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QUALITY MANAGEMENT SYSTEMS BENEFITS AND THEIR INFLUENCE ON FINANCIAL PERFORMANCE

Abstract: *This article presents benefits of management systems certification and their influence on financial performance. The paper presents results of research conducted on a group of 15 polish organizations operating in the food business. The organizations selected for the study belong to SME sector. The analysis found that There is statistically significant difference between companies where supplier standards (BRC/IFS) were certified and those which had other certified standards. In the organizations where BRC/IFS systems were certified findings of the third party audits are perceived as more useful for system improvement. High evaluation of marketing benefits is negatively correlated with low evaluation of such benefits as process improvement resulting from the findings of the internal audits or compliance with legal requirements. High evaluation of reduction of losses related to safety/quality of the product is negatively correlated with low evaluation of compliance with legal requirements. Benefit such as reduction of losses related to safety / quality of the product and process improvement resulting from the findings of the third party audits are positively correlated with assets and sales revenues.*

Keywords: *ISO 9001, ISO 22000, IFS, BRC, benefits of certification, financial performance, ROA, food sector, management system*

1. INTRODUCTION

Implementation and certification of quality management systems is very popular. Most common standards accepted in Polish SME (small and medium enterprises) operating in food sector are ISO 9001, ISO 22000, BRC and IFS systems. Benefits of management system certification are widely reported e.g. [1, 2, 3, 5,6]. This article presents benefits of management systems certification and their influence on financial performance.

2. DESCRIPTION OF THE RESEARCH

Studies were carried out as a mail survey. Companies for the survey have been selected at random from among a group of organizations, meeting the following criteria:

- companies based in south-eastern Poland (the regions of: małopolskie, podkarpackie, śląskie, świętokrzyskie i lubelskie voyvodships),
- legal status: commercial companies,

- number of employees: 10 to 250 employees,
- operations starting date: not later than 2006,
- main area of activity: manufacture of food products and beverages (NACE 10 and 11).

List of the companies, which meet the above criteria, has been made based on the Polish Central Statistical Office data. There were 770 organizations meeting the criteria.

Subsequently organizations, which had submitted financial statements in compliance with Polish law have been selected based on the ISI Emerging Markets database, comprising sources listed in Table 1.

Table 1- Sources of information on the financial data of companies. Source: own study

Source of information
Monitor Polski B
HBI - Hoppenstedt Bonnier - Company Database
Dun&Bradstreet Company Database
Corporate Database

Availability of financial data was verified for financial years 2009 and 2010 and 250 organizations were randomly selected from among those with complete data available. Surveys were sent to those organizations via post and in order to enhance the number of completed questionnaires, telephone contact has been also engaged with the persons responsible for quality management systems. As a result, there were 29 correctly completed questionnaires accepted for analysis. This number makes about 11% of the total number of questionnaires sent.

Surveyed organizations represent 4% of the population of all enterprises that meet the assumptions used in the study.

In March 2012, using sources of information listed in Table 1, the following

financial data of surveyed organizations were collected: total assets, fixed assets, equity, net revenues from sales and equivalent, net profit / loss. These values enabled to calculate such indicators as ROA, ROE and ROS. The obtained data were related to annual periods of activity and covered the years 2010, 2009, 2008 and 2007.

In order to carry out statistical analysis some variables were assigned ranks. Usually questionnaire results were divided into 5 or 6 groups (ranks). Extreme values were rejected in the process of determining boundary intervals.

Characteristics of the surveyed companies

In nearly half of the organizations the number of employees ranged from 26 to 100. Table 2 shows the number of employees in the surveyed companies.

Table 1- Number of employees in the surveyed organizations. Source: own study

Number of employees	Number of surveyed organizations
to 10	0
from 11 to 25	4
from 26 to 50	7
from 51 to 100	7
from 101 to 250	6
more than 250	5

In the researched group there were 5 organizations with the number of employees exceeding 250. The research, however was aimed at organizations with the total number of up to 250 employees. This discrepancy results from the time gap between gathering data used by the Central Statistical Office to develop the database and the survey carried out for the purpose of this analysis. Organizations that fell into the group of companies employing over 250 workers, have reached this number of employees in the recent years.

Polish capital predominated in the surveyed companies, only 3 of them were of foreign ownership and 2 had mixed capital.

The examined organizations have been classified according to a number of criteria. One of the criteria was geographical range of their activities. In the researched organizations 78% of revenue on average came from the sale of their products on the territory of Poland. Markets in other EU and non-EU countries account for 17.6% and 4.6% of sales revenue. In the studied group area of activity is not uniform. Almost half of the enterprises do not export their products at all.

Table 2 - Main activities of the organizations. Source: own study

Statistical Classification of Economic Activities	Number of firms
10.1 Processing and preserving of meat and production of meat products	8
10.2 Processing and preserving of fish, crustaceans and molluscs	2
10.3 Processing and preserving of fruit and vegetables	2
10.4 Manufacture of vegetable and animal oils and fats	0
10.5 Manufacture of dairy products	2
10.6 Manufacture of grain mill products, starches and starch products	2
10.7 Manufacture of bakery and farinaceous products	6
10.8 Manufacture of other food products	4
10.9 Manufacture of prepared animal feeds	0
11.0 Manufacture of beverages	3

The surveyed organizations have also been analysed according to the type of

business activity. Most of the surveyed organizations dealt with the processing and preserving of meat and production of meat products. The second most frequent kind of business, was manufacture of bakery and farinaceous products. Most of the organizations classified to this group, were bakeries. There were no organizations which main activities would be manufacture of vegetable and animal oils and fats or manufacture of prepared animal feeds. The main activities of the organizations are shown in Table 3.

3. RESULTS OF RESEARCH

Benefits of certification of management system in the companies were rated in questionnaires on a 5-point Lickert scale. There were 17 companies in the study which have implemented management systems. Two companies did not provide answers to the question regarding benefits. Answers obtained from 15 companies have been included in the analysis.

Types of benefits reaped of management system certification are shown in table 4. Average result was calculated as arithmetic mean of answers' provided by respondents, where score 1 meant that the benefit is unimportant and score 5 meant that the benefit is very important.

All pointed types of benefits were scored high. In the group of benefits (table 4), marketing benefits resulting from implementation and certification of management systems were rated lowest. It is worth mentioning, that in case of this type of benefits the spread of scores was the widest. There were organizations which report marketing benefits as very important and there were some which report them as unimportant.

Maintaining constant/planned level of quality of products and process improvement resulting from the findings

of the third party audits were most frequently reported as a very important benefits.

Table 4- Benefits from certification of management systems. Source: own study.

Benefits	Average result	Spread
Marketing benefits	3,1	4
Maintaining constant/planned level of quality of products	4,0	2
Reduction of losses related to safety / quality of the product	3,9	2
Meeting the requirements of clients (e.g. retailers)	3,9	2
Compliance with legal requirements	3,9	2
Process improvement resulting from the findings of the internal audits	3,8	2
Process improvement resulting from the findings of the third party audits	4,0	2

Analyses of correlations have been done between each of the pairs of benefit types. In general in those organizations were management systems have been evaluated positively, high scores have been indicated when evaluating all benefit types. In those organizations were management systems have been evaluated negatively, low scores have been indicated. Correlation coefficients of the pairs of benefit types were higher than zero. Only in case of 3 pairs of benefit types correlation coefficients were below zero. Such pairs of benefit types are shown

in table 5.

Table 5- Pairs of benefit types were correlation coefficients are below zero.

Benefit 1	Benefit 2
Marketing benefits	Process improvement resulting from the findings of the internal audits
Marketing benefits	Compliance with legal requirements
Reduction of losses related to safety / quality of the product	Compliance with legal requirements

High evaluation of marketing benefits is negatively correlated with low evaluation of such benefits as process improvement resulting from the findings of the internal audits or compliance with legal requirements. The obtained results suggest that there were 2 groups of organizations. In some organizations management systems were implemented mainly of the internal reasons. In the second group management systems were implemented mainly of the external reasons. Participation to one of the groups influences the levels of reaped benefits.

High evaluation of reduction of losses related to safety/quality of the product is negatively correlated with low evaluation of compliance with legal requirements. The obtained result suggest that there is higher awareness of legal requirements in organizations with implemented and certified management system. The higher awareness of legal requirements resulted in increase of food safety costs. Ethic plays important role in following legal requirements.

Awareness of legal requirements does not influence decisions concerning adulteration of their products. Research made by Kafel [4] indicate that there are no significant differences regarding adulteration of food between organizations

subject and those not subject to supervision of certification bodies. The low awareness in the companies of the regulatory requirements regarding product labeling was indicated as one of the major reasons for food adulteration. In particular, this applies to people involved in marketing food products in those companies. Considering high prices of food products, adulteration of food is a temptation hard to resist, which is hard to change by any management system.

Benefits of management systems were correlated with such variables as type of management system, number of certified systems and dates of the first certification of a management systems. There is statistically significant difference between companies where supplier standards (BRC/IFS) were certified and those which had other certified standards. The difference lies in perception of the process improvement resulting from the findings of the third party audits.

In the organizations where BRC/IFS systems were certified findings of the third party audits are perceived as more useful for system improvement. One of reasons of such perception, is that supplier standards are more detailed than ISO standards. Therefore in BRC/IFS auditing process it is easier to point out some problems. Management systems described in ISO standards are not as detailed as supplier standards. Auditors' competence in auditing process is essential to point out ways to improve management system. Since ISO standards operate in companies longer than supplier standards, the probability of stating nonconformities in the auditing process is much higher in case of BRC/IFS.

Moreover requirements of supplier standards have been changing more often, therefore more actions have to be taken in companies in order to follow them. Nonconformities stated by the auditors can be useful sources of information for the companies.

Benefits of management systems vs financial results of the organizations

It is possible to point out statistically significant connections between management systems benefits perceived by organizations and their financial performance. Such connections were shown in table 6. Following variables have been adopted for the analysis:

- assets,
- revenue,
- a net profit,
- ROA,
- ROE,
- ROS.

For the purpose of the analysis the average values of the above variables have been used. They were arithmetic averages of values obtained from financial statements from years 2010, 2009, 2008 and 2007. Types of benefits reaped of management systems were adopted as grouping variables. Statistically significant differences when $p=0,05$ are shown in Table 6.

Table 6- Statistically significant differences between types of management systems benefits vs financial performance of analyzed companies

Benefits	Financial data	R Spearman
Reduction of losses related to safety / quality of the product	Assets	0,56
	Revenue	0,59
Process improvement resulting from the findings of the third party audits	Assets	0,52
	Revenue	0,65

There is no proof, that higher financial efficiency of the companies measured by ROA, ROE and ROS indicators is

associated with any type of the analyzed benefits.

Benefit such as reduction of losses related to safety / quality of the product and process improvement resulting from the findings of the third party audits are positively correlated with assets and sales revenues.

Organizations, where those types of benefits have been perceived as important, are currently achieving higher revenues and assets than other companies.

4. SUMMARY

The aim of the study was to analyze benefits of implementation and certification of management system in companies operating in food sector. The number of surveyed organizations do not allow to generalize the results to the larger population, but it is possible to identify some characteristic trends, e.g.:

- There is statistically significant difference between companies where supplier standards (BRC/IFS) were certified and those which had certified other standards. In the organizations where BRC/IFS systems were certified findings of the third party audits are perceived as more useful.

- High evaluation of marketing benefits is negatively correlated with low evaluation of such benefits as process improvement resulting from the findings of the internal audits or compliance with legal requirements.

- High evaluation of reduction of losses related to safety/quality of the product is negatively correlated with low evaluation of compliance with legal requirements.

- Benefit such as reduction of losses related to safety / quality of the product and process improvement resulting from the findings of the third party audits are positively correlated with assets and sales revenues.

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