

Statistics and quality control in business

Business



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Statistics and Quality Control in Business Nearly every individual has purchased a product only to discover that the product is defective or does not meet the expected standards. Malfunctioning products destroy the reputation of the manufacturer; therefore, many manufacturers work to introduce systems that improve the quality of the products that are presented to the market. This is done by detecting defective products and replacing them, or improving the manufacturing process. One of the ways of introducing quality products is the introduction of quality control process in the manufacturing system. The quality control process is used to improve the effectiveness of the producing system, therefore, reducing the number of defective products in the system. However, it is not possible to produce perfect products, so organizations resort to statistical methods to determine the number of defective products in the manufacturing process.

One of the ways of ensuring the quality of a product is by introducing quality into the product that is presented to the customer (Reid and Sanders 172).

The efficiency of the quality control process is determined by the perceived quality of the product to the final consumer. Therefore, organizations introduce statistical quality control process to improve the detection and reduction of defects in manufactured products. The statistical tools used by quality professionals are divided into four parts; statistical process control, designed experiments, descriptive statistics, and acceptance sampling.

Statistical process control is used to determine whether the products from a production line meet the required standards of production (Grant and Leavenworth 521). The use of this statistical tool includes random selection of a product in a production line and measuring its characteristics to determine whether it meets current standards. This process is effective

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because it helps to determine the effectiveness of a process in a manufacturing line, therefore, if a process does not meet required standards, it can be reviewed and improved. This is the most effective statistical quality control process because it determines the effectiveness of a manufacturing process in the production center; therefore, the process can be improved. The second statistical tool used in quality control is designed experiments, which are also used in the production process to determine the effectiveness of the production process (Brue 59). This tool is useful in discovering the factors that influence process performance, after which process optimization is conducted to ensure that all process meet required standards. Designed experiments (DOX) are also called off-line techniques because they involve the determination of defective processes and ways of improving them. It includes the identification of common characteristics and measure of central tendency and variation. This process is also coupled with the use of descriptive statistics in the quality control process.

Descriptive statistics are used to determine the quality characteristics of a process and production line in a manufacturing center (Evans and Williams 201). These include the inspection of the characteristics of the products in a production line to determine the common characteristics of the products. Examples of descriptive statistics are measures of central tendency and measures of variation, which help in the determination of the expected standards in the quality control process and the variation of quality from the desired measure.

The last statistical quality control process is acceptance sampling, which involves the random selection of products from a manufacturing process and deciding whether the selected sample is to be accepted based on current <https://assignbuster.com/statistics-and-quality-control-in-business/>

standards (Montgomery 17). Acceptance sampling is a statistical tool that compares a product to set standards and deciding whether the variations in quality are acceptable for the product. After the acceptance sampling process, management can then decide whether to accept or reject the sample based on predetermined statistical quality measures.

Work Cited

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