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APPROACHES FOR EFFICIENT QUALITY MANAGEMENT SYSTEM

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Abstract

Quality management system should reflect the management culture and quality culture. Total quality management principles must be translated into organizational culture. This system is a way to implement, manage and master quality at the micro level in order to obtain confidence and competitiveness of products / services in various markets.
An organization can excel if fructify the full potential of each individual within it, stimulating his creativity, giving reason for pride and making him aware of his own worth.
Effective management of total quality needs intelligence, education and capability to achieve the objectives, policies and strategies for organization and information leading internal processes and to adapt to the external environment.

Keywords: quality culture, customer satisfaction, competence, efficiency.
JEL Classification: M10, M 14.

1. INTRODUCTION

Quality can't be considered an economic category that lies outside the economic factors that come out of their actions, but must be understood as being in constant change and in close interaction with these economic and social factors.

Quality can be placed as a factor of influence on other economic categories and especially on the economic and financial results of the firm.

One of the basic requirements for increasing the quality level of production and products is the proper organization of the quality control activity.

Ensuring a qualitative level of products, in constant correlation with the maximum level of the requirements of the beneficiaries and satisfying them as high as possible, makes it necessary to improve the control activity.

2. IMPROVING QUALITY CONTROL ACTIVITY AT THE ORGANIZATIONAL LEVEL

2.1 FACTORS THAT INFLUENCE QUALITY CHANGE

A. Influence of technical and creative factors

Technical factors relate to the structure and state of the equipment, the efficiency of which depends on the good and efficient development of the technological process (Drăgulănescu & Drăgulănescu, 2008, p. 28).

Creative factors have a great importance in changing quality and achieving products with a high degree of competitiveness (design, fashion, customer requirements).

Creative spirit is the most important element of any business. Without it a firm becomes bureaucracy and is ruled by routine. If it is large, it suffers from splitting. It becomes a group of small bureaucrats fighting each other.

B. Influence of material factors

Of particular importance is the quality of the raw materials and auxiliaries used, as well as the quality of the technological operations executed along the technological flow.

C. Organization of quality control of production and products

The way in which the quality control of the production and the products obtained is directly dependent on the increase of the profitability and the superior capitalization of the raw materials.

Following the control, the factors of influence on the quality are hierarchy, the causes that determined inferior quality products are evaluated so that, after critical analyses, a more objective grouping of assortments and product groups can be obtained in order to orient the production towards those assortments that ensure an increased efficiency of the activity of the economic agent.

It is necessary to introduce into the production process only those raw materials that have the quality characteristics provided by the standards or rules invoked by the beneficiaries when specifying these raw materials when the order is launched (Mitonneau, 2007, p. 179).

Executing a rigorous control over the manufacturing stream that prevents the promotion of non-compliant products with approved documentation and technology implies a sustained activity of quality controllers.

They must show professional training, experience in the profession, ability to make decisions and collaborate with performers, foremen, to solve the problems that arise, and to have self-training and self-denial concerns.

D. The influence of labour force qualification

Product quality means not only raw materials and quality materials, tools and methods but also the professionalism of those who make them.

A professional is a person who gains satisfaction, not just a salary. Professionalism means you're not good at anything: if you were a poet, you did not write lyrics and slogans and dialogues for movies.

2.2 ASSESSING THE CAUSES THAT HAVE LED TO THE PRODUCTION OF INFERIOR QUALITY PRODUCTS

An important point in the critical analysis of the system in which the analysed company operates is the detection by control of the causes that lead to the production of inferior quality products.

For a statistical analysis of these cases, the share of these causes in the production of lower quality products in the years 2016, 2017 and the first months of 2018 is to be found in Table 1.

The causes that determined inferior quality products are:

a) The use of inadequate workplaces in terms of qualifications in some jobs.

b) Using raw materials and inappropriate materials.

c) Damage due to machine wear.

The share of human-induced defects has declined somewhat, but has remained rather high due to increased fluctuations in personnel, and the continued employment of new staff (Oprean & Kifor 2007, p. 112).

Table 1. *Causes that have led to high quality products*

Cause / The year	Measurement Units	1 Employees	2 Material	3 Equipment	TOTAL
2016	Pieces	4487	1109	1885	7481
	%	60	15	25	100
2017	Pieces	4172	740	1094	6006
	%	70	12	18	100
2018	Pieces	1831	281	626	2738
	%	67	10	23	100
TOTAL	Pieces	10490	2130	3605	16225
	%	65	13	22	100

Source: Adapted by Nicolae, 2010

As regards the proportion of defects due to poor quality materials, there is a decrease due to the continuous selection of contractors.

The share of defects due to machine wear remains high, although part of them has been replaced and upgraded.

2.3 THE ECONOMIC EFFECTS OF IMPROVING THE CONTROL ACTIVITY

The measures for improving the control activity are mainly aimed at raising the quality level of production. For this purpose, it is possible to act in two directions (Jaba, 2007, p. 126):

I. Improvement of the defect prevention activity, which leads to a reduction in the share of defective production in the total production and results in the following effects:

1. Reducing losses due to defective products.

2. The decrease in costs to remedy the defects found (effects specific to the new measures) is therefore calculated on the basis of the costs of the remedy if the existing measures were applied.

3. Improving the quality structure of production (increasing the share of high quality products in total production on the basis of defect prevention action).

II. Improving the identification and correction of defects, improving the quality structure of production.

The new measures taken will not lead to the loss of defects but only to an improvement in the quality of the production obtained by remedying the defects (Rotaru, 2008, p. 49).

For two of the assortments made at the analysed company, the data necessary to calculate the defects of the proposed measures will be presented in Table 2.

Table 2. *Data to calculate defects*

No.	Assortments Items	Bathrobes			Swimsuits		
		First quality	Second quality	Total	First quality	Second quality	Total
1.	Physical production (Pieces)	119457	294	119751	11422	9	11431
2.	Selling Price (Monetary Units)	7300	6570	-	17500	15750	-
3.	Unit cost (monetary units / pieces)	4500	4500	-	10746	10746	-
4.	Unit benefit (units / piece)	900	170	-	2149	399	-
5.	Products with defects (pieces)			330			25
6.	Share of defective products (%)			0,27			0,21
7.	Products benefiting from interventions for			430			30

	defect prevention (pieces)						
8.	Share of beneficiary products for prevention of deficiencies (%)			0,35			0,26
9.	Expenditure needed to remedy defects (thousands of monetary units)			507			175

Source: Adapted by Jaba, 2007.

The second quality products are tanned bathrobes and swimsuits with uneven seamless prints.

The situation of products with defects and the expenses for remedying them, by causes, is presented in Table 3.

Table 3 *The situation of defective products and the costs of remedying them*

Assortment	**Bathrobes**			**Swimsuits**		
Causes	**pd**		**ch r**	**Pd**		**ch r**
	Pieces	**%**	Thousands of monetary units	**Pieces**	**%**	Thousands of monetary units
1. Defects due to machine wear	200	68%	116	6	66%	47,5
2. Damage due to inappropriate materials	84	28%	87,5	2	22%	16,2
3. Disabilities related to human qualification	10	4%	45	1	12%	9,5
TOTAL			**248,5**			**73,2**

Source: Adapted by Oprean & Kifor, 2007

The production of the month of May on assortments was estimated on the basis of the average rate of evolution, taking into account the actual production achieved over the previous 4 months, as shown in Table 4.

Table 4*Production made on assortments*

Assortment	Production made (pcs)			
	January	February	March	April
Bathrobes	115528	115975	119751	115916
Swimsuits	_	5454	11422	9529

Source: Adapted by Jaba, 2007

The average rate of evolution will be determined by the formula:

$$r = \left[\left(Q_{febr} - Q_{jan}\right) + \left(Q_{march} - Q_{febr}\right) + \left(Q_{april} - Q_{march}\right)\right]/3 \quad (1)$$

$$Q_{may} = Q_{april} + r \quad (2)$$

$$r_{bathrobes} = 129\ pcs$$

$$r_{swimsuits} = 3176\ pcs$$

So, $Q_{may} = 115916 = 129 = 116045\ pcs\ (bathrobes)$

$$Q_{may} = 9529 + 3176 = 12705\ pcs\ (swimsuits)$$

With the help of the presented data, depending on the measures taken, the economic effects of the improvement of the control activity will be determined, by assortment, as follows:

1. To eliminate defects caused by machine wear, modern machines are purchased for the production of bathrobes and bathing suits.

a) In the case of the production of bathrobes, 25% lower quality products are reduced, representing 0.17% (0.25% / 0.68% = 0.17%) of the total production of this range. At the same time, 0.17% increase in high-quality production.

a.1) Profitability gained by reducing losses due to defective products:

$$\Delta B/pd = -11604588 \times (-0{,}17/100) \times 4500 = 887{,}744\ monetary\ units$$

a.2) Benefit gained on account of improving the quality structure of production:

$$\Delta B/sc = 116045 \times (0{,}17/100) \times 900 = 177{,}548\ monetary\ units$$

a.3) Influence of expenses to remedy the defects:

$$\Delta B/ch\,r = 116 \times (0{,}17/0{,}68)) = 29\ monetary\ units$$

So, the benefit for the production of bathrobes is 1,094,292.

b) For the production of swimsuits, the application of the measure led to a 25% reduction in lower quality products, which represents 0.16% of the total production of this range (0.66% / 0.25% = 0.16%) and a 0.16% increase in high quality products.

The profit margin will be determined as in the case of the bathrobes assortment:

b.1) $B/pd = -12705 \times (-0{,}16/100) \times 10746 = 218{,}444$ monetary units

b.2) $\Delta B/sc = 12705 \times (0{,}16/100) \times 2149 = 43{,}684$ monetary units

b.3) $\Delta B\ ch_r = 47{,}5 \times (0{,}16/100\ ) = 11{,}515$ monetary units

The benefit margin, in this case is 273.643 monetary units.

As a result of the first measure, the benefit related to the entire production is: 1.367.935 monetary units.

2. Regarding the proposal made for the improvement of control through the training of the staff, the study is made on the basis of the situation resulting from the first improvement measure.

a) In the case of the production of bathrobes:

a.1) The share of defective products declined by 0.17% to 0.10% of total production.

a.2) The share of products benefiting from defect prevention interventions increased by 0.17% to 0.52% of total production.

a.3) Expenditures needed to remedy the defects decreased by 29,000 monetary units to 478,000 monetary units.

Following the implementation of the second measure, it is assumed that the share of lower quality products will be reduced by 10%, representing 0.004% of the total production of this product (0.04% * 0.10% = 0.004%). At the same time, the share of high quality products will increase by 0,004%.

The benefit margin will be determined as follows:

1' $\Delta B/pd = -116045 \times (-0{,}004/100) \times 4500 = 20{,}888\ monetary\ units$

2' $\Delta B/sc = 116045 \times (0{,}004/100) \times 900 = 4{,}177\ monetary\ units$

3' $\Delta B/ch_r = 45000 \times (0{,}004/0{,}04) = 4{,}500\ monetary\ units$

So the benefit margin for the production of bathrobes will be 29,565 thousands of monetary units

b) In the case of the production of swimsuits:

b.1) The share of defective products decreased by 0.16% to 0.05% of total production;

b.2) The share of products benefiting from defect prevention interventions increased by 0.16% to 0.42% of total production.

b.3) Expenditure to remedy defects decreased by 11515 and became 163485 monetary units.

For this assortment, the application of the second measure will result in a defective product reduction of 10% representing 0.012% of total production (0.19% * 0.12% = 0.012%) and an increase of 0.012% of high quality production.

The expected benefit margin will be calculated as follows:

1' $\Delta B/pd = -12705 \times (-0{,}012/100) \times 10746 = 16{,}383\ monetary\ units$

2' $\Delta B/sc = 12705 \times (0{,}012/100) \times 2149 = 3{,}276\ monetary\ units$

3' $\Delta B/ch_r = 9{,}5 \times (0{,}012/0{,}12) = 950\ monetary\ units$

So the benefit of the bathing suit will be 20,609 monetary units and the total increase to the entire production will be 50,174 monetary units.

7. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

One of the basic requirements for increasing the quality level of production and products is the proper organization of the quality control activity.

Ensuring a qualitative level of products, in constant correlation with the maximum level of the requirements of the beneficiaries and satisfying them as high as possible, makes it necessary to improve the control activity (Nicolae, 2010, p. 87).

The measures proposed for this purpose are:

- The responsibility for the quality of operations rests with the master for all jobs in his field of activity. Ensuring the high quality of all the operations required in the production process is one of the basic tasks of the foremen in the sectors they lead.
- Interphase control groups focus their work on the key points of the technology process.
- Performing a sample survey of operations under direct responsibility of foremen.
- Expanding self-control by workers. This form of quality control presents, besides the economic aspect, other aspects of particular social importance related to the work psychology, namely, increasing the workers' responsibility for the executed works.

These proposed measures may be further supplemented, depending on the *causes* which led to the production of lower quality products:

- A cause for inferior quality products is damage caused by machine wear. But the acquisition of new performance machines means a step forward in quality assurance.
- Regarding the quality of raw materials and materials, the best commissioners should be appointed in the reception commissions and the analytical laboratory will be equipped with the necessary equipment to test the materials before they are introduced into the manufacturing.
- An important measure is linked to the workforce. The staff of the company must be filled in only with qualified staff, previously tested for knowledge and skills.

- The quality process can be transformed using the most precious resource: people. People working for the enterprise often have the best ideas for improving quality and productivity. Everything is like these people feel safe: do not be afraid to express their ideas; do not be afraid to ask questions.
- It is recommended that training courses and training in quality assurance are organized within the unit for all staff, irrespective of the position they occupy.

REFERENCES

Drăgulănescu, N., & Drăgulănescu, M. (2008), *Managementul calităţii serviciilor (Quality of service management*). Bucharest: AGIR Publishing House.

Jaba, O. (2007), *Managementul producţiei şi operaţiunilor (Production and operations management*). Iasi: SedcomLibris Publishing House.

Mitonneau, H. (2007), *O nouă orientare în managementul calităţii (A new orientation in quality management*). Bucharest: Technical Publishing House.

Nicolae, N. (2010), *Calitatea şi managementul calităţii* (*Quality and quality management*). Constanta: Ex Ponto Publishing House.

Oprean, C., & Kifor, C. V. (2007), *Managementul calităţii* (*Quality management*). Sibiu: „Lucian Blaga" University Publishing House.

Rotaru, N. (2008), *Sisteme de managementul calităţii (Quality management systems*). Bucharest: Romanian Foundation for Quality Promotion.