Black Belt Effectiveness Certification

Black Belt Certification Recommendation

Name _____ (as it will appear on the certificate)

Address _____

City _____ State _____, Zip _____

We the undersigned, on behalf of Pyzdek Consulting, Inc. (PCI) certify the above named individual as a Six Sigma Black Belt.

Printed or typed Board member name	Signature	Date Signed

PCI Black Belt Certification Process

Introduction

This document describes the process for certifying an individual as a PCI Six Sigma Black Belt. PCI certification involves recognition of subject matter mastery by PCI, and should not be construed as a professional license.

PCI Black Belt Body of Knowledge Verification

PCI certification requires that the applicant pass the PCI Black Belt Exam and submit a notarized affidavit attesting that the certification candidate took the exam personally and without any assistance from other persons. The examination covers the core skill set of the Black Belt Body of Knowledge (BOK) as defined by PCI. PCI will score the candidate's exam and determine if the score meets PCI's minimum passing score for each section of the BOK, as well as for the overall score. PCI also provides criteria for assessing the candidate's effectiveness by evaluating:

- Ability to achieve significant, tangible results by applying the six sigma approach
- Ability to lead organizational change as demonstrated by the candidate's leadership, teamwork, project management, and communication skills.

The exam will be administered by PCI.

PCI Black Belt Application Effectiveness Certification Criteria

This section describes the criteria for certifying that a PCI Black Belt candidate is "effective" in applying the Six Sigma approach. Effectiveness means that the candidate has demonstrated the ability to lead the change process by successfully applying six sigma methodologies on a significant project. Success is demonstrated by achieving documented substantial, sustained, and tangible results. Examples of results are cost savings or cost avoidance validated by finance and accounting experts, improved customer satisfaction, reduced cycle time, increased revenues and profits, reduced accident rates, improved morale, reduction of critical to customer defects, etc. Merely demonstrating the use of six sigma tools is **not** sufficient. Nor is the delivery of intermediate "products" such as Pareto diagrams or process maps.

In addition to passing PCI BOK exam, certification requires the following:

1. Attendance at 80% or more training sessions of PCI black belt training.
2. Demonstration of clear and rational thought process.
    a. Ability to analyze a problem following a logical sequence,
    b. Usage of facts and data to guide decisions and action.
    c. Ability to respond to questions from members of the PCI Black Belt Certification Board.
3. Be able to clearly explain Six Sigma and the DMAIC project cycle in layman's terms.
4. Ability to achieve tangible results, e.g.,
    a. Completed a project which employed the Six Sigma approach (DMAIC or equivalent).
        i. Project reviewed by appropriate personnel.
        ii. Deliverables accepted by the project sponsor.
        iii. Project documented in the manner prescribed by the Six Sigma organization.
        iv. Project used the Six Sigma approach and correctly employed a significant subset of basic, intermediate, and advanced Six Sigma tools and techniques (see appendix for a listing.)
    b. Ability to perform benefit/cost analysis,

c. Ability to quantify deliverables in terms meaningful to the organization, e.g., cost, quality, cycle time, safety improvement, etc.

d. Ability to identify and overcome obstacles to progress,

e. Ability to work within time, budget, and operational constraints.

5. Demonstrated ability to explain the tools of Six Sigma to others.
6. Demonstrate interpersonal and leadership skills necessary to be an effective change agent within the organization.

PCI Black Belt Certification Board

The PCI Black Belt Certification Board will consist of two or more Master Black Belts approved by PCI.

Oral Project Presentation and Review

Black Belt candidates will be required to deliver a live, web based presentation of their project to the PCI Black Belt Certification board and to respond to questions from Board members. Questions can relate to the project, to the application of the Six Sigma approach, or to an element in the Six Sigma body of knowledge.

Change Agent Skills Assessment Worksheet			
Black Belt Candidate		Date of Assessment	
Certification Board Member		Role	

1. The candidate effectively identifies and recruits Six Sigma team members

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

2. The candidate effectively develops Six Sigma team dynamics and motivates participants

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

3. The candidate is able to apply conflict resolution techniques

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

4. The candidate is able to overcome obstacles to change

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

5. The candidate utilizes a logical approach to problem solving

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

6. The candidate effectively facilitates group discussions and meetings

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

7. The candidate's presentation is well organized and easy to understand

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

8. The candidate identifies and mobilizes sponsors for change

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

9. The candidate builds a shared vision of the desired state with champions and sponsors

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

10. The candidate effectively communicates with and obtains support from all levels of management

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

11. The candidate identifies gaps between as-is and desired performance

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

12. The candidate identifies and obtains support from all key stakeholders

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Application of Tools and Techniques Assessment Worksheet			
Black Belt Candidate		Date of Assessment	
Certification Board Member		Role	

1. The candidate uses an appropriate mix of basic, intermediate and advanced six sigma tools[1]

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

2. The candidate uses the tools of Six Sigma properly

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

3. The candidate applies the correct six sigma tools at the proper point in the project

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

4. The candidate asks for help with Six Sigma tools when necessary

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

5. The candidate has a working knowledge of word processors, spreadsheets, and presentation software

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

[1] See Appendix for examples of these tools

6. The candidate has a working knowledge of a full-featured statistical software package

Strongly Disagree Strongly Agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

7. The candidate understands the limitations as well as the strengths of quantitative methods

Strongly Disagree Strongly Agree

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Ability to Achieve Results Assessment Worksheet			
Black Belt Candidate		Date of Assessment	
Certification Board Member		Role	

1. The candidate has completed more than one Six Sigma project which produced tangible results

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

2. The candidate's projects had an acceptable project charter, including sponsorship, problem statement, business case, etc.

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

3. The projects employed the Six Sigma approach (DMAIC or equivalent)

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

4. The projects' deliverables were clearly defined in tangible terms

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

5. The projects produced significant improvements to an important business process

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

6. The current baseline sigma level was determined using valid data

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

7. The final sigma level was calculated using valid data and showed improvements that were both statistically significant and important to the organization

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

8. An acceptable control plan has been implemented to assure that improvements are maintained

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

9. The projects' financial benefits were validated by experts in accounting or finance

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

10. Key customers were identified and their critical requirements defined

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

11. Project sponsors are satisfied with their project's deliverables

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

12. Projects identified and corrected root causes, not symptoms

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

13. All key stakeholders were kept informed of project status and are aware of final outcomes

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

14. Projects were completed on time

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

15. Projects were completed within budget

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

16. Projects were conducted in a manner that minimized disruptions to normal work

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Board Member Assessment Comments

Assessment Subject Area	Comments
Change agent skills	
Application of tools and techniques	
Ability to achieve results	

Scoring Summary

Evaluator	Subject Area	Items scored 4 or less	% In top 3 boxes	Comment
	Change agent skills			
	Application of tools and techniques			
	Ability to achieve results			
	Change agent skills			
	Application of tools and techniques			
	Ability to achieve results			
	Change agent skills			
	Application of tools and techniques			
	Ability to achieve results			

Examples of Six Sigma Tools and Analytical Concepts

Basic	Intermediate	Advanced
❑ DMAIC ❑ SIPOC ❑ DPMO ❑ Computer skills ❑ Scales of measurement ❑ Pareto analysis ❑ Process mapping, flowcharts ❑ Check sheets ❑ Cause-and-effect diagrams ❑ Scatter plots ❑ Run charts ❑ Histograms ❑ Ogives ❑ Descriptive statistics (e.g., mean, standard deviation, skewness) ❑ Enumerative vs. analytic statistics ❑ Stem-and-leaf, boxplots ❑ Basic probability concepts ❑ Discrete probability distributions (binomial, Poisson, hypergeometric) ❑ Continuous probability distributions (normal, exponential, etc.) ❑ 7M tools ❑ FMEA ❑ Sampling ❑ CTx identification	❑ Control charts for measurements ❑ Control charts for attributes ❑ Process capability ❑ Yield analysis (e.g., first pass yield, rolled throughput yield) ❑ Measurement error analysis (Gage R&R) ❑ Correlation analysis ❑ Simple linear regression ❑ Chi-square ❑ Type I and Type II errors ❑ Confidence interval interpretation ❑ Hypothesis tests ❑ Normality assessment and transformations ❑ Z transformations ❑ Process sigma calculations	❑ Exponentially weighted moving average control charts ❑ Short run SPC ❑ Design and analysis of experiments ❑ ANOVA, MANOVA and other general linear models ❑ Multiple linear regression ❑ Basic reliability analysis ❑ Design for Six Sigma ❑ Simulation and modeling ❑ Statistical tolerancing ❑ Response surface methods ❑ Robust design concepts ❑ Design, validation and analysis of customer surveys ❑ Logistic regression