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Quantitative methods in process improvement — Six Sigma — Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation

Méthodes quantitatives pour l'amélioration des processus — Six Sigma — Compétences pour le personnel clé et leur organisation en relation avec la mise en œuvre du Six Sigma et du Lean



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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 69, *Applications of statistical methods*, Subcommittee SC 7, *Applications of statistical and related techniques for the implementation of Six Sigma.*

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Introduction

This International Standard sets out to clarify the required competencies for personnel and organizations in Six Sigma[1)], Lean and "Lean & Six Sigma". Because of the ambiguity of the many combinations of Lean and Six Sigma, currently termed "Lean Six Sigma", this International Standard will use the term "Lean & Six Sigma". Before this, there had been no universal standard on what constitutes a Black Belt or what is required in an organization which deploys these approaches.

For example, if an organization advertises for a Six Sigma Black Belt, how can they be sure of the level of ability of a "Black Belt"? If a supplier says it is deploying Six Sigma or perhaps Lean, how can a customer be sure of their real abilities? A fundamental purpose of this International Standard is to assist in the answer of such questions.

Much debate has been had on the nature of Six Sigma and Lean, their commonality and their differences. Protagonists have argued over the content, overlap, application, supremacy and purpose of the two approaches. Various combinations of the two approaches exist, many under the umbrella title of "Lean Six Sigma". Six Sigma and Lean have a commonality of field of application, i.e. process improvement. Lean focuses on reducing 'chronic' waste and Six Sigma focuses on reducing the variation and thereby its adverse effects.

This International Standard therefore sets out the separate competency requirements for Six Sigma and Lean implementation; it also sets out a combined competency framework for "Lean & Six Sigma". In so doing, it focuses on the competencies (skills and abilities) to deliver benefits to an organization rather than defining the specific educational level required for each role.

Candidates will be expected to demonstrate that they have an adequate level of competence, an amalgamation of education, training, skills and experience necessary to fulfil their roles.

In its preparation, it has been seen to be helpful to prepare this International Standard by focusing on Six Sigma, Lean implementation and "Lean & Six Sigma" separately and the user will come across different tables dealing with these subjects.

1) Six Sigma is a trade mark of Motorola, Inc.

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Quantitative methods in process improvement — Six Sigma — Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation

1 Scope

This International Standard defines the competencies for the attainment of specific levels of competency with regards to Six Sigma, Lean, and "Lean & Six Sigma" in individuals, e.g. Black Belt, Green Belt and Lean practitioners and their organizations. Yellow Belt is not included in this International Standard. This International Standard excludes Design for Six Sigma.

NOTE This International Standard sets out the required competencies for individual certification and/or an organization's certificate.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13053-1, *Quantitative methods in process improvement — Six Sigma — Part 1: DMAIC methodology*

ISO 13053-2, *Quantitative methods in process improvement — Six Sigma — Part 2: Tools and techniques*

3 Terms, definitions, and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
appropriate authority
authority identified and justified by an organization

Note 1 to entry: This authority can be either internal or external to the organization.

3.2 Abbreviated terms

5S	sort, set, shine, standardize, sustain
CT	critical to
DOWNTIME	defects, overproduction, waiting, non-utilization of talent, transport, inventory, motion, extra-processing
EDA	exploratory data analysis
HOQ	house of quality
OEE	overall equipment effectiveness
PDCA	plan, do, check, act

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