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Analysis of Polish enterprises' activity in the area of quality costs

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In this paper it has been presented the activity of Polish enterprises in quality, especially in the area of quality costs. It has been shown the results of inquiries about quality costs and some problems related to implementation of quality cost account in Polish enterprises.

1. INTRODUCTION

Last years Polish businessmen are more and more conscious of requirements connected with cooperation with European Union Countries. So, in management of enterprise, point of weight was pushed from production sphere to pre-production sphere, and the object of greater interest became not only the result of work, it means product, but the process, which creates this result [1].

In competition circumstances, apart from the quick development of technology, large tempo of innovation implementation and huge meaning of the production quality, began to gather a meaning the strategies connected with lowering the production costs. Enterprises have to seek the ways of lowering the own costs at high level of production quality, through liquidation of failure sources, enlargement of rentability and activity effectiveness. So extremely important is the role of quality cost account as the ratio of technology effectiveness and its influence on working of all enterprise [2].

Quality cost measurement and their monitoring should determine the continuous inquiry process, which is the base to undertaking appropriate activities of strategic character by managers and also continuous improvement of organizational, technological, economic and legal solutions.

In this paper it has been shown the results of inquiries about quality costs and some problems related to implementation of quality cost account in Polish enterprises.

2. QUALITY COST IN PRODUCTION PROCESS

Production can be treated as a system, which serves to transformation of materials and energy (entries) in final products (exits) [3]. Each product is obtained in result of realization of production process, which is a group of transformation activities of raw materials, materials, semi-products in final products, which are market offer of definite producer [4].

It should be aware of the fact, that technical progress and appearing on the market newer and newer products create the atmosphere of continuous changes in the sphere of production [5]. Both incomes, cost and profit are dynamic categories and depend on many changing factors connected with working of production system [6].

It should be underlined here, that total production costs are not only operating costs of a process, but also quality assurance costs.

Quality cost account is a rational tool of influence on process of quality formation and has essential meaning in management system [7].

Economic estimation of quality executed through prism of quality costs is extremely difficult, but necessary. It serves to estimation of efficiency and effectiveness of enterprise's activity and besides it shows the most important directions and areas of enterprise's improvement and creates the chance on success in circumstances of growing competition [8].

Principle problem of quality cost investigation in enterprises is settlement the structure of quality costs. Good cost qualification, it means from where and which sources data should be accepted, has decisive meaning for usefulness of quality costs as a tool of control and obtaining at user the reliability, regarding agreements with foundations and stability of product quality [9].

3. THE RESULTS OF INQUIRY RESEARCH

In the aim of receiving the information about the activity of Polish, machine and metallurgic enterprises in the area of quality costs it has been used the inquiry research.

Researches have based on prepared inquiry, directed to over 700 Polish enterprises, possessing implemented and working Quality Management System. The inquiry contained 2 parts.

First part contained questions referring to data about enterprise and its activity and Quality Management System. Second part embraced the problems of quality costs.

Inquiries were sent by mail or handed during symposiums, conferences and trainings. It has been received 197 full inquiries, which is 27, 21% of sent inquiries. From 197 received inquiries to detailed analysis it has taken into account only enterprises of machine and metallurgic industries.

On the question if quality cost account is running – no – answered 45% of enterprises of machine industry and 43% of metallurgic industry.

Main reasons of not running the quality cost account are problems connected with:

- proper interpretation, classification of quality cost elements and their description,
- quality cost procedure,
- reconstruction of booking system,
- lack of suitable trainings of workers,
- suitable selection of quality cost ratios and others.

Most of machine industry enterprises are during the implementation of quality cost account, on the contrary most of metallurgic industry enterprises use the quality cost account 2 or more years. However it should be underlined here the fact, that it is often limited quality cost account, concentrated only on failure costs, both internal and external.

Most of the enterprises (76% of machine industry and 71% of metallurgic industry) implement the quality cost account after obtaining the certificate on Quality Management System.

Examining enterprises, which run the quality cost account, only 3% of enterprises of machine industry and 2% of metallurgic industry monitor quality costs for all production process. Most of firms (76% of machine industry and 68% of metallurgic industry) monitor quality costs for all firm, not examining in detail each production process (Fig.1a, b). Main reason of such state of thing is lack of consciousness of production process influence on quality costs and places of quality cost formation in this process.

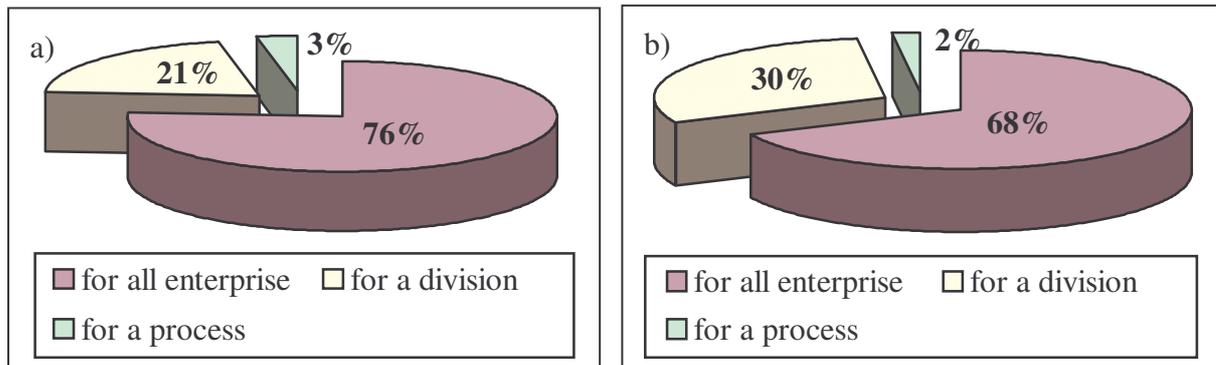


Figure.1. Quality cost monitoring in the enterprises of:
a) machine industry, b) metallurgic industry

In inquiry researches examined among others the usage of methods and tools of quality investigation and estimation to analysis of failure costs. And in the enterprises of machine industry it is used the Pareto – Lorenz (ABC) analysis by 11% of firms, cause and effect diagram of K. Ishikawa by 9% of firms and FMEA method (Failure Mode and Effects Analysis) by 6% of firms. Results of metallurgic industry enterprises are as follow: 12% (Pareto – Lorenz ABC analysis), 11% (cause and effect diagram of K. Ishikawa) and 8% (FMEA).

Among many advantages connected with introduction of quality cost account only 6% of firms of machine industry and 5% of firms of metallurgic industry turned attention on lowering production costs, not perceiving however the influence of production processes on quality costs.

4. CONCLUSIONS

Necessity of equaling to requirements of growing competition demand simultaneous realization of postulate of effectiveness and elasticity and demand production of modern products at possibly high quality and low own costs [10]. Cost usually determines one of the basic criterion in design and production processes. So also in production engineering it has to be always taken into account costs and quality of product [11].

Strategy of lowering the own costs has a huge meaning for enterprises competitiveness on global market, and amount and structure of costs should be helpful for management of firm in choice and realization of long-term intentions [11].

Quality costs are in total costs of firm, because they are element of total costs carried in relation to economic activity, and for need of quality cost account they should be only separated from total costs, according to definite rules. It is very difficult undertaking, because the difference among the word „total costs”, and the word „quality costs” is difficult to

defining from the fact, that quality costs became registered on working accounts in firm, under different positions and it is difficult to separate them. Then quality costs should be univocally qualified, recorded, systematically analysed and interpreted. In many cases, defining the amount of quality costs has to take place basing on estimation and accepted settlements (definitions) - which part of total costs and when we should take as quality costs [12].

The aim of cost analysis is settlement and estimation of factors, which influence on the level, dynamic and structure of costs. Knowledge about them serves to draw the directions and ways making possible enlargement the effectiveness of running a firm, through rational usage of production factors and systematical lowering the own costs [2].

REFERENCES

1. G. Broniewska, *Przez Jakość do Wspólnego Rynku*, Problemy Jakości 3 (1998) 14-19
2. E. Skrzypek, *Jakość i efektywność*, UMCS, Lublin 2000
3. Z. Zbichorski, *Ekonomika i organizacja produkcji*, Książka i Wiedza, Warszawa 1981
4. B. Czyżewski, *Zapewnianie jakości podczas realizacji procesów technologicznych*, Problemy Jakości 8 (1999) 12-20
5. P. Lowe, *Zarządzanie technologią. Możliwości poznawcze i szanse*, Śląsk, Katowice 1999
6. Durlik, *Inżynieria zarządzania*, Placet, Warszawa 1998
7. S. Tkaczyk, *Inżynieria jakości a inżynieria materiałowa*, ORGMASZ, Warszawa 2000
8. S. Tkaczyk, J. Michalska, *Koszty jakości w zarządzaniu jakością*, Materiały Konferencyjne: „Zintegrowane systemy zarządzania – jakość, środowisko, technologia, bezpieczeństwo”, Szczyrk 2000, 427-434
9. Bukowska-Piestrzyńska, *Jakość i koszty w zarządzaniu przedsiębiorstwem*, Problemy Jakości 11 (2000) 6-8
10. Z. Jasiński, *Zarządzanie systemami produkcyjnymi*, Leopoldinum, Wrocław 1995
11. K. Zymonik, *Jakość a konkurencyjność w gospodarce narodowej*, Problemy Jakości 1 (1998) 11-15
12. Z. Zembruska, *Koszty jakości w świetle norm ISO serii 9000*, ZETOM, Warszawa 1995