LEAN SIX SIGMA MASTER BLACK BELT PROGRAM

HYBRID

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LONDON | ROME

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PROGRAM INTRODUCTION

In its purest form, Lean Six Sigma is about leveraging the principles and tools of science to abate business risk – at all levels of an enterprise.

With this in mind, we can view the practice of Lean Six Sigma (LSS) from four different altitudes.

At its highest level, LSS is a strategic vision that epitomizes business success.

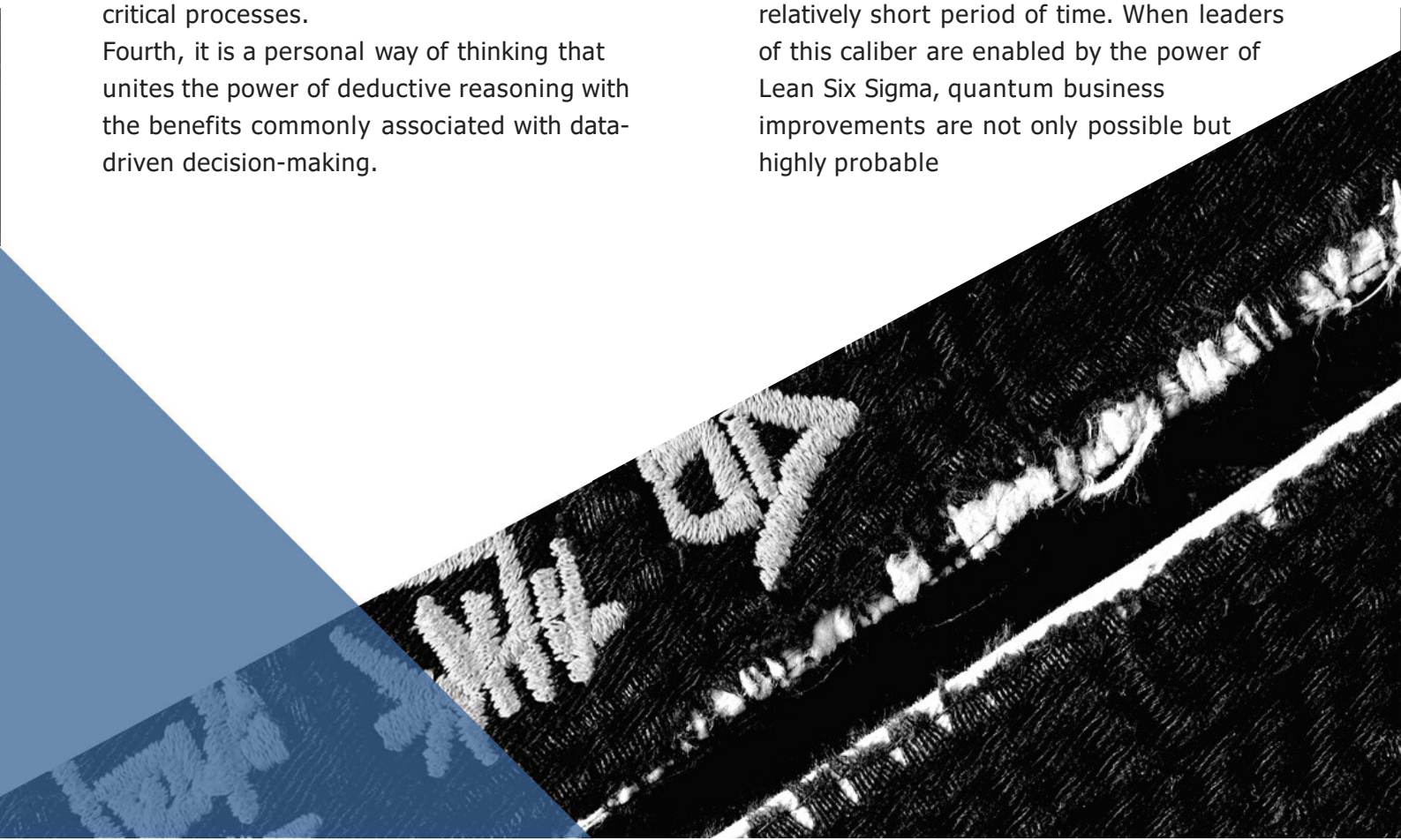
Second, it is a tactical system of project management that optimizes the control function of a commercial or industrial enterprise.

Third, it's a scientific approach for minimizing or eliminating certain forms of business risk commonly associated with the operation of critical processes.

Fourth, it is a personal way of thinking that unites the power of deductive reasoning with the benefits commonly associated with data-driven decision-making.

PROGRAM RATIONALE

Today, more than ever before, organizations of all types are questing for top and bottom-line improvement. This journey is no longer considered a side-bar activity; rather, it is now viewed as a critical business imperative. Of course, this means that business executives must find new and innovative ways to reduce their total cost structure, improve capability, and increase capacity, but do so without capital investment. These executives also understand that to achieve this mission, they must improve their core processes, yet do so in an economical, repeatable, and verifiable way. Naturally, the realization of this grand vision requires individuals that have the capability to yield beneficial change in a relatively short period of time. When leaders of this caliber are enabled by the power of Lean Six Sigma, quantum business improvements are not only possible but highly probable



Program Description

Lean Six Sigma Master Black Belt Program is designed to help Black Belts develop and implement change initiatives and become a necessary member of an organization's leadership team and its competitive advantage. The program is designed and developed based on the original teachings of Dr. Mikel J. Harry, co-founder of Six Sigma.

Master Black Belts are highly trained practitioners who possess the technical knowledge and skills that are necessary to facilitate breakthrough improvements in key processes that support the overall business aims and operational goals of an enterprise. In summary,
Master Black Belts are individual contributors or front line managers that:

- Serve as change agents, internal consultants, mentor to Black Belts and assistant Six Sigma Champions.
- Optimize existing technology, or bring new technologies on line at optimal operating conditions.
- Practice the art and science of solving process-centric problems through the analysis of performance data.
- Implement technical and leadership capability to improve the performance of an existing industrial or commercial process, regardless of complexity or output volume.
- Solve specific process-oriented or design-centric problems that have a negative impact on customer satisfaction, operational capability, output capacity, cycle time and other performance-related metrics.
- Act as a catalyst for company digital transformation and proactively implement the customer excellence program.

GOALS & AUDIENCE

TARGET AUDIENCE

This program of study has been designed for experienced managers, executives and LSS Black Belts seeking vertical mobility or pursuing horizontal opportunities within their respective fields of practice. Hence, the LSS Master Black Belt training is designed for already certified Black Belts with minimum of 2-3 years of experience.

Successful completion of any professional qualification or a Master's degree is necessary to support the academic demands of this program.

PROGRAM GOALS

Upon completion of this program of study, the candidate will be able to successfully:

- Master the Six Sigma DMAIC methodology and large scale deployment strategies § Apply the Lean Six Sigma knowledge and skills to successfully lead project teams
- Implement Project Selection Analysis and tools to accomplish Master Black Belt level projects.
- Utilize the principles and practices of Lean Six Sigma to better frame and solve complex problems.
- Improve business value for customers and providers in a concurrent and synergistic way.
- Design a multi-year strategic continuous improvement roadmap.

Program Focus

Lean Six Sigma Master Black Belt Program is designed to help Black Belts develop a Program Focus The Lean Six Sigma Master Black Belt program of study will focus on several key areas:

- Six Sigma principles, practices, deployment strategies and implementation tactics;
- Lean principles, leadership, and change management;
- Descriptive statistics, benchmarking methods, process control techniques, process diagnostic methods, and experimental design methods;
- Types and uses of performance data, sample size determination, and sampling schemes;
- Project selection criteria, charter elements, execution milestones, and review guidelines;
- Principles and practices associated with process characterization, and optimization;

PROGRAM STRUCTURE Classroom

THE BODY OF KNOWLEDGE ASSOCIATED WITH THIS PROGRAM OF STUDY IS ORGANIZED INTO 10 DAYS OF LIVE WEBINAR, PLUS ESTIMATED FIVE DAYS OF LABORATORY IN WHICH THE CANDIDATE WILL PUT TOGETHER ALL THE REQUIREMENTS FOR THE CERTIFICATION. THE TOPICS AND THE MODULES ON WHICH THE CANDIDATES WILL BE TRAINED ARE THE FOLLOWING:

- Lean Six Sigma Black Belt Recap
- Innovation Tools § Integration of Lean and Six Sigma
- Project & Program Management
- Project Selection Process (PSP)
- Advanced Statistical Tools (Multivariate Analysis, Logistic Regression, Conjoint Analysis)
- Design for Six Sigma (DFSS)
- Design of Experiment (DOE)
- Enterprise–wide Lean Six Sigma Deployment – Best Practices and Case Studies
- Lean Six Sigma Standards ISO 13053 – 1/2 and ISO 18404
- Additional Lean Metrics
- Train the Trainer
- Business Process Management (BPM)
- Integration of Industry 4.0
- Measurement System Analysis
- Management Control and Reporting System
- Mixed Model Value Stream Mapping
- Six Sigma Success Factors for Leaders
- Growth Model and Case Studies
- Six Sigma Coaching and Leadership

Certification path

In order to obtain the certification each candidate must complete the following requirements:

- Submission of 5 completed Improvement projects
- Presentation of a paper/article on Lean Six Sigma
- Recommendation letter from a sponsoring organization
- Successfully passing the Master Black Belt Qualification test
- Completion of 40 hours of class training.

PROGRAM MODULES
e-Learning

Training Orientation
- Statistical Software Orientation
- Simulator Orientation

Breakthrough Vision
- Content Overview
- Driving Need
- Customer Focus
- Core Beliefs
- Deterministic Reasoning
- Leverage Principle
- Tool Selection
- Performance Breakthrough

Business Principles
- Quality Definition
- Value Proposition
- Metrics Reporting
- BOPI Goals
- Underpinning Economics
- Third Generation
- Success Factors

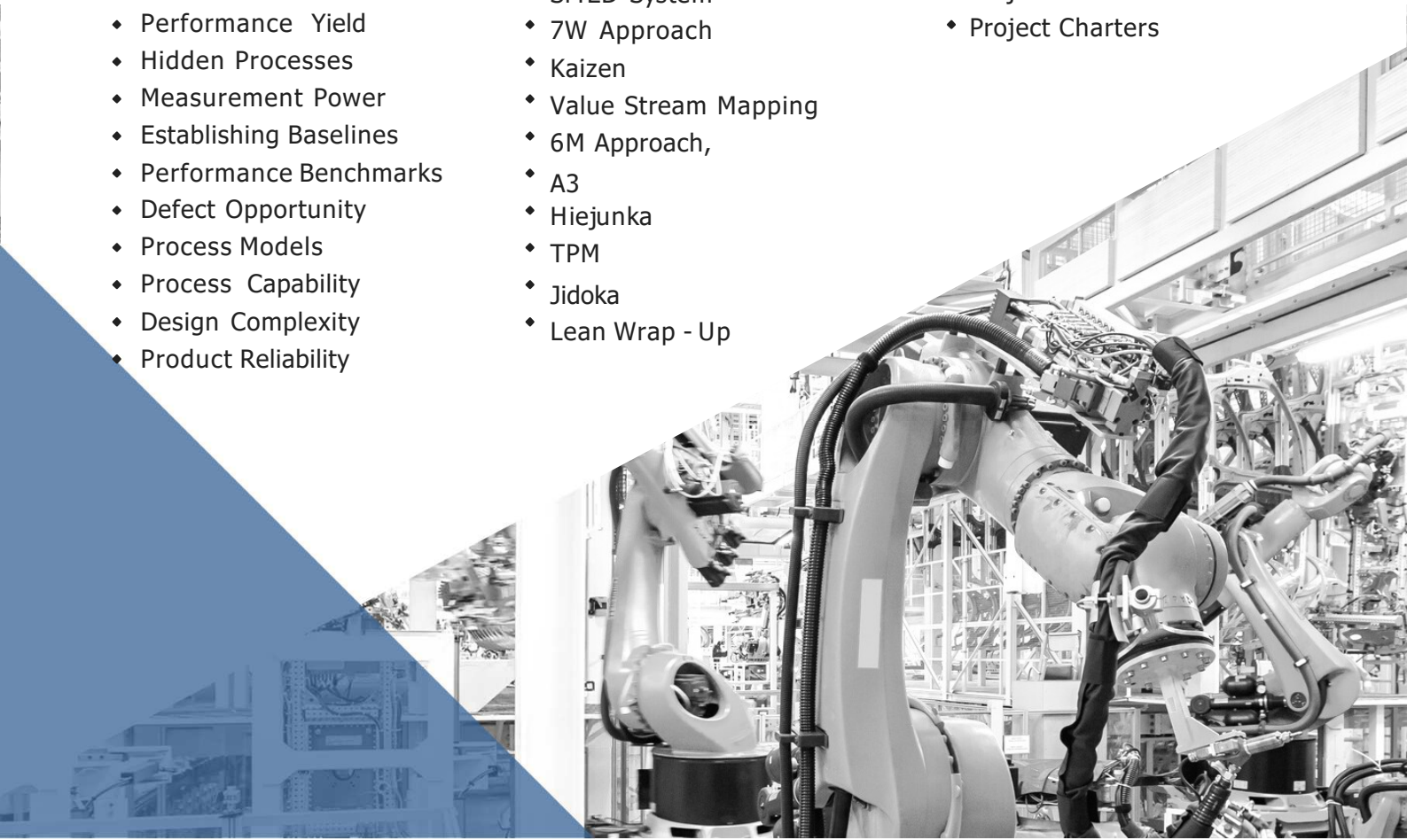
Process Management
- Performance Yield
- Hidden Processes
- Measurement Power
- Establishing Baselines
- Performance Benchmarks
- Defect Opportunity
- Process Models
- Process Capability
- Design Complexity
- Product Reliability

Guidelines
- Deployment Planning
- Deployment Timeline
- CXO Role
- Champion Role
- Black Belt Role
- Green Belt Role
- White Belt Role
- Application Projects
- DFSS Principles
- PFSS Principles
- MFSS Principles

Lean Practices
- Lean Thinking
- Constraint Theory
- Continuous Flow
- Pull Systems
- Visual Factory
- Kanban System
- PokaYoke System
- 6S System
- SMED System
- 7W Approach
- Kaizen
- Value Stream Mapping
- 6M Approach,
- A3
- Hiejunka
- TPM
- Jidoka
- Lean Wrap - Up

Value Focus
- Value Creation
- Recognize Needs
- Define Opportunities
- Measure Conditions
- Analyze Forces
- Improve Settings
- Control Variations
- Standardize Factors
- Integrate Lessons
- Application Example

Application Projects
- Project Description
- Project Overview
- Project Guidelines
- Project Scope
- Project Leadership
- Project Teams
- Project Financials
- Project Management
- Project Payback
- Project Milestones
- Project Charters



PROGRAM MODULES
e-Learning

Quality Tools

- Variable Classifications
- Measurement Scales
- Problem Definition
- Focused Brainstorming
- Process Mapping
- SIPOC Diagram
- Force – Field Analysis
- Matrix Analysis
- C&E Analysis
- Failure Mode Analysis
- Performance Sampling
- Check Sheets
- Analytical Charts
- Pareto Charts
- Run Charts
- Multi – Vari Charts
- Correlation Charts
- Frequency Tables
- Performance Histograms
- Basic Probability
- Pre – Control Charts
- Control Charts
- Score Cards
- Search Patterns
- Concept Integration
- Quality Simulation

Basic Statistics

- Performance Variables
- Statistical Notation
- Performance Variation
- Normal Distribution
- Distribution Analysis
- Location Indices
- Dispersion Indices
- Quadratic Deviations
- Variation Coefficient
- Deviation Freedom
- Standard Transform
- Standard Z - Probability
- Central Limit
- Standard Error
- Student's Distribution
- Standard T - Probability
- Statistics Simulation

Discrete Capability

- Defect Metrics
- Defect Opportunities
- Binomial Distribution
- Poisson Distribution
- Throughput Yield
- Rolled Yield
- Metrics Conversion
- DiscaP Simulation

Continuous Capability

- Performance Specifications
- Rational Subgrouping
- Capability Study
- Instantaneous Capability
- Longitudinal Capability
- Cp Index
- Cpk Index
- Pp Index
- Ppk Index
- Process Shifting
- Process Qualification
- ConcaP Simulation

Hypothesis Testing

- Statistical Inferences
- Statistical Questions
- Statistical Problems
- Null Hypotheses
- Alternate Hypotheses
- Statistical Significance
- Alpha Risk
- Beta Risk
- Criterion Differences
- Decision Scenarios
- Sample Size

PROGRAM MODULES
e-Learning

Confidence Intervals
- Mean Distribution
- Mean Interval
- Variance Distribution
- Variance Interval
- Proportion Distribution
- Proportion Interval
- Frequency Interval

Control Methods
- Statistical Control
- Control Logic
- Control Limits
- Chart Selection
- Chart Interpretation
- Zone Testing
- Variables Chart
- Attribute Chart
- Individuals Chart
- IMR Chart
- Xbar Chart
- Range Chart
- Proportion Chart
- Defect Chart
- Other Charts
- Capability Studies
- Control Simulation

DFSS Methods
- QFD Method
- Capability Flow
- Capability Flow
- Tolerance Analysis
- Monte – Carlo Simulation

Parametric Methods
- Mean Differences
- Variance Differences
- Variation Total
- Variation Within
- Variation Between
- Variation Analysis
- One – Way Anova
- Two – Way Anova
- N – Way Anova
- ANOVA Graphs
- Linear Regression
- Multiple Regression
- Residual Analysis
- Parametric Simulation

Chi - Square Methods
- Statistical Definition
- Model Fitting
- Testing Independence
- Contingency Coefficients
- Yates Correction
- Testing Proportions

Survey Methods
- Research Design
- Information Sources
- Questionnaire Construction
- Formulating Questions
- Question Quality
- Sampling Plans
- Data Analysis

Nonparametric Methods
- Nonparametric Concepts
- Median Test
- Runs Test
- Other Tests

Experimental Methods
- Design Principles
- Design Models
- Experimental Strategies
- Experimental Effects
- One – Factor Two Level
- One – Factor Multi Level
- Full Factorials
- Two – Factor Two Level
- Two – Factor Multi Level
- Three – Factor Two Level
- Planning Experiments
- Fractional Factorials
- Four – Factor Two Level
- Five – Factor Two Level
- Screening Designs
- Robust Designs
- Experiment Simulation

Measurement Analysis
- Measurement Uncertainty
- Measurement Components
- Measurement Studies

Offer

LSS Master Black Belt Training & certification: € 15.000 completed path (VAT Included)

- Only 5 Days one to one mentoring (6500 €)
- 5 Days intensive coaching with the European team
- 80 hours of e-learning in Italian (GB); MINITAB and JMP laboratories
- TESTs and preparation
- Project Portfolio complete review
- International recognition of the certification, enrollment in SSMI MBB register.

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