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Guide to the selection of charting methods and capability assessment for use in statistical process control

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Publishing and copyright information

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 24, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 September 2015. It was prepared by Technical Committee SS/4, *Statistical process management*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 5700:1984, which is withdrawn.

Use of this document

As a guide, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification or a code of practice and claims of compliance cannot be made to it.

Presentational conventions

The guidance in this standard is presented in roman (i.e. upright) type. Any recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Introduction

BS 5700 is a guide for any organization wanting to use control charts and capability analysis to control a process, report performance, or measure results of an improvement programme. The application of control charts and capability analysis is a vital step in the management and improvement of processes. Business processes can be many and varied, including applications in manufacturing and in services, ranging from health and finance to customer care.

When followed correctly, statistical process control (SPC) can deliver a definable, measureable, and recognized way to monitor processes and produce accurate performance reporting. These are important tools in the delivery of improvement programmes.

The application of SPC offers many benefits to an organization beyond that of controlling and improving processes – SPC has an important role in developing staff and helping them to engage with processes. For the methods to be effective, it is important that senior management and other stakeholders act in a consistent and proactive manner on the messages arising from the application of the methods.

To improve a process it needs to be understood and to do so, take data from a key characteristic that describes the process. For example, if dimensions such as height, length and thickness are to be monitored, the data needs to be charted. For this type of data, variable charts are used. If the characteristic of interest is a count, such as the number of scratches or a proportion such as the number of parcels with incorrect addresses, an attribute chart is appropriate. It is also important to measure process performance outcomes and assess capability of the process so improvement can be assessed. This British Standard acts as a guide to selecting the correct type of chart, performance measurement and capability analysis for the process and the relevant standard to refer to.

NOTE If the wrong characteristic for measurement has been selected, success is not guaranteed.

1 Scope

This British Standard provides guidance on the selection and application of control chart methods that are expanded upon in all parts of BS 5701, BS 5702 and BS ISO 7870.

This British Standard also provides information on capability and performance assessment as given in BS ISO 22514 (all parts) for the purpose of monitoring, understanding, reporting and improving processes.

2 Terms, definitions and symbols

2.1 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS ISO 3534 (all parts) apply.

NOTE However, the terminology used in quality control is subject to a continuing process of development in response to market demand.

2.2 Symbols

For the purposes of this British Standard the following symbols apply.

C_p capability index

C_{pk} minima of C_{pkU} and C_{pkL}