

THE COMPETITIVENESS OF SLOVAK PRODUCTS MANUFACTURING COMPANIES IN FOREIGN TRADE

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Abstract: Certificates are presented to customers as form of marketing or as an excuse to increase product price. Consumer approach or focus on customer are considered some of main principles of quality management, based on which management itself should be established.

The aim of this article is to highlight the need and application of certification in foreign trade of production businesses, on bases of questionnaire survey and statistical verification, as a condition for certification ownership in export.

Keywords: *intangible capital, innovation, innovation potential*

1 Introduction

What drives business to certification and implementation of quality management system? It could be said, it is mainly better understanding of the business externally in relation to environment. Many groups are involved in this environment such as state, competition, suppliers, consumers as well as customers. However, customer measures product quality other way rather than by certificates. In other words, ordinary customer is not interested and does not know whether company, he is purchasing from, have products made in a process that is aligned with certified system of quality management. In the end, customer does not even know whether the product is constructed from different opponents, supplied by different companies, which may or may not possess this certificate. Certificates are externally presented to customers as form of marketing or an excuse to increase product price. Customer approach or focus on customer are considered some of main principles of quality management, based on which management itself should be established. Companies produce to sell their products to customers, therefore, in the end customer decides whether the product is of a good quality and if it meets customer's needs. Producer learns the above mentioned only from customer experience, which proves quality and reliability of product. Hence, consumer approaches towards quality definition are variant. In case customer does not perceive product as a quality one, it does not have to mean product really is not of good quality, or that it does not have certified system of quality management. It means the company does not produce in accordance with customer requirements or that these requirements were not successfully transferred into product and they should attempt for rectification of these facts. There is a trend in companies to have certified system of quality management. "According to official site of ISO this system was implemented by more than million companies and organisations in more than 170 countries around the world."

2 Literature review

Beginnings of development of industrial production and deeper perception of quality go back to 19. -20. century. On the turn of these two centuries, the new element appeared which had a strong impact on quality development. This period was significant for productivity rise and new organisation of production process, that means decomposition of the whole

production process to simpler operations that could be performed by unqualified workers. This system lied in an ability of a person to improve results and at the same time decrease of occurrence of mistakes and increase their performance. „Author“ of this system was F. W. Taylor and it was introduced by first american automobile company Ford. Currently, effort to build customer approach to quality that reflects success of product on a market. The second world war accelerated implementation of new knowledge into practice. It emerged as a need of mass armament production. There was firstly mentioned establishment of quality departments in telecommunication sphere when seeking faults and their causes. Currently, securing quality is connected to names such as G. D. Edwars, W. A. Shewart, who took part on securing quality via statistical methods e.g. regulation diagram, correlation and regress analysis.¹

These statistical methods and tools have become base for successful application of mathematical statistics in sphere of quality. First publication regarding quality was published in 1945 under the name Quality like a management, where author A. V. Feigenbaum described experience with quality development and application of complex quality management TQC (Total Quality Control). It has become the first „qualitator“.²

Quality of processes in production and following quality of products is currently a very important factor in business. It is not only base for success on a market, but is also important carrier of the entire business prosperity, because quality especially can assure economically effective sale of products on current markets with very strong competitive ability.

Quality has a dominant position also on foreign markets. Apart from that it is important to consider also the boom of international corporations which could be competed with only spectacularly high level of quality production. In analyses of relation of quality and success on foreign markets it is necessary to respect international norms of quality, certification quality criteria and various other regulations, that regulate quality in individual countries.

For better understanding of quality, which is often perceived as a factor to secure success of business, it is necessary to define the term quality. Nowadays, quality has become an important business pillar for economic development of many businesses. Price of products and services is defined by quality as well as their durability and functionality. It all has an impact on the overall satisfaction of customers and consumers.

„In business sphere the term quality is understood as set of characteristics and attributes of products which determine level (degree) of their ability to fulfil required functions, for both customer as well as producer. Quality, therefore, expresses agreement with determined requirements.“

„According to the norm STN EN ISO 9000:2001 Systems of quality management (Norm ISO 9000 is a methodical norm describing use of all norms within the file. It deals with three fields: unification of terminology if field of securing quality, regulation definition where norms are applied, norm ISO 9000 defines application of other ISO norms).“

„Japanese industrial norms define quality as set of corresponding characteristics and attributes which are subject of appraisal aimed at determination whether the product or service are suitable for its purpose or not. Data, based on which quality of a product

¹ Kaynak, H.: *Total Quality Management and Just-in-Time Purchasing: Their Effects on Performance of Firms Operating in the U.S.* 1st Edition. Abingdon: Routledge, 1998. 342 p. ISBN 978-0815330486.

² Feigenbaum, A. V.: *Total quality control.* 4th Edition. New York: McGraw-Hill Companies, 1991. 896 p. ISBN 9780070203549.

is determined are derived from characteristically features of the product.“

Foreign publications claim that definition of quality is in hands of every company. Every organisation must develop its own politics and in a certain moment create definition of what quality and TQM - Total Quality Management means to the certain organisation. Basically it is business philosophy of management acknowledging needs of customers and business objectives are inseparable. This philosophy is applied in industry as well as business.³

„Survive economically nowadays may only the company which will sell products satisfying customer, in way of utility values, quality and corresponding price. Everything is considered to be of good quality, that means quality products, quality services, quality work and technology. This all is maintained by a certain system of factors (the main is the market of products and jobs, the others are organisation of pre-production phase, production phase, post- production phase, system of quality management, etc).“

Foreign authors J. MacDonald and J. Piggott introduced new approach to quality definition and that is pleasing customer. According to them: Quality is defined as "pleasing customer by continual improvement and satisfying their needs."⁴ In this approach authors point out two issues. The first issue, connected to realisation of importance in company to plan the whole process, in order to encourage people and actively partake on product improvement and feel responsible for everything happening in the company. The second issue is broadening of the term quality by additional and accompanying services.

Several recent studies focus on the impact of ISO 9001 quality management standards. Using a sample of 163 Spanish manufacturing firms for the period 1996-2000, perform a rare events log it and a regression analysis and discover that the ISO certification and ownership structure positively impact firms performance.^{5,6}

The growth of labor productivity is absolutely necessary for reducing poverty rates, for increasing the quality of public services and for improving living standard.^{7,8}

The role of quality certification standards cannot be neglected in enhancing business performance, offering a framework for cost saving, for improvement of customers satisfaction, and favouring the companies access to new markets. Although the importance of quality certification has long been recognised, its impact on the productivity growth has seldom been examined, with few exceptions.

Several studies investigated the impact of quality standards adoption on the firms performance, with an accent on financial results.^{9,10,11,12}

Other studies focused on the role of quality certification on the labor productivity, assessing the role of environmental standards,¹³ safety standards¹⁴ or quality management standards.¹⁵ Firms which adopt quality management schemes ISO 9001 improve their performance due to the fact that they will continually monitor and manage quality across all operations. In this light, firms better meet customers needs, cut errors, motivate and engage staff to increase the efficiency of internal processes, placing the quality in the centre of their business.¹⁶

3 Methodology and data

The aim of this article is to highlight the need and application of certification in foreign trade of production businesses, on bases of questionnaire survey and statistical verification, as a condition for certification ownership in export. The variables in the statistical verification were slight research and development in companies. Of the 80 respondents from manufacturing companies in the survey 31 companies, representing a 38.75% response rate. The survey was conducted using a combination of random companies.

Hypothesis: in-between variables – Share of products designated for export abroad and – Share of products, possessing certificate of quality, there is statistically important dependance with reliability 0,90 or on level of importance 0,1 (on 0,05 it is not statistically important anymore) As the coefficient correlation is positive (0,3446) there is medium strong direct linear relation between variables: The more companies posses certificate of product quality, the more they try to export abroad.

Table 1: Values of correlation coefficients and p-values of statistically important dependancies between individual couples of variables

| Pearson Correlation Coefficients, N = 28 Prob > r under H0: Rho=0 | | |
|--|--|---|
| | share of products designated for export in % | share of products with quality certificate in % |
| share of products designated for export abroad in % | 1.00000 | 0.34456 0.0726 |
| share of products with quality certificate in % | 0.34456 0.0726 | 1.00000 |

Source: own processing

Average value of share of products designated for export abroad is 53,123%, standard deviation, that shows to what extent are individual measured values around medium value is 36,998%. The minimal share of products designated for export abroad is 0% and the maximal share of products designated for export abroad is 100%. Medium value (median) of share of products designated for export abroad that divides statistical files into two same parts from point of countability is 62,500%. The most commonly appearing share of products designated for export abroad is 90%.

³ Mateides, A.: *Manažérstvo kvality*. Bratislava: Epos, 2006.751 p. ISBN 80-8057-656-4.

⁴ Macdonald, J., Piggott, J.: *Global quality: The New Management Culture*. Oxford: Management Books 2000. 1998. 224 p. ISBN 978-1852522018.

⁵ Lafuente E., Bayo-Morienes, A., Garcia-Cestona, M.: *ISO -9000 certification and ownership structure: effects upon firm performane*. In *British Journal Management*, ISSN 1045-3172, 2010, vol. 21, pp. 649-665.

⁶ Garcia-Pozo, A., Sanchez-Ollero, J. L., Marchante Mera, A.: *Environmental good Practices, Quality Certifications an Productivity in the Andalusian Hotel Sector*. In *International Journal of Environmental Research*. ISSN 17356865, 2014, vol. 8, no. 4, pp. 1185-1194.

⁷ Blinder, A., Baumol, W.: *Economics: Principles and Policy*. 12th Edition. Boston: Cengage Learning. 2011, pp. 450-560. ISBN 978-0538453677.

⁸ Krugman, P.: *Second Thoughts on EMU*. In *Japan and the World Economy*. ISSN 0922-1425, 1992, vol. 4, no. 3, pp 187-200.

⁹ Lafuente E., Bayo-Morienes, A., Garcia-Cestona, M.: *ISO -9000 certification and ownership structure: effects upon firm performane*. In *British Journal Management*, ISSN 1045-3172, 2010, vol. 21, pp. 649-665.

¹⁰ Garcia-Pozo, A., Sanchez-Ollero, J. L., Marchante Mera, A.: *Environmental good Practices, Quality Certifications an Productivity in the Andalusian Hotel Sector*. In *International Journal of Environmental Research*. ISSN 17356865, 2014, vol. 8, no. 4, pp. 1185-1194.

¹¹ Heras-Saizarbitoria, I., Molina-Azorin, J.F., Dick, G.P.M.: *ISO 14001 certification and financial performane: selection-effect versus treatment-effect*. In *Journal of Cleaner Production*. ISSN 09596526, 2011, vol. 19, no. 1, pp. 1-12.

¹² Ullah B., Wei, Z., Xie, F.: *ISO certification, financial constraints, and firm performance in Latin American and Caribbean countries*. In *Global Finance Journal*. ISSN 1044-0283, 2014, vol. 25, pp 209-228.

¹³ Garcia-Pozo, A., Sanchez-Ollero, J. L., Marchante Mera, A.: *Environmental good Practices, Quality Certifications an Productivity in the Andalusian Hotel Sector*. In *International Journal of Environmental Research*. ISSN 17356865, 2014, vol. 8, no. 4, pp. 1185-1194.

¹⁴ Sanchez- Ollero, J.L., Garcia-Pozo, A., Marchante-Lara, M.: *Measuring the effects o quality certification on labour prouctivity: An analysis of the hospitality sector*. In *International Journal of Contemporary Hospitality Management*. ISSN 0959-6119, 2015, vol. 27, pp. 1100-1116.

¹⁵ Ilkay, M.S., Aslan, E.: *The effect of the ISO 9001 quality management system on the performance of SMEs*. In *International Journal of Quality and Reliability Management*. ISSN 0265-671X, 2012, vol. 29, pp 753-778.

¹⁶ Albulescu, C.T., Draghici, A., Fistis, G.M. and Trusculescu, A.: *Does ISO 9001 quality certification influence labor productivity in EU-27?* In *Procedia - Social and Behavioral Sciences*. ISSN 1877-0428, 2016, vol. 221, pp. 278-286.

Average value of share of products possessing certificate of quality is 87,178%, standard deviation, that shows to what extent are individual measured values around medium value is 22,679%. The minimal share of products that have certificate of quality is 15% and the maximal is 100%. The most commonly appearing share of products with certificate of quality is 100%. The medium value (median) of share of products with certificate of quality is 100%.

Table 2: Statistical functions - average value, standard deviation, minimum, maximum, modus, median hypothesis

| Variable | Mean | Std Dev | Minimum | Maximum | Mode | Median |
|---|-------|---------|---------|---------|------|--------|
| share of products designated for export abroad in % | 53,12 | 36,99 | 0 | 100 | 90 | 62,5 |
| share of products with quality certificate in % | 87,17 | 22,68 | 15,00 | 100 | 100 | 100 |

Source: own processing

4 Data analysis

Nowadays, if company aspires to effectively compete and establish itself on challenging markets nationally and abroad, it must assure for its products high level of quality and in long term to maintain and improve it. This could be achieved with international certification of quality.

„Certification is determined as an activity of subject independent on product and consumer, its aim is to objectively assess whether the product, but mainly, the whole system of quality creation is to meet specified requirements and if they are in accordance.“

The objective of the company is for companies to own as many certificates of quality as possible. Certification is base for application of uniqueness model EFQM, which is starting point for company to enter competition for National price of SR in quality. The most common certificates companies posses are:

- System of quality management. Requirements (ISO 9001: 2008) – represents european standard and is accepted in other countries;
- ISO TS 16949 Systems of quality management. Individual requirements for norm application ISO 9001: 2000 in automobile producing companies and their replacement parts was cancelled and is replaced by norm STN P ISO/TS 16949:2009-12 (01 0311);
- ISO 14001 Systems of environmental management. Requirements with instructions how to apply them (ISO 14001: 2004);
- OHSAS 18001- Systems for management of safety and protection of health at work. Requirements.

Companies have built certified and maintainable system of quality management in accordance with ISO 9001, it means that all the products of the company are produced in accordance with this norm, de facto they have a certificate of quality according to this norm. In our opinion, certification system contributes to increasing employee education level. Certification requires re training employees in order for them to know requirements of producing quality products, process course contributing towards quality development and subsequently could contribute with their ideas to improve production process and working conditions. Product certification can work as a motivational tool for employees and contribute to loyalty increase of employees towards the company. Employees, that contribute with their work to production of quality products and increase of healthy lifestyle of public may feel responsibility for their work as well as towards the company, where they work.

Slovak export depends directly or indirectly on exporting to surrounding countries from Germany. Slovak export is narrow

and is dependant on number of industries. Slovakia exports to EU countries almost 85 % of its production. The main source of growth of Slovak economy is automobile industry and electrotechnical industry.

They are leaders in export that carries economy, while national consumption stagnates. The extreme is that almost equal amount of respondents stating export of exported products is 0% - 20%. Slovak companies might be divided into two groups, companies who export almost the entire production and companies, that do not export at all or just a little percentage of their products. The smallest share products designated for export abroad was claimed by food processing industry and construction industry. Implications of credit crunch were demonstrated in public and activities connected to export. Demand for products stagnated or grew very slowly resulting in decreased profits and savings of financial means. Reaction to failure of business results are savings, that can be carried out faster than market starts itself. Demand recovers much slower. Share of exported products is influenced by number of elements such as crises in eurozone, low demand, legislation changes, boarded politics, risk on market of suppliers and consumers, taxation system in a country. Companies invested less financial means into individual activities such as product innovation and innovation development. Export is a driving force of Slovak economy and as well as household spendings but in smaller scale. „In November 2013, export reached 6 090,3 mil. Eur at the rate 4,6 %. Total export of goods was increased by 4,8 % to 5 776,4 mil. Eur. Balance of international sales was active in amount of 314 mil. Eur (which was higher by 0,5 mil. Eur compare to November 2012).“

„In eleven months of 2013 in comparison with the same period in 2012 the total export has increased by 3.4 % to 59 755,6 mil. EUR and total import by 1,5 % to 55 175,3 mil. Eur (by 1 104,6 mil. Eur more for the same period in 2012).“

Survey question regarding share of products designated for export was statistically verified based on given hypothesis in connection with product certification in the company.

5 Results and discussion

Analyses of survey led us to conclusion that share of products designated for export abroad is in scale from 61 % to 80% or from 81 % to 100 %. Slovak companies export almost entire production abroad. Industries representing the biggest share of exported products are automobile industry, information technologies and electrotechnical industry. Their share of exported products represent 70% - 100%. Slovakia is dependant on foreign demand.

The biggest share of products that are result of certified system of quality production represent 91% -100% out of asked companies. Another group consisted of companies that register 81% - 90% certified products emerging from certified system of quality product management. Approximately the same number of investigated companies in comparison with companies owning quality certificate of products 81% - 90% register certified quality products in share lower than 50%. Third largest group consists of companies possessing 71% - 80% of certified products. The lowest share of products with certificate of quality represents companies in share 61% - 70%.

We can establish based on sample of investigated companies that slovak production companies devote increased attention to certification of quality and general quality management of products as well as the whole transformation process. Product and process certification means prestige for companies these days. Currently, certification in companies is considered to be a process inevitable and implied. It is an important aspect for company presentation, company and product image improvement, increased share of export, better appraisal of production and cost savings for trials. The higher the share of certified products company owns the more customers consider products as of high quality. Certificate serves as "quality

assurance" and is the key for remedying higher price level product. After successful certification, companies automatically increase price of their products and services. Customer often treats sales with accordance to a motto: "you pay for the quality". Currently, in these times of more and more cases regarding harmful foods, customer is willing to pay higher price for quality product believing it has quality guaranteed by certificate. Food processing industry fights against harmful, low quality, imported foods in form of marking goods "mark of quality", "Quality from our region". This way they try to eliminate use and import of low quality foods and support production and demand for slovak products.

6 Conclusions

The most famous and most commonly used international norm for quality certificate is quality certificate according to ISO 9001:2008. This norm involves 8 Chapters Company is obliged to apply in case it wants to be holder of this ISO certificate. Holder of stated certificate may increase its competitive ability on a market because ISO 9001:2008 specifies requirements on quality management system for organisation. Organisation must demonstrate its ability to perpetually provide product that meets every customer requirement, requirements of laws and regulations. ISO 9001:2008 also aims to increase customer satisfaction due to effective application of processes for continual improvement of system and assuring agreement with customer requirements. Requirements of norm ISO 9001:2008 are general and must be used for every company regardless of type or size of a company.

In order to be commercially successful product and service quality is insufficient, it is necessary to assure professional attitude of other parallel activities, out of which are the most important marketing activities. Their main aim is to acquire customers and consumers.

Currently, apart from competitiveness of company certificates increase image of company. For customers and company it is so called resulting document proving production process quality of quality products. We can establish that by creating common European market companies have large space for import and export of their products, however, one of the main conditions is disposal of quality certificate. Noted statement was examined within framework of the research of production companies in Slovakia. Results of research point out real use and need of standards for quality certification in business practice.

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