

# Lean Six Sigma Black Belt Certification Standard

Developed by the Center for Operational Excellence at The Ohio State University

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**Type:** Lean Six Sigma Black Belt

**Version:** 2.0

**Date:** May 18, 2017

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## 1) Purpose

This certification standard was developed to provide a common, robust, objective, and accessible operational definition for "what is a Lean Six Sigma Black Belt". Certification providers can now evaluate Black Belt capability in reference to a rigorous third party standard that reflects the most common scope of industry expectations. This standard has been developed by the Center for Operational Excellence (COE) at The Ohio State University as a service to its member companies and the wider Lean Six Sigma profession. The Center for Operational Excellence does not provide certifications, only a published standard, so there are no conflicts of interest. This standard is made available for public use with the goal of bringing greater uniformity and value to the certification process.

The purpose of a Lean Six Sigma Black Belt certification standard is to provide a more reliable process to measure the capability of the Black Belt - the ability of the Black Belt to effectively lead process improvement efforts. Certification is essentially a predictive exercise - a determination of the likelihood of future success based on an assessment of historical performance. Accordingly, the standard and assessment process must accurately reflect the way in which Lean Six Sigma Black Belt work is actually undertaken within an organizational setting.

## 2) Standard-setting Process

The standard was created with input from a variety of industry sources, including:

- ASQ Black Belt Body of Knowledge
- Certification Survey results published by iSixSigma magazine in the May/June issue of 2008
- COE member companies engaged in Lean Six Sigma deployments
- Fisher College of Business Faculty
- Fisher College of Business affiliates, including MoreSteam.com, and MoreSteam client base.
- COE Certification Standards Advisory Board, comprised of Lean Six Sigma Deployment Leaders

## 3) Components of the Standard

The standard is composed of two basic elements: a **Body of Knowledge**, and a **Body of Experience**. Taken together, these components predict the Black Belt's **Body of Capability** - the things a Black Belt can DO.

**A) Body of Knowledge** - This standard references a Body of Knowledge created by the Lean Six Sigma Working Group of the Center for Operational Excellence to reflect the common expectations of a wide range of Lean Six Sigma companies. Published Body of Knowledge standards offered by The American Society for Quality (ASQ) and iSixSigma.com were reviewed. In comparison, the COE Body of Knowledge includes a stronger focus on Lean tools, and requires different levels of mastery for given subject areas.

**B) Body of Experience** - Lean Six Sigma is not a theoretical exercise - it's about implementing actual process improvements that matter. Accordingly, the Common Standard includes a Body of Experience requirement, which is expressed as four criteria:

- **Number of projects** - The Black Belt must individually and independently execute at least two successful improvement projects, each of which must satisfy the additional requirements set forth below.
- **Leadership role** - The Black Belt must serve as Team Leader for each of the required two projects, and must be an active and involved participant in the analytical work of the project. In other words, the difficult analytical/statistical work cannot be delegated or "outsourced".
- **Results** - Each of the two required projects must produce meaningful results that "matter" to the organization.
  - **Economic targets** - Generally, Black Belt projects should each produce economic benefits of \$100,000 or greater when executed within a commercial setting in a for-profit business.
  - **Non-economic projects** - Projects executed within other organizations with different primary performance metrics may also be acceptable, but must register substantial improvement in those metrics. Examples or alternate metrics would include patient safety in a hospital, employee safety in an industrial concern, or deployment readiness in the armed forces. The term "substantial" means at least a 50% improvement. In other words, a clear and defensible (with data and facts) positive shift in process capability and business outcomes (some dimension of the balanced scorecard) must be established and proven.

- **Evidence of Mastery** - Projects vary greatly in nature and complexity, and a Black Belt should seek to achieve improvement using the simplest tools available so as to achieve required improvement for the organization in the shortest possible time. Rigor and relevance should be balanced. During certification, however, candidates are required to demonstrate awareness and some degree of competency against a broad set of 'tools and methods' for each step of the DMAIC methodology. Using a tool that is not required to answer critical project questions is a waste of resources. However, for certification purposes it is necessary to assess mastery of the Body of Knowledge through application. Accordingly, the Black Belt must directly demonstrate mastery of the Body of Knowledge by employing the tools set forth within the required project work. In short, what this often means is that certain tools are applied to satisfy requirements of certification that may prove to be less productive to solving the focal problem. This natural tension between certification requirements and what is minimally required to solve the focal problem is unavoidable and the Black Belt candidate must manage this to the satisfaction of the certifying Master Black Belt.

4) **Assessment Guidelines** - Certification against the Common Standard must be an objective assessment performed in a consistent fashion by qualified personnel. The term "Qualified Personnel" means Lean Six Sigma Master Black Belts certified through a rigorous and recognized process, with five or more years of experience within the profession. Assessment should consist of the following five elements:

A) **Knowledge Test** - The Black Belt should successfully complete a comprehensive test of the complete body of knowledge, consisting of 120 or more questions. The term "successfully" means a minimum score of 80% correct.

B) **Project Reviews** - Completed project work should be reviewed for Evidence of Mastery, as set forth above. If all required tools are successfully demonstrated in detail on one project, then a second project can be reviewed in summary (Project Charter, Project Summary write-up including answers to critical questions by phase of DMAIC, data to demonstrate improvement in the key metrics). Both written project reports should include commentary outlining critical thinking and the answers to critical questions by phase. Both projects should include data providing evidence of results attained. If either project does not provide the opportunity to demonstrate mastery of a required improvement tool, then evidence from an additional project can be used to show application and mastery of the required tool.  
**Note: In all cases, submitted projects must represent real project work conducted within a real organization. Simulated projects or case studies are not acceptable for certification purposes.** All submitted project work must have been completed within the prior 2 years.

C) **Interview** - An oral interview should be conducted by the Master Black Belt to validate understanding of the project work submitted.

D) **Verification of Project Results** - Project submissions must be accompanied by an affidavit signed by senior leadership of the Black Belt's organization. Senior Management means an officer of the company (e.g. President, Chief Financial Officer, Division General Manager, V.P. of Operations), the most senior person the location where the project was executed (e.g. Plant Manager), or Local Controller. The affidavit should:

- o Verify that the Black Belt candidate was indeed the project Team Leader,
- o Comment on the Black Belt candidates performance as Team Leader,

- o Validate that the claimed results were actually realized, and were deemed to be significant

E) **Recertification** - Lean Six Sigma skills must be practiced in order to maintain mastery. Therefore, certification should have a limited lifespan of no longer than five years, requiring re-assessment after that time period in order to maintain certification.

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**References:**

- iSixSigma Certification Survey: iSixSigma Magazine, May/June 2008, Page 33
- ASQ Six Sigma Black Belt Body of Knowledge <http://www.asq.org/certification/six-sigma/bok.html>
- Fisher College of Business, Center for Operational Excellence Member Companies: <http://fisher.osu.edu/centers/coe/member-companies/>