

Total quality management essay

[Sociology](#), [Social Issues](#)



With high-volume mass production and widespread methods of statistical quality control (statistical quality control (born), SQC). The most famous among them are the " seven tools of quality control ," which at first were widely used in quality circles in Japan and later in other countries, due to its effectiveness and affordability for ordinary employees.

The structure of these " seven tools" include: Pareto chart , cause-and- effect diagram , control charts , histograms, stratification method , graphs, scatter diagram . Summary of these methods in relation to quality management is as follows:

The method of stratification (stratified analysis , distributed sample - stratification (English)) is used to determine the reasons for the spread of characteristics of products. The essence of the method is to divide the (bundle) obtained characteristics depending on various factors: the skills, the quality of raw materials , work methods , equipment performance , etc. This determines the effect of a factor on the characteristics of the product, which allows you to take the necessary measures to address their unacceptable variations.

Graphics (charts) are used for clarity and ease of understanding the interdependence of quantitative variables and their changes over time. The most commonly used line , pie , bar and ribbon graphics.

Pareto diagram (Pareto diagram), so named after its author, the Italian scientist and economist Pareto (1848-1923) , allows you to visualize the magnitude of the losses as a function of various defects . (see Pareto

curve) . This makes it possible to first focus on eliminating those defects that lead to the greatest losses. To clarify the causes of these defects is expedient further use of cause -and-effect diagram . After clarification of the causes and elimination of defects newly constructed Pareto chart to test the effectiveness of the measures taken .

Cause-and- effect diagram (cause and effect diagram) is usually applied in the analysis of defects that cause the greatest toll . It allows you to identify the causes of defects and to focus on eliminating the causes. At that examines four major causal factor : the man , the machine (hardware) , the material and the method works. In analyzing these factors are identified secondary and perhaps even tertiary reasons leading to defects which are to be eliminated. Therefore, to analyze defects and construction of the diagram is necessary to determine the maximum number of reasons that may be relevant to the admitted defects.

Such a diagram in the form of a skeleton fish offered by Japanese scientist Kaoru Ishikawa . His figure is also called " branching diagram relevant factors ." Sometimes it is called the chart " four M" - the composition of the main factors : Man, Method, Material, Machine (see Ishikawa diagram).

A histogram is a bar graph and is used for visualizing the distribution of specific parameter values at a repetition rate over a certain period of time (week , month , year).

When applied to the graph of valid values can be determined by how often this option is included in the tolerance range , shifts in tolerance or goes beyond it .

The data are analyzed using other methods:

- loss of marriage depending on various defects investigate using Pareto chart;
- causes of defects is determined by the cause-effect diagram, the method of separation and scatter plots;
- change in performance over time is determined by the control charts.

Scatter plot (Scatter diagram - the correlation diagram) is constructed as a plot between the two parameters . This allows you to determine if there is any correlation between these parameters . And if such a relationship exists , it is possible to eliminate the deviation of one parameter affecting the other.

Checklist (Control chart) - a type of chart that is distinguished by the control limits , indicating the allowable tolerance range of characteristics in normal course of the process . (see Shewhart control chart) . The output characteristics beyond the control limits constitute a violation of the stability of the process and requires an analysis of the causes and take appropriate action.

Listed " seven tools" to help solve the majority of your quality problems. For more complex problems can additionally be used " seven new quality control tools ": the affinity diagram , chart dependency tree-like diagram , matrix diagram , arrow diagram , Figure evaluation planning process, the analysis of the data matrix .

For a detailed study of statistical methods should refer to the literature , as well - to the international standard ISO 10017 on statistical methods.

In addition to these statistical methods for quality control and management applies the method of " Six Sigma " and Taguchi methods .

The method of " Six Sigma " is used for statistical process control in order to reduce the probability of failure of products. The lowest probability of failure is achieved when a stable hitting six of standard deviations from the nominal value (plus - minus three sigma) at a specified tolerance band with a certain reserve . This requires high-precision parts manufacturing , providing minimum Sigma .

Traditionally, statistical process control in production is a random selection of products and their testing . Deviations continuously checked for validity , and where necessary corrected before the production of defective parts.

Sources

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