
HOW TO UNDERSTAND THE COMPASS WHICH WE ALREADY HAVE?

■ **Abstract:**

Purpose of this research is the identification and analysis of the key process indicators which significantly contribute to the benefits of the business processes exploitation in the Luka Koper, d.d., and, to display the importance of the systematic process approach. With this case study we attempted to get deeper understanding, and to clarify and evaluate the enablers and results in the frame of the implemented EFQM business excellence model. Medium framed qualitative and quantitative analyses indicate the benefit of the identified key processes (performance) indicators or Balanced Scorecard (BSC) and their influence on the strategic directions.

■ **Keywords:**

EFQM, business processes, BSC, sustainability, entrepreneurship

■ **INTRODUCTION**

The Port of Koper was established in 1957. Since then they developed into the significant port and logistic system in the Adriatic maritime market. Luka Koper, d.d. of today is exceedingly successful and rapidly developing company, which is founded on their adopted values: knowledge, enterprise, partnership, responsibility and respect.

Company Luka Koper, d.d. was the winner of the Slovenian national quality award (PRSPQ) in 2002 and finalist in the European Excellence Award 2006 (EEA). With the European Foundation for Quality Management (EFQM) model integration in management system, the company develops a holistic measurement system, continuous improvements, self-assessment, benchmarking, inter-organizational learning and good practice transfer. EFQM model is usually implemented within the pilot project. Most frequent purpose for such approach is bound to participation in a national quality award (NQA) process.

EFQM model, when used in practice, shows that is difficult to determine transparent relations of enablers (causes) with business results (effects). Connecting approaches are undefined [1] and the problem lies in the structure of the EFQM model [2]. However, the implemented model doesn't enable the identification of all information on the relationships (correlations) between process Key Performance Indicators (KPI's) and the business results. In this manner company doesn't have transparent evaluation of resource inputs in efficiency of the implemented EFQM model in the management system. Diagnostic activities, in this context, are usually "too expensive" to the company and it's usually overworked employees. Because of the latter's outlook, diagnostic is regarded as being time-consuming activity. With the development and application of a model for identification of the influential processes KPI's which gives important contribution to the business results, company can perform its own diagnostic activities and focus on improvements of the key processes in a short and long-time period.

Analysis of researches, documents and records, semi-structured questionnaires and processes KPI's values indicates the latter's significant influence on the business results. Qualitative and quantitative analysis of many researches about excellence model implementation, performed all over the world i.e. Australia, China, EU, New Zealand and USA, indicates the general favorable influence of KPI's on the business results of organizations [3,4,5,6,7,8,9].

LITERATURE AND RESEARCHES REVIEW

EFQM model was developed, mainly from recommendations of dr. Tito Conti, at the beginning of ninety's of twentieth century, and introduced to the public at EFQM Forum 1991 in Paris. First European Quality Award, actual EFQM Excellence Award (EEA), was handed over in 1992 [2]. Slovenian first pilot project of National Quality Award (PRSPQ) was accomplished in 1996, and first award was handed over in 1998. EFQM model is founded on the self-assessment likewise as other excellence models around the world i.e. Malcolm Baldrige NQA (MBNQA) in USA and Deming Prize (DP) in Japan [10]. Self-assessment contains regular activity review and identification of active inertia on every area of organization's activity against the nine criteria of EFQM model [11], [12].

First five criteria represent enablers and the last four criteria represent business results of the organization. Enablers tell what organization is doing; meanwhile results indicate what organization achieves. In such a manner results are the consequence of enablers and enablers are improved on the feedback information's basis from the results. Model enables many approaches for the excellence achievement in all viewpoints of organization activities. Excellent results at key performance, customers, people and society are achieved with leadership which is the driving force of policy and strategy, people, partnerships and resources [13].

Self-assessment should be triggered from the management board when company defines key strategic objectives and directions. Triggering should be ended with the list of objectives which have the highest priority. At the same time the objectives list and priority tasks form the framework of the self-assessment process [11]. EFQM model is applicable also at definition of

the Total Quality Management (TQM) philosophy. In that way represents a help at fostering TQM from the part of the management board [10], [14].

American research about effective implementation of the management paradigm-TQM and its impact on the financial results of 600 quality award winners, showed, that all of them achieved significant improvement in stock returns, operating income, sales, total assets, employees, return on sales and return on assets [4], [12].

In Europe, EFQM and BQF organizations sponsored the research for the identification of correlations between adopted principles of the EFQM model and improved business results. Research showed business performance improvement on a short and long-term for the companies which effectively implemented the principles of the EFQM model [9].

Results of PriceWaterHouseCoopers research on the sample of 3500 public sector organizations in the UK indicated that the tool for continuous improvements is the EFQM model in 56% [6].

Research, in the EU northern region, conducted by Kristensen, Juhl and Eskildsen showed that Danish companies, who applied Danish Business Excellence Index are achieving significantly better results than other companies [15]. Sweden Institute for Quality performed equal research for the Swedish companies which showed similar results [5].

Likewise the results of researches in Australia, New Zealand and China confirmed positive effects of systematic application of the excellence model [3], [7], [8].

Winning the Slovenian PRSPQ means to get the highest national quality award of the Republic of Slovenia, which basis on the EFQM model.

Research about registered competitors in the frame of Slovenian PRSPQ and comparative data from the EEA showed that main motives and benefits of the EFQM model application in the EEA frame are self-assessment, benchmarking, employee engagement and feedback information's. Meanwhile the Slovenian PRSPQ competitors emphasized excellence as a part of the strategy, continuous improvements and good practice exchange [16]. In Slovenia we have, after more than a decade of PRSPQ existence, some cases of excellent companies which achieved exceptional success also on the European level and placement

among the EEA finalists. This are: Hermes Softlab, d.d., in 1998, Luka Koper d.d. in 2006, and Trimo Trebnje d.d. in 2007.

Adaptation of the EFQM model to the company and its capabilities [2], [13] with regularly usage of self-assessment [16], [17] is essential for the successful companies. Prestigious award winner's cases all over the world are confirming that organizations with the systematic use of tools for continuous improvements are achieving lasting operational excellence. In the last 19 years the EFQM model showed validity in excellence recognition, as an informal standard for assessment and benchmarking tool [2]. At this segment excellence project represents important contribution to the measures for carefully planned operations, quality increasing as well as assurance for uniformed platform for benchmarking and understanding the business excellence achievement in EU space and wider.

METHODOLOGY

Main purpose of the research was to establish if it is possible to set up an adequate model for identification of the processes KPIs' which have significant influence on the business results. Based on problem identification and purpose of the research, the following specific objectives were defined:

1. Determination of the groups of processes KPIs' and groups of results,
2. Determination of the cause-effect relations between processes KPIs' and results.
3. Identification of influential processes KPIs' which gives important contribution to the key performance results of the company.
4. Setting up and the application of the model for identification of the KPI's in correlation with the results of the company.

The paradigmatic orientation of this research is quantitative, because the influence of the process KPIs' on the company's business results is discussed. As a research method was chosen case study [18] which is based on the following criteria: self-assessments are performed regularly since 1999, participation in PRSPO competitions (PRSPO winners in 2002) and participation in EEA competitions (R4E in 2005, Finalist in 2006 and participation in 2009).

Documents and records were studied closely and included analysis of public available data from company's application reports for PRSPO and EEA competition, web sites and annual

reports. Observations were performed during research which is still being continued. Employees who participated into the research were mainly from the middle management level and some experts which are acquainted with the EFQM model and its terminology [14], [18], [19]. Data for the model testing, application and analyses were gathered in September and October 2009.

EMPIRICAL FINDINGS AND DISCUSSION

With the NCCA method we discussed non-linear relationships among four groups of variables, on the nominal and/or ordinal and numerical level [20], [21], [22]. All observed variables are processes KPI's, which are measured in eight Profit Centres (PC) for maritime throughput. The values of the general canonical correlations, implemented in the three year analyses, are relatively high and somewhat different. In most, the difference is expressed between the analyses of the years 2006 and 2007 and also between 2007 and 2008. In addition to the high canonical correlations are also high Eigenvalues, which show the suitability of the NCCA method (analysis 2007 Fit = 1,996). Loss or unexplained variance is relatively evenly distributed by the two dimensions and groups of variables, and is low (analysis 2007 Loss = 0,004).

Table 1 General canonical correlations ρ , Fit and Mean Loss

General canonical correlations	ρ_1	ρ_2	Fit	Mean Loss
Analysis and optimal scaling level				
1. Analysis 2006				
Ordinal	1,000	0,667	1,750	0,250
Numerical	0,893	0,665	1,669	0,331
2. Analysis 2007				
Ordinal	0,999	0,667	1,749	0,251
Ordinal and Multiple Nominal	0,997	0,996	1,996	0,004
Numerical	0,937	0,608	1,659	0,341
Numerical and Multiple Nominal	0,989	0,952	1,956	0,044
3. Analysis 2008				
Ordinal	1	0,667	1,750	0,250
Numerical	0,831	0,592	1,567	0,433

The findings of the parameters calculation are represented in some detail with analysis of 2007, which had the highest general canonical correlation with ordinal and multiple nominal optimal scaling levels (Table 1).

Direction through 1st. and 3rd. quadrant is set by following variables (KPI's): number of

improvements NIm4, Fuel consumption FC3 (Explained Variance (EV) 100% *), which are associated with higher values and the Correlation Coefficient (CC) 100*, while the number of improvements NIm4 and Maritime throughput MT2 (EV 14.15%) are correlated with the CC 37.62. Maritime throughput MT2 is associated with lower levels with electricity consumption EC3 (the CC between MT2 and EC3 is 10.45). On the other hand are, the added value per employee AV1 (EV 96.82%) and revenue per unit RU1 (EV 58.98%), which are correlated with a CC of 75.57. AV1 and total costs per unit TCU3 (EV 30.02%) are correlated with the CC of 53.91. All these variables are associated with higher values. Displayed variables (Figure 1) explain the increased fuel consumption in 2007 as well as maritime throughput, added value per employee and operating costs, compared to 2006.

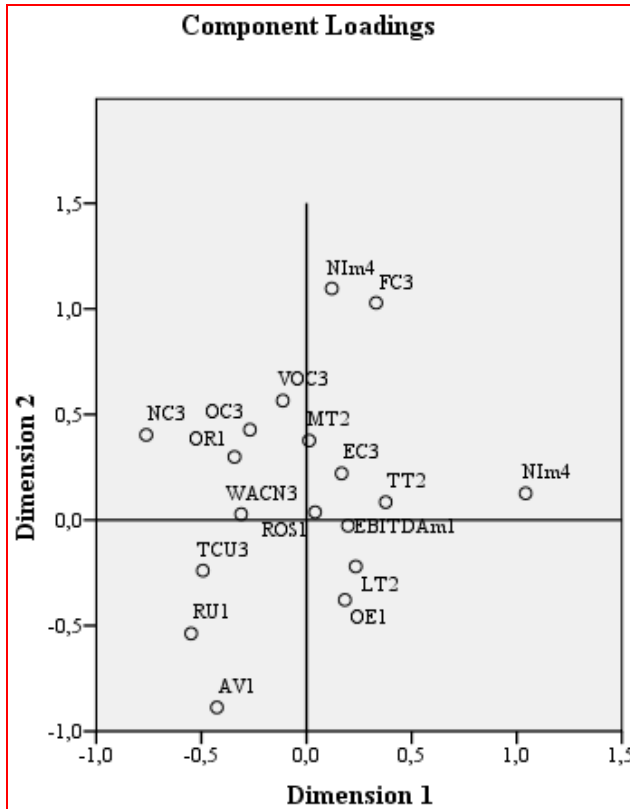


Figure 1 NCC Analysis 2007 (Ordinal and Multiple Nominal)

The direction through 2nd and 4th quadrant is set by variables (KPI's): Number of complaints on billing NC3 (EV 74.31%), variable operating costs VOC3 (EV 33.2%; NC3 and VOC3 are correlated with a CC of 49.67) and operating costs OC3* (EV 25.47%; NC3 and OC3* are correlated with a CC of 43.4) are associated with higher values.

On the other side are, the Operating Efficiency OE1 (ev 17.64%) and Land throughput LT 2 (ev 10.32%; OE1 and LT2 are associated with CC equal to 13.49) which are associated with higher values. The variables in the Figure 1 are explaining the decline in the number of complaints, increase in operating efficiency and land throughput compared to 2006 [22,23,24]. The results of calculation in this case, are certainly more reliable due to the chosen optimal scaling level and calculated Fit. In this case, the relationships between the variables, taken into account in the calculation, are treated as a non-linear what is in practice more likely. In a similar way we analyzed the KPI's from the 2006 and 2008 as illustrated in Figure 2 and Figure 3 below. Variables (KPI's) have been arranged somehow differently than in 2007 (see also Table 1).

All three analyses show the correlation and explained variance of variables which varies from fair to very good. On the basis of analysis carried out, we conclude on the importance of the observed variables (KPI's) which are monitored in the frame of the EFQM model and narrower in the four perspectives of business performance (BSC). Namely the length of the vectors from the origin to the coordinates (Figure 1) of each variable indicates its explained variance by all the other variables. The product between any two observed variables indicates the correlation between them [25]. For further in-depth analysis of the relationships between variables is recommended to perform analyses at the level of quarters of a year or even months.

CONCLUSION

With the increasing complexity of the business environment and actual global crisis, companies focuses more and more on managing the processes and employees who are involved with them. Holistic approach (i.e. EFQM model implementation) is the challenge to support development of the Integrated Management System in order to encourage nourishment of adopted values, processes exploitation, innovation, productivity, social responsibility and preservation of the environment.

While fostering exploitation of the resources and key processes, companies frequently integrate standards (i.e. ISO 22000, BS OHSAS 18001, BSC, and EMAS) into their management system. In the case of Luka Koper, d.d., standards and models

enables basis for identification and implementation of the strategic projects like: managing land terminals which are linking Koper Bay with Central and Eastern Europe, boosting the volume of quality cargoes by introducing new capacities, becoming the driving force of development in railway cargo transport, contributing to the development of the passenger port in Koper; and providing sea protection in the whole of the Slovenian sea. Many researches of the excellence model indicate the general favorable influence of the EFQM model implementation [3], [4], [5], [6], [7], [8], [9], [22]. Regarding to the ascertainments of the NCC analysis above, we confirmed the model employability and identified their relationships in sense of explained variance of the observed variables (KPI's) and their correlations. Analyses findings represent the confirmation of the successful business model harmonization which has opportunities for improvements too. In this paper we represented only a part of our research findings because research is still being performed. From the actual analysis we ascertained that implementation of the EFQM model fosters exploitation of the key business processes and all involved resources. With the application of a model for identification of the influential processes KPIs' which gives important contribution to the business results, company can perform its own diagnostic activities and focus on improvements of the key processes and consecutively on the results in a short and long-term.

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