observing the average scores of the 3 parameters describing the BSC perspectives (Table 1) it is noticed that their values are quite similar and quite high. The lowest average value has the Learning & Growth perspective indicating that this perspective, which is the basis for all other perspectives, is less developed than the other two perspectives. The high average values proceed from the fact that the sample includes organizations from a list of the 300 best organizations in Serbia.

Table 1: Descriptive statistics for BSC perspectives scores

Perspectives	N	Minimum	Maximum	Mean	Std. Deviation
Learning & Growth	150	2.40	5.00	3.8373	.86121
Internal Processes	150	2.20	5.00	3.9840	.92032
Customer	150	2.20	5.00	3.9027	.83986

To test if there are significant variations in the above average values ANOVA has been used, and no significant differences between the mean scores were identified (See table 2).

Table 2: ANOVA results for BSC perspectives

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.620	2	.810	1.059	.348
Within Groups	341.811	447	.765		
Total	343.431	449			

To test if there are positive correlations between the BSC perspectives correlation analysis has been performed showing that all Spearman's correlation coefficients are positive and highly significant (see table 3). The strongest relationship is between *Internal Processes* and the *Customer* perspectives (0.827).

Table 3: Spearman's correlation coefficients for BSC perspectives (N = 150)

Perspectives	Learning & Growth	Internal Processes	Customers
Learning & Growth	1.000	.704	.662
Internal Processes	.704	1.000	.827
Customers	.662	.827	1.000

All Correlation coefficients are significant at the 0.01 level (2-tailed test).

According to the average scores of the 7 parameters (criteria) describing elements of the EFQM Excellence model (Table 4) it is noticed that their values are quite uniform. The lowest values are shown for *Partnerships & Resources*, *Customer Results* and *People*. This means that those EFQM criteria elements are less developed compared to the other criteria and consequently managers should pay more attention to their employees and customers, but above all to their partners, especially their suppliers.

Table 4: Descriptive statistics for EFQM Excellence model criteria scores

	N	Minimum	Maximum	Mean	Std. Deviation
Leadership	150	2.40	5.00	3.9187	.86640
Strategy	150	2.40	5.00	3.9040	.95979
People	150	2.40	5.00	3.8653	.96252
Partnerships & Resources	150	2.20	5.00	3.7627	.90231
Processes, Products & Services	150	2.40	5.00	3.8933	.93570
Customer Results	150	2.40	5.00	3.8267	.81781
People Results	150	2.40	5.00	3.9387	.90039

To evaluate whether differences in the average values are statistically significant ANOVA analysis has been used (Table 5).

Table 5 ANOVA results for EFQM Excellence model criteria

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.323	6	.554	.672	.672
Within Groups	859.358	1043	.824		
Total	862.681	1049			

According to the results from Table 5, it is concluded that there are no statistically significant differences between the average values of the EFQM model criteria.

Concerning the relationships between the criteria of the EFQM Excellence model correlation analysis has been performed (Table 6).

Table 6 Spearman's correlation coefficients for EFQM criteria
(N = 150)

	Leadership	Strategy	People	Partnerships & Resources	Processes, Products & Services	Customer Results	People Results
Leadership	1.000	.736	.606	.646	.712	.678	.848
Strategy	.736	1.000	.705	.749	.773	.887	.592
People	.606	.705	1.000	.711	.762	.677	.735
Partnership & Resources	.646	.749	.711	1.000	.616	.844	.633
Processes, Products & Services	.712	.773	.762	.616	1.000	.677	.668
Customer Results	.678	.887	.677	.844	.677	1.000	.550
People Results	.848	.592	.735	.633	.668	.550	1.000

All correlations are significant at the 0.01 level (2-tailed).

The correlation coefficients in table 6 show that there are strong positive relations between the EFQM Excellence model criteria indicating that organizations in the sample have provided a parallel development of all critical areas of their business.

The complementarities of the BSC and the EFQM Excellence models have been confirmed through correlation analysis (see table 7). As expected, there are strong positive relations between the 3 BSC perspectives and the 7 EFQM Excellence model criteria. Similar conclusions can be drawn from other authors' research results (Lascelles & Peacock, 1996). According to their findings, BSC implementation affects the improvement of the four result criterions of the EFQM model. The new finding here is that BSC implementation also affects the enabler criteria scores of the EFQM Excellence model.

Table 7: Spearman's correlation coefficients for the BSC and EFQM model

	Learning & Growth	Internal Processes	Customers
Leadership	.694	.710	.724
Strategy	.651	.677	.909
People	.650	.869	.770
Partnership & Resources	.736	.697	.785
Processes, Products & Services	.714	.850	.796
Customer Results	.726	.642	.841
People Results	.652	.863	.732

All correlation coefficients are significant at the 0.01 level (2-tailed).

In order to analyze in detail the dependency between the EFQM Excellence model criteria and the BSC perspectives linear regression analysis has been applied with criteria of the EFQM Excellence model as the dependent variables and the BSC perspectives as independent variables. The regression analysis results are shown in Table 8.

The values of the estimated regression coefficients indicate the strength and direction of impact of the given variable on EFQM Excellence model criteria. The results are presented in

one table only (for efficiency of the presentation), and therefore the table contains only the variables (statements) of the BSC perspectives that have significant influence on the appropriate EFQM criteria.

Table 8 Results of regression analysis

EFQM Criteria (Dependent Variable)	BSC Perspect.	Un-standardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
Leadership	L & G 4	.177	.071	.215	2.492	.014
	L & G 5	.491	.084	.565	5.823	.000
Strategy	L & G 2	.296	.079	.352	3.726	.000
	L & G 4	.313	.079	.344	3.967	.000
People	L & G 2	.328	.082	.388	4.011	.000
	L & G 4	.191	.081	.209	2.359	.020
People	IP 1	.482	.049	.598	9.754	.000
	IP 3	.184	.075	.208	2.447	.016
Partnerships & Resources	IP 1	.240	.059	.317	4.064	.000
	IP 5	.277	.090	.347	3.085	.002
Processes, Products & Services	IP 3	.418	.047	.488	8.959	.000
	IP5	.251	.047	.302	5.349	.000
Processes, Products & Services	C 2	.211	.047	.252	4.466	.000
	C 4	.542	.047	.633	11.499	.000
Customer	C 2	.214	.029	.291	7.404	.000
Results	C 5	.408	.039	.425	10.592	.000
People	C 2	.342	.041	.423	8.366	.000
Results	C 3	.447	.041	.474	10.816	.000

As was shown in Figure 1, each BSC perspective may be connected to three criteria of the EFQM Excellence model. The regression coefficients from table 8 show that certain variables of the BSC perspectives have a greater influence on the EFQM Excellence model criteria. For example, under the *Learning & Growth* perspective the three variables that have the greatest influence on EFQM criteria are: LGP2 - *Information flows are formal and informal*, LGP4 - *Employees are considered as a significant source of information* and LGP5 - *Employees' ethics and commitment are subject to improvement*.

This means that wanted results concerning *Leadership*, *Strategy* and *People* criteria may be provided if the organizations are using formal and informal information flows, if employees are considered as a significant source of information, and if employees' ethics and commitment are subject to continual improvement.

On the other hand, other variables describing the BSC perspectives (in this example LGP1 - *Employees are continually learning and are informed about strategy*, and LGP3 - *There is a system for financial and non-financial incentives*) are not developed or not present enough in business practices. By focusing more on those areas greater positive business performances may be expected.

4. Concluding remarks

Research results have shown that relationships between the BSC perspectives and EFQM Excellence model criteria are strong. The results confirm the findings of other authors (Ruiz-Carrillo & Fernández-Ortiz, 2005) that the EFQM Excellence model may represent an effective tool for measuring the basis of the competitive advantage of a given organization.

The results of the research presented in this paper show how managers may discover weak points of organizational practices for attaining business excellence and consequently for improving competitiveness. Precise relationships pointed out in the research framework in figure 1 show in which BSC perspectives managers should look for improvement opportunities according to evaluations based on the EFQM Excellence model. For example, if evidence based on the EFQM Excellence model shows that the worst results are concerning *Partnerships & Resources* then the causes and opportunities for improvement are related to the BSC *Internal Processes* perspective. Or if the evidence shows that the worst results are concerning the *People* criterion in the EFQM Excellence model then the causes and opportunities for improvement are related to the BSC *Learning & Growth* perspective and the *Internal Processes* perspective and so on. Therefore, the EFQM Excellence model may be used as a road map for improvements directed towards attaining business excellence.

Although its findings coincide with the results of other authors (concerning relationships between the BSC and EFQM model), the main limitation of the research is leaving aside the financial perspective of business management. This perspective has been omitted from the research due to insufficient data. Future research should include the financial perspective of the BSC as well as financial results under the EFQM Excellence model in order to provide stronger evidence about the relationships presented in the developed framework (figure 1). Assuming that non-financial perspectives of the BSC model determine the results under financial perspective it is expected that future research will confirm the results presented in this paper. Likewise, another limitation concerns the fact that the research has been performed in a developing country (Serbia), in which the analysed business models are still a *privilege* of successful organizations. Therefore, future research results from developed countries or other developing countries may support the developed framework in figure 1.

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Appendix A: BSC questionnaire

Customer Perspective	Information about customers' needs are collected
	Product improvement is based on customers' needs
	Relationships with customers are based on trust and commitment
	Information about customers' satisfaction is collected
	Customers' complaints are taken into account
Internal Processes Perspective	Processes are defined and documented
	Processes are described through flow diagram and measures are defined
	Partnership with suppliers is based on long term relationships
	IT systems has been established
Learning & Growth Perspective	Process realization is based on team work
	Employees are continually learning and are informed about the strategy
	Information flows are formal and informal
	There is a system for financial and non-financial incentives
	Employees are considered as a significant source of information
	Employees' ethics and commitment are subject to improvement

Cronbach's Alpha for the BSC model

Perspectives	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Learning and Growth	7.8867	2.999	.860	.741	.965
Internal Processes	7.7400	2.658	.934	.893	.911
Customer	7.8213	2.943	.922	.881	.921

Appendix B: EFQM questionnaire

Leadership	Leadership is developed and encouraged
	Leaders are involved in improving management systems
	Leaders are involved with customers, partners and community issues
	Leaders reinforce a culture of excellence
	Leaders support organizational change
Strategy	Stakeholders' needs are taken into consideration
	Organization's strengths and weaknesses are taken into consideration
	A clear methodology is used for developing policy and strategy
	Policy and strategy are translated into action
	Principles of continuous improvement are part of the strategy
People	Human resources are considered as a main source of competitiveness
	Employees' knowledge and skills are continually developed
	Employees are empowered and involved in improvement processes
	Free dialogue is encouraged between employees and managers
	Employees are rewarded, recognized and cared for
Partnerships & Resources	The organization is committed to management of external partnerships
	The organization is committed to financial resource management
	The organization is committed to physical assets management
	Technology is continually improved
	The organization is committed to information and knowledge management
Processes, Products & Services	Processes are systematically designed and managed
	Processes are improved using innovation to meet customer needs
	Customer feedback is used in the design of products and services
	Products and services are produced, delivered and serviced to standards
	Customer relationships are managed and enhanced
Customer Results	Data for measuring customers' satisfaction is collected
	The level of customer satisfaction is continually increasing
	Adequacy of targets for customer satisfaction is continually reviewed
	There is evidence regarding internal customer satisfaction
	Cause and effect analysis is used for analyzing customer satisfaction
People Results	Data for measuring employees' satisfaction is collected
	The level of employee satisfaction is continually increasing
	Adequacy of targets for employee satisfaction is continually reviewed
	There is evidence regarding employee satisfaction
	Cause and effect analysis is used for analyzing employee satisfaction

Cronbach's Alpha for the EFQM model

Criteria	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Leadership	23.1907	26.093	.896	.854	.969
Strategy	23.2053	25.094	.911	.884	.968
People	23.2440	25.307	.882	.815	.970
Partnership & Resources	23.3467	25.585	.918	.876	.968
Processes, Products & Services	23.2160	25.412	.900	.825	.969
Customer Satisfaction	23.2827	26.312	.929	.915	.967
People Satisfaction	23.1707	25.846	.887	.849	.970