

Improving Organizational Performance through the Use of the EFQM Excellence Model

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Abstract. Achieving quality depends on how the company works, planning and control processes are essential for satisfying customers and other stakeholders. In this respect, more companies are turning to systems of excellence that allow the organization to identify problems and help them implementing improvement measures needed for development. The analysis developed in this paper aims is to examine the main processes carried out at a sugar factory by the way they are planned, managed and controlled, through the criterion – Processes- of the EFQM excellence model. The study is focused on an economic analysis of the main financial indicators of the company, in order to highlight its current situation. Applying the criteria -Processes - of the EFQM model the company can analyze its processes and it can establish improvement measures that may be applied.

Introduction

In the current economic conditions, in which quality has a major impact in organisations as a decisive factor for the competitiveness of the market, it is noted that more and more companies are moving towards performance improvement by implementing a system of excellence [1]. Also, it is essential for a company to identify and to analyze its current position in order to know how to apply the necessary measures for improvement, providing also a rigorous control over their own activities. The presented model can be applied in any field, especially by organizations that are trying to achieve the excellence. The main objective of this work is to help companies to improve the management system, to control processes in a systematic and transparent way by applying a criterion of EFQM excellence model. In this sense it was made a short presentation of the EFQM excellence model, the case study was applied to a sugar factory, being presented first the current economic situation of the company and then an economic forecasting for the next two years was made. The study was completed with a qualitative and quantitative analysis of existing processes in the company and finally there were presented possible improvement measures that can be applied.

Research Method

The EFQM model is the most popular assessment tool in Europe, used by more than 30,000 organizations to improve performance. EFQM Excellence Model is used as a basis for (self) evaluation, an exercise in which an organization is classified with a detailed set of nine criteria, such as: orientation towards employees, policy and strategy, resources, processes, employee satisfaction, customer satisfaction, social responsibility and financial performance. These criteria are based on the eight fundamental concepts of excellence [3].

Results

To illustrate the method used we will make a case study applied to a company, ie, a sugar factory that produces crystal sugar.

Fig. 2 shown below shows the evolution of revenues, expenses and net income for the year of 2008-2013 obtained from the Sugar Factory. It is observed an increasing trend from 2010 revenue, profit is realized from 2011 and costs begin to decline in 2010.

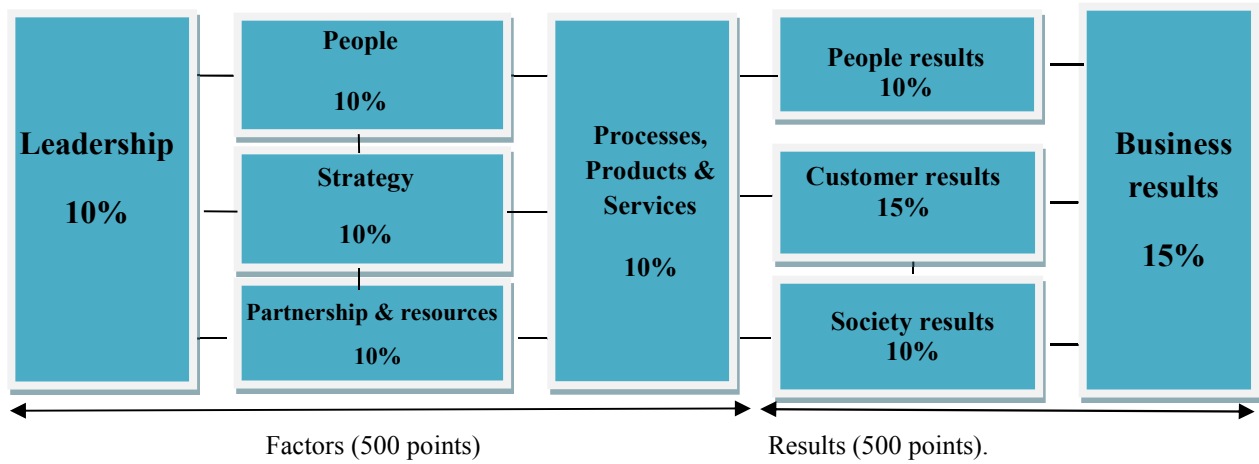


Fig. 1. E.F.Q.M. model (Source EFQM Homepage, The European Quality Award) [2]

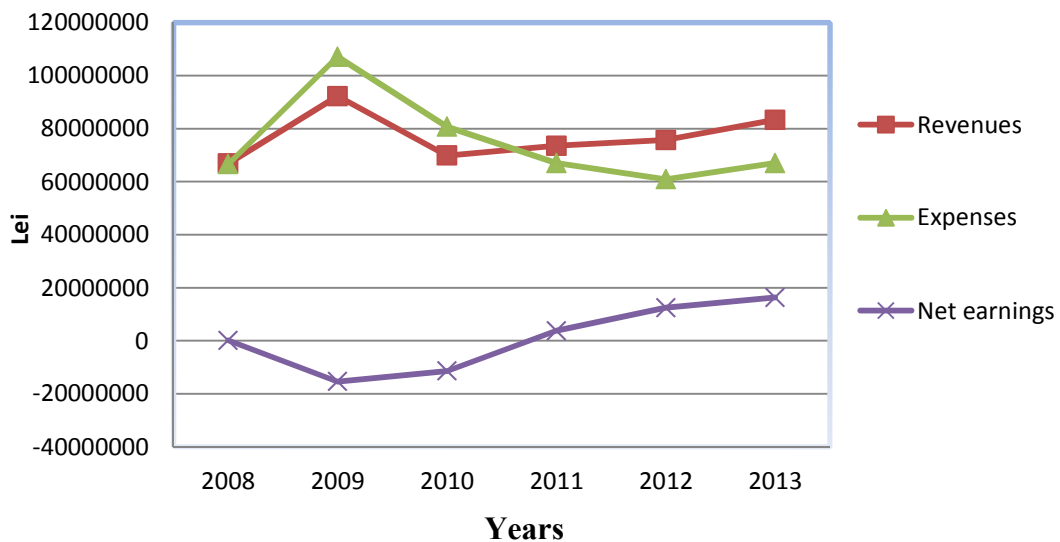


Fig. 2. The evolution of revenues, expenses and net earnings from the Sugar Factory in the period 2008-2013. Source: mfinante.ro

To know the current situation of the company, we presented synthesized revenue for the company; also adjusting the calculations using regression and forecasting company revenue for the period 2014-2015.

Table 1. Calculations for adjustment and revenue forecast from the Sugar Factory

Year	Revenue	t_i	t_i^2	The linear model, \hat{y}_i	The parable model, \hat{y}_i
2008	66863267	-3	9	74786388.6	75651412.39
2009	92270835	-2	4	75500282.15	75367201.57
2010	69842102	-1	1	76214175.69	75482232.49
2011	73536649	1	1	77641962.78	76910019.57
2012	75740744	2	4	78355856.32	78222775.74
2013	83314818.4	3	9	79069749.86	79934773.65
2014		4	16	79783643.4	82046013.3
2015		5	25	80497536.95	84556494.71

Theoretical values (rounded) calculated with the linear model :

$$\hat{y}_i = 76928069.2 + 713893.5 \cdot t_i \tag{1}$$

shows that every year there is an average annual increase in revenues with 713 893.5 lei.

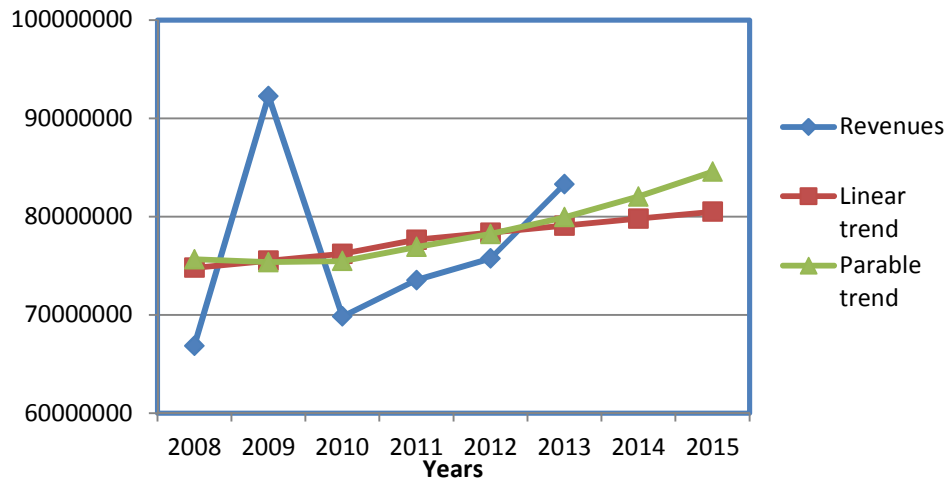


Fig. 3. Evolution of revenues at Sugar Factory during years 2008-2013 and their forecast for the years 2014-2015

Parabolic model describes about as optimistic the trend of evolution of income derived by the company, in relation to the linear model:

$$\hat{y}_i = 75996505.16 + 713893.5 \cdot t_i + 199620.8 \cdot t_i^2 \tag{2}$$

To determine which is the best model we calculate the adjustment [4]:

$$\sum_{t=1}^n e_t^2 = \sum_{t=1}^n \left(y_t - \hat{y}_t \right)^2 \tag{3}$$

Thus it is seen that the calculated value of parabolic model (423 740 207 706 400) is smaller with 2 603 434 884 146 than the linear model (426 343 642 590 546).The better approximation is offered by the parabolic model.

Also, as in the Table 1 and in Fig. 3 it is noted that the prediction order is ascending for years 2014-2015 for both models, however, the values are closer to the parabolic model, namely the development of income is expected: 82 046 013.3 lei for year 2014, ie 84 556 494.71 lei for 2015.

The EFQM Model- Case Study

Criterion 5 - Processes – of the EFQM model- Refers to how the organization defines, manages and improves processes that support the strategy and generates added value for customers and other stakeholders. Criterion subsections are:

5a. How to identify processes that depend on the performance of the organization

The activity of the Sugar Factory is the processing of sugar beet in the last quarter of the residue having a current repair activity. The final product obtained is white crystal sugar, which is distributed to different beneficiaries.

Currently, the factory has not defined processes that contribute to quality, there are no documents to be specified. However, examination of the main processes carried out at the company, in relation to the requirements of ISO 9001 refers to processes: Customer Relations, Purchasing, Production, Sales.

5b. How processes are managed systematically:

Responsible for the process exists only for production. The entire production process is controlled by the production manager and the two chief engineers of department Gross and Refinery. There are not defined performance indicators at process level.

5c. How to review processes and are set targets for improvement:

At the Sugar Factory, control is achieved in all operations of the technological process, samples were taken periodically from syrups taken to the laboratory. In Section Gross, samples are taken every hour from diffusion juice, carbonation, filtration, concentration. Depending on the laboratory analysis it is determined how much carbon dioxide or calcium hydroxide is required if the filters work properly, the amount of juice and purity, if the juice is cloudy. In section Refinery, samples are taken from each broth because it is a batch process. A sample table is made from boiling device and sent to the lab. Based on this evidence, observations and are taken to the next stew. At the same time, all the operations are to a certain temperature and pressure, with a program that is adjusted automatically, but some adjustment is made manually.

However, due to internal and external factors, there are losses due to reduced control. For example, during the campaign, employers are seasonal workers, but they are not qualified and lack professional consciousness, with instances where sugar syrup has been compromised, requiring its destruction .

Quality control of the product of sugar processing technology is made on the technological stages. Quality raw material is essential for sugar factory. Storage conditions and temperatures being the deciding factors, they have led to huge losses in terms of quality and quantity due to these factors. In 2009 the factory was stocked with sugar beet in southern Romania, it was kept in unsuitable conditions, in table wagons, beets heated, and no longer could be used. During the campaign, sugar which does not correspond technically is reintroduced into the manufacturing process, melted and crystallized again to reach the desired quality. Sugar improperly obtained after the campaign is weighed and sold as sugar downgraded at a discounted price.

5d. How processes are improved through innovation and creativity:

In the Sugar Factory, actions for continuous improvement are achieved by controlling the technological process operations. Based on systematic analysis, measures are taken to improve the syrups and concoctions to get crystal sugar product of superior quality. Employee skills are used both by proposing ideas and involvement in projects. The development of skills is done by training programs coordinated by the department of education.

Table 2. Strengths and weaknesses

<i>Strengths</i>	<i>Weaknesses</i>
<p>Quality characteristics of the products are specified by the technical rules of product.</p> <p>Sale is based on contracts / firm orders stating customer requirements.</p> <p>There are criteria for the selection of suppliers of raw materials.</p> <p>There are clear technical specifications on the manufacture of products.</p> <p>The monitoring and quality control of products and processes are defined / documented.</p> <p>Factors leading roles and employees are defined.</p> <p>Quality control of products is done - from reception on stream and final.</p> <p>There are laboratories to check the product characteristics.</p>	<p>There are no policies and quality objectives</p> <p>Relationships with suppliers are not rigorously grounded, situation determined on their dominance.</p> <p>Not defined performance indicators at process level.</p> <p>Customer satisfaction is not evaluated.</p> <p>No measures of preventive control activities / audit.</p> <p>No regulations on the control of nonconforming product.</p> <p>No systemic methods of analysis of staff performance.</p> <p>No database of quality.</p> <p>There aren't mechanisms for analysis and continuous quality improvement.</p>

Table 3. Quantitative assessment

<i>Subsections</i>			
	<i>Action</i>	<i>Application</i>	<i>Total</i>
a	10	30	20
b	50	50	50
c	50	50	50
d	50	50	50
	42	47	45

Suggestions for improvement:

- Develop a system of prioritizing of process improvement;
- Establish quality policy and objectives.
- The use of performance indicators for each process,
- Tracking System school results and employee performance.
- Conducting of preventive control activities / audit.

Conclusions

In order to survive and succeed, firms need to set strategic directions, establish goals, execute decisions and monitor their state and behavior as they move towards their goal. In this sense, organizations must implement an assessment model for their activity. [5]. Criterion 5-Processes- of the EFQM model, applied in the enterprise revealed numerous deficiencies in basic processes. At the sugar factory the customer communication process is deficient, it is only done when drawing up contracts. There are not any mechanisms or tools for analyzing customer satisfaction. The supply process, especially the supply of raw materials has a decisive role to the quality and performance of the company. They do not currently comply with the requirements of ISO 9001 on supplies. They will need to develop appropriate assessment tools to analyze systematically the performance of suppliers and procurement process, including the costs of supply. The manufacturing process is regulated, establishing rigorous operations, technological regimes and the conditions which must be met. The weak point is the low performance of the technological system, which is reflected in the relatively high level of consumption of material and labor resources. The results of this analysis may be useful for the management of the company, given the implications for labor productivity, and especially the high costs due to the consumption of material and labor resources.

Future research will be also oriented towards performance management, performance improvement models and methods of continuous improvement of organizations activities.

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