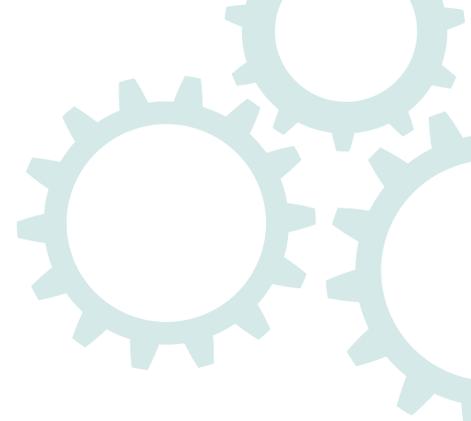


THE WORLD'S MOST RESPECTED BLACK BELT
PROGRAMME



DR MIKEL J HARRY
**LEAN SIX SIGMA
BLACK BELT
(CLSSBB)**

Training & Certification from SSMI, USA



THE ORIGINAL AND WORLD'S MOST REPUTED LEAN SIX SIGMA BLACK BELT (CLSSBB) PROGRAMME

The SSMI® Lean Six Sigma Black Belt Certification programme is the purest form of Black Belt training available in the world personally designed and delivered by the Principal Architect of Six Sigma and National Best-Selling Author, Consultant to World's Top CEO's - Mikel J. Harry Ph.D.

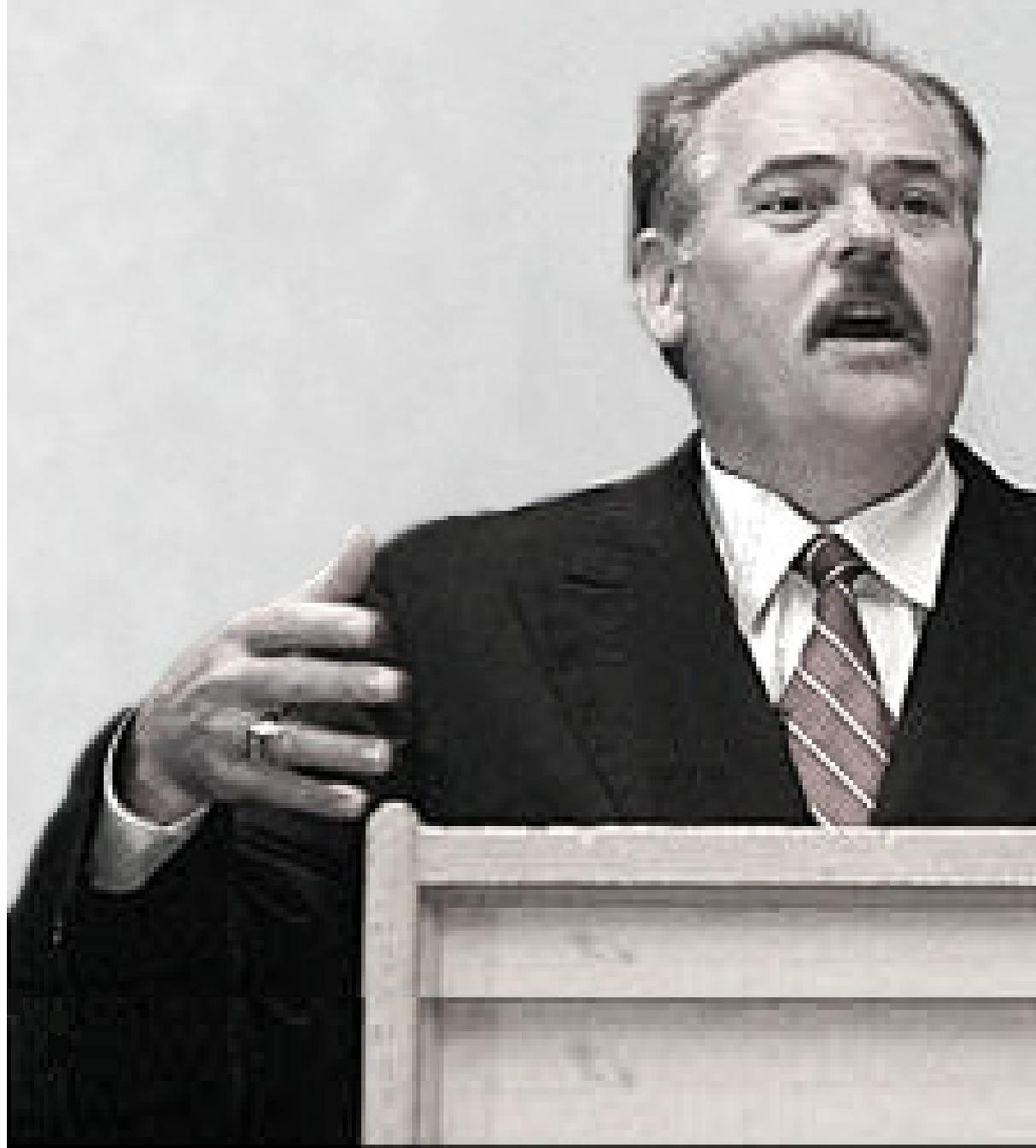
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Mikel Harry, the world's foremost expert, teacher and preacher on the subject.

MRO Today
Magazine, 1999



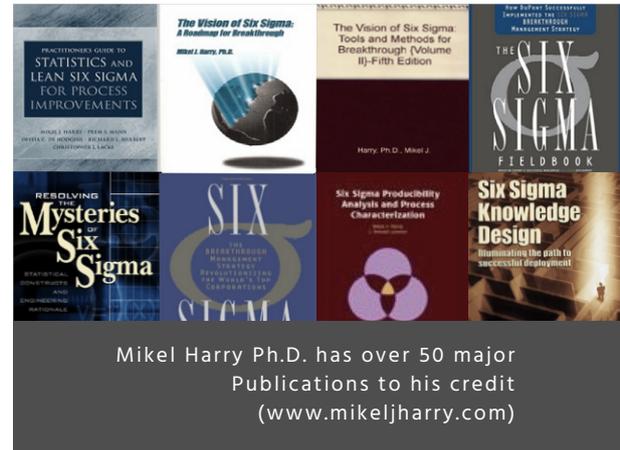
1. About Dr Mikel J Harry PhD.



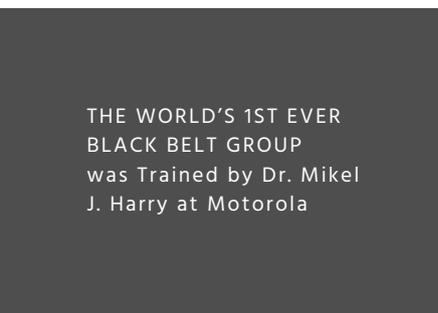
Mikel Harry
Ph.D. in 2015

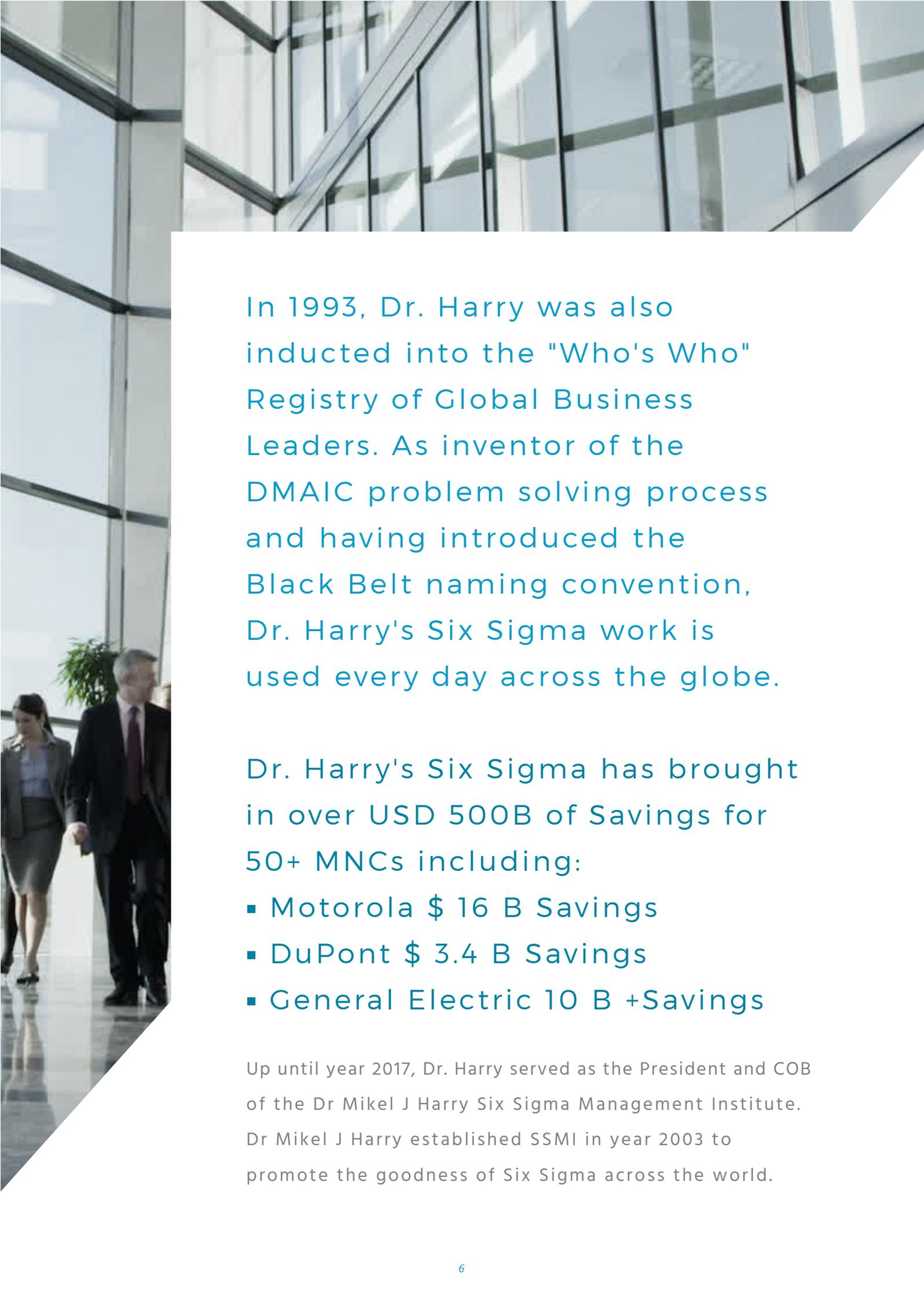
Dr. Mikel J. Harry® has been widely recognized in many of today's notable publications as the 'Principal Architect of Six Sigma', as well as the world's leading authority within this field. He has been a consultant to many of the world's Top CEOs and business executives, such as Jack Welch, former CEO and Chairman of General Electric Corporation, Robert "Bob" Galvin, former CEO & Chairman of Motorola and many other CEOs of Fortune 500 enterprises.

His book titled - Six Sigma The Breakthrough Management Strategy Revolutionizing the World's Top Corporations was listed on the National Best Seller lists of the Wall Street Journal, New York Times and Business Week. Mikel J. Harry Ph.D. has also been a featured guest on popular television programs, such as the premier NBC show "Power Lunch."



He is often quoted in newspapers like USA Today and interviewed by the media, such as The Economic Times and numerous journals like Quality Digest and the Journal for Healthcare Quality. Mikel J. Harry Ph.D. was an Honorary Chairman of the Congressional Business Advisory Council, USA and recipient of the United States Congressional Order of Merit. In addition, Dr. Harry has received many other distinguished awards in recognition of his contributions to industry and society, like the Arizona State University Lifetime Engineering Excellence Award.





In 1993, Dr. Harry was also inducted into the "Who's Who" Registry of Global Business Leaders. As inventor of the DMAIC problem solving process and having introduced the Black Belt naming convention, Dr. Harry's Six Sigma work is used every day across the globe.

Dr. Harry's Six Sigma has brought in over USD 500B of Savings for 50+ MNCs including:

- Motorola \$ 16 B Savings
- DuPont \$ 3.4 B Savings
- General Electric 10 B +Savings

Up until year 2017, Dr. Harry served as the President and COB of the Dr Mikel J Harry Six Sigma Management Institute. Dr Mikel J Harry established SSMI in year 2003 to promote the goodness of Six Sigma across the world.



Mikel Harry's innovation of Breakthrough Strategy has taken quality into America's boardrooms.

Gregory Watson, President,
American Society for Quality



2. About SSMI Asia

Dr Mikel J Harry[®] Six Sigma Management Institute Inc. (SSMI[®]) which was founded by the Co-creator of Six Sigma, world renowned author late Prof. Mikel J Harry in year 2003, specializes in profit optimization solutions for mid-sized and large-scale companies by provisioning Organizational Excellence (OE) consulting, training & development and programme management services.

The business mission of SSMI[®] is eloquently simple- 'maximize the velocity of value creation for our clients and do so in away that is highly repeatable, sustainable, accountable, verifiable, teachable, and affordable'.

To achieve this aim, SSMI[®] works with the Client to deploy, implement and engage superior strategies, tactics and tools – regardless of the Client's size or the nature of his business.



Thus, SSMI[®] is enabled to deliver unique, value-centric solutions for a wide range of dynamic business needs. This extraordinary capability was achieved by combining new and emerging technologies with Dr. Harry's (Co-Creator of Six Sigma, National Best Selling Author and Consultant to World's Top Executives)

SSMI's Global Management Team

35 years of demonstrated experience in the areas of executive management, engineering, process optimization, and quality improvement.

Six Sigma Asia (Pvt) Ltd.

was established in year 2010 to spread awareness on Lean Six Sigma in the Asian region by collaborating with the industry experts to provide training and consultancy. It manages one of Asia's largest gathering space for Lean Six Sigma enthusiast in LinkedIn – 'Lean Six Sigma Asia group' and has been featured in many industry forums and conferences.

In March 2015, Six Sigma Asia (Pvt) Ltd. was appointed by Dr. Mikel J. Harry's Six Sigma Management Institute Inc. to manage its operations for Asia, Australia, New Zealand and Middle East as part of SSMI's global expansion and was re-branded as Dr Mikel J Harry Six Sigma Management Institute Asia (SSMI ASIA).

Late Dr. Mikel J Harry
Founder/ Former
Chairman of the
Board Six Sigma
Management
Institute Inc.



Sandra Harry
Chairman of the
Board / CFO
Six Sigma
Management
Institute Inc.



Dumidu Ranaweera
Global Director /
Managing Director
Six Sigma
Management
Institute Asia



Dr. Cathy Lawson
Global Director
Six Sigma
Management
Institute USA



Dr. Fabrizio
Majorana
Global Director /
Managing Director
Six Sigma
Management
Institute Europe



Aroshi Munasinghe
Global Director -
Digital Marketing
/ Director
Six Sigma
Management
Institute Asia



2.1 SSMI Global Offices

SSMI HEAD OFFICE

Dr. Mikel J Harry Six Sigma
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1EU London, UK

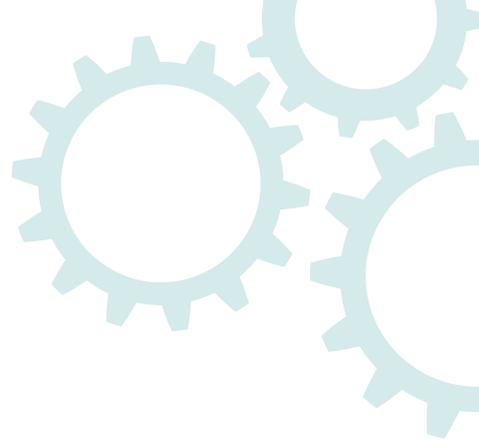
infoeurope@ssmi-europe.com

www.ssmi-europe.com

2.2 SSMI's Global Clientele

- Johnson Controls
- Phillips Corporation
- Lear
- McKesson
- Nokia
- Noranda
- Norgren
- Praxair
- Seagate
- Shimano
- Suncorp Metway
- Northwestern University
- APIC (Inventory Control)
- Allied Signal, Inc
- Department of Defense
- American Express
- Research in Motion
- General Electric
- Polaroid Corporation
- Arizona State University
- Stanford University
- Kodak Corporation
- Unisys Corporation
- ConocoPhillips
- ABB Corporation
- Motorola Corporation
- Brigham Young University
- Ford Motor Company
- National Security Agency
- United States Marine Corps
- Society of Plastics Engineers
- American Hospital Association
- Young Presidents Organization
- Kellogg Graduate School of Bus.
- Micro Electronics Packaging Eng.
- Label Printing Industries of Am.
- US President's Council on Mgmt.
- Society of Mechanical Engineers
- Georgia Institute of Technology
- United States Air Force Academy
- European Institute of Printed Circuits.
- National Security Industrial Association
- Invensys
- Bombardier
- Fiat Corporation
- Proctor and Gamble
- United States Navy
- United States Army
- Boeing Corporation
- McDonnell Douglas
- Hughes Corporation
- Zenith Corporation
- Nations Trust Bank
- Dialog Axiata PLC
- 3M Corporation
- Dominion
- Dow Chemical
- Dupont
- Sony
- Toshiba
- Honeywell
- PickMe
- Hirdaramani

3. About SSMI® Lean Six Sigma Black Belt Body Of Knowledge (BoK)



SSMI® Lean Six Sigma Black Belt Body of Knowledge (BoK) contains over 1500+ original videos and hundreds of resources for participants to obtain mastery on Lean Six Sigma. The content is constantly updated by a panel of experts lead by several distinguished colleagues of Dr Harry and aligned to ISO 13053-1:2015, ISO13053-2:2015 standards on Six Sigma.

SSMI® Lean Six Sigma Body-of-Knowledge was designed using 35 years of successful practice and application knowledge of Dr Mikel J Harry and several of his distinguished colleagues. In turn, this competency-based knowledge was used to design and develop the world-class training programs and courses listed below. Of course, all SSMI® programs and courses are comprehensive in scope and depth, each of which has been well validated over time with exceptional client and customer testimonials.

SSMI® Lean Six Sigma Black Belt programme is the only avenue in the world for an individual to obtain their Lean Six Sigma Black Belt certification directly from Dr. Mikel J Harry SSMI, USA.



Some of the parties credited for their contributions for SSMI® BoK

“

Mikel Harry, often called
the father of Six Sigma.

USA Today
, 2002





4. SSMI® Lean Six Sigma Black Belt Programme Coverage

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.

The SSMI® Lean Six Sigma Black Belt Programme-of-Study is intended to develop technical and business leaders that can propel their respective organization toward best-in-class status by reducing cost, improving cycle times, eliminating defects & variation and significantly increasing customer satisfaction.

The body of knowledge associated with this program-of-study is organized into three primary segments, namely, Global Concepts, General Practices and Technical Practices.

In terms of structure, each program segment is comprised of core topics. In turn, the topics are defined by competency-based training modules, where each module is comprised of instructional steps. Segment and topic titles are as follows:

GLOBAL CONCEPTS	GENERAL PRACTICES	TECHNICAL PRACTICES	
Training Orientation	M06 Value Focus	M12 Hypothesis Testing	M19 Experimental Methods
M01 Breakthrough Vision	M07 Lean Practices	M13 Confidence Intervals	M20 DFSS Methods
M02 Business Principles	M08 Quality Tools	M14 Control Methods	M21 Measurement Analysis
M03 Process Management	M09 Basic Statistics	M15 Parametric Methods	
M04 Installation Guidelines	M10 Continuous Capability	M16 Chi-Square Methods	Digital Training Project
M05 Application Projects	M11 Discrete Capability	M17 Survey Methods	
		M18 Nonparametric Methods	

4.1 Modes Of Study

The content is available on both Online (using MindPro® training system) and Blended delivery methods.

The programme is designed to suit both manufacturing/ industrial and service/ commercial sectors.

100% ONLINE

160 hrs.
of Coursework
and Module
exams

BLENDED

160 hrs. of Coursework
and Module exams
+ 90 hrs. of In-class
Sessions delivered
by an SSMI MBB

“Six Sigma is fundamental education, another differentiator for you, like getting your undergraduate or graduate degree. Harry’s presentation succeeded in capturing our imagination. At Six Sigma’s core is an idea that can turn a company inside out, focusing the organization outward on the customer.



Jack Welch

4.2 Online Coursework

4.2.1 GLOBAL CONCEPTS | 42 hrs.

Training Orientation | Duration - 1.0 hr.

- **Excel Orientation** - Explore the Excel software package
- **Statistical Software Orientation** - Explore the Minitab & JMP software packages
- **Simulator Orientation** - Explore the Process Simulator

M01 Breakthrough Vision | Duration - 10.6 hrs.

- **Content Overview** - Understand the nature, purpose, and drivers of Six Sigma
- **Driving Need** - Identify the needs that underlie a Six Sigma initiative
- **Customer Focus** - Explain why focusing on the customer is essential to business success
- **Core Beliefs** - Contrast the core beliefs of Six Sigma to conventional practices
- **Deterministic Reasoning** - Describe a basic cause-and-effect relationship in terms of $Y=f(X)$
- **Leverage Principle** - Relate the principle of leverage to an improvement project
- **Tool Selection** - Identify the primary family of analytical tools used in Six Sigma work
- **Performance Breakthrough** - Describe the underlying logic of the DMAIC improvement process

[Knowledge Assessment – Breakthrough Vision](#)

M02 Business Principles | Duration - 7.4 hrs.

- **Quality Definition** - Articulate the idea of quality in terms of value entitlement
- **Value Proposition** - Define the primary components of value and their key elements
- **Metrics Reporting** - Recognize the need for installing and reporting performance metrics
- **BOPI Goals** - Recognize the need for cascading performance metrics
- **Underpinning Economics** - Describe the relationship between quality and cost
- **Third Generation** - Differentiate between the first, second and third generations of Six Sigma
- **Success Factors** - Identify the primary success factors related to a Six Sigma deployment

[Knowledge Assessment – Business Principles](#)

M03 Process Management | Duration – 11.7 hrs.

- **Performance Yield** - Explain why final yield is often higher than first-time yield
- **Hidden Processes** - Describe the non-value added component of a process
- **Measurement Power** - Describe the role of measurement in an improvement initiative
- **Defect Opportunity** - Understand the nature of a defect opportunity and its role in metrics reporting
- **Process Models** - Define the key features of a Six Sigma performance model
- **Process Capability** - Identify the primary indices of process capability
- **Design Complexity** - Describe the impact of complexity on product and service quality

- **Establishing Baselines** - Explain why performance baselines are essential to realizing improvement
- **Performance Benchmarks** - Explain how a benchmarking chart can be used to assess quality performance
- **Product Reliability** - Explain how process capability can impact product reliability

[Knowledge Assessment – Process Management](#)

M04 Installation Guidelines | Duration - 5.9 hrs.

- **Deployment Planning** - Understand the elements of Deployment Planning
- **Deployment Timeline** - Understand the elements of a Deployment Timeline
- **CXO Role** - Receive insight on how key decisions are addressed
- **Champion Role** - Define the operational role of a Six Sigma Champion and highlight key attributes
- **Black Belt Role** - Define the operational role of a Six Sigma Black Belt and highlight key attributes
- **Green Belt Role** - Define the operational role of a Six Sigma Green Belt and highlight key attributes
- **White Belt Role** - Define the operational role of a Six Sigma White Belt and highlight key attributes
- **Application Projects** - Describe the purpose of Six Sigma Application Projects and how such projects are executed
- **DFSS Principles** - See how product design can affect yield and performance
- **PFSS Principles** - Have an understanding of the Process for Six Sigma Criteria
- **MFSS Principles** - Understand How Managing for Six Sigma works

[Knowledge Assessment – Installation Guidelines](#)

M05 Application Projects | Duration - 5.4 hrs.

- **Project Description** - Understand how to fully define a Six Sigma application project
- **Project Overview** - Provide an overview of the key elements that characterizes an application project
- **Project Guidelines** - Explain how to establish project selection guidelines
- **Project Scope** - Explain how to properly scope an application project
- **Project Leadership** - Recognize the actions that must occur to ensure successful project leadership
- **Project Teams** - Form a project team that is capable of supporting Six Sigma applications
- **Project Financials** - Understand the role of project financials in supporting deployment success
- **Project Management** - Explain how application projects are best managed to achieve maximum results
- **Project Payback** - Understand the driving need for establishing project paybacks
- **Project Milestones** - Identify the primary milestones associated with a successful Six Sigma deployment
- **Project Charters** - Understand the role of project charters and how they are used to guide implementation

[Knowledge Assessment – Application Projects](#)

4.2.2 GENERAL PRACTICES | 52.9 hrs.

M06 Value Focus | Duration – 3.7 hrs.

- **Value Creation** - Define the idea of value and explain how it can be created
 - **Recognize Needs** - Recognize the power of need fulfillment and how it links to value creation
 - **Define Opportunities** - Understand how to define opportunities that lead to the creation of value
 - **Measure Conditions** - Identify and evaluate the conditions that underlies improvement opportunity
 - **Analyze Forces** - Explain how the underlying forces are identified and leveraged to create beneficial change
 - **Improve Settings** - Establish optimal settings for each of the key forces that underpins beneficial change
 - **Control Variations** - Discuss how unwanted variations can mask the pathway to breakthrough
 - **Standardize Factors** - Understand the role and importance of standardized success factors
 - **Integrate Lessons** - Explain how key lessons learned can be merged into a set of best practices
 - **Application Example** - Understand how the breakthrough process can be applied to everyday life
- Knowledge Assessment – Value Focus

M07 Lean Practices | Duration - 3.7 hrs.

- **Lean Thinking** - Comprehend the underlying logic of lean thinking
 - **Constraint Theory** - Explain how constraint theory is related to value creation
 - **Continuous Flow** - Describe the operational ideas that underpins continuous flow
 - **Pull Systems** - Contrast the operation of a push system to that of a pull system
 - **Visual Factory** - Explain the role of a visual factory during improvement efforts
 - **Kanban System** - Describe how a Kanban system can improve process cycle-time
 - **Poka Yoke System** - Understand how Poka Yoke systems can lead to quality improvement
 - **6S System** - Explain how the 6S system can contribute to process efficiency
 - **SMED System** - Define the basic elements of an SMED system
 - **7W Approach** - Describe how the 7W approach can be used to solve problems
 - **6M Approach** - Explain how the 6M approach is used to identify sources of causation
- Knowledge Assessment – Lean Practices

M08 Quality Tools | Duration – 15.2 hrs.

- **Variable Classifications** - Define the various types of variables commonly encountered during quality improvement
- **Measurement Scales** - Describe each of the four primary scales of measure and their relative power
- **Problem Definition** - Characterize the nature of a sound problem statement
- **Focused Brainstorming** - Explain how focused brainstorming is used to facilitate improvement efforts
- **Process Mapping** - Understand how to define the flow of a process and map its operations
- **SIPOC Diagram** - Describe the nature and purpose of an SIPOC diagram
- **Force-Field Analysis** - Utilize force field analysis to solve problems

- **Matrix Analysis** - Understand how matrices are created and used to facilitate problem solving
 - **C&E Analysis** - Explain how C&E matrices can be used to solve quality problems
 - **Failure Mode Analysis** - Understand how FMEA is used to realize process and design improvements
 - **Performance Sampling** - Explain how to design and implement a sampling plan
 - **Check Sheets** - Understand how check sheets can be used for purposes of data collection
 - **Analytical Charts** - Identify the general range of analytical charts that can be used to assess performance
 - **Pareto Charts** - Explain how Pareto charts can be used to isolate improvement leverage
 - **Run Charts** - Utilize run charts to assess and characterize time-based process data
 - **Multi-Vari Charts** - Define the major families of variation and how they can be graphed
 - **Correlation Charts** - Utilize a correlation chart to illustrate the association between two variables
 - **Performance Histograms** - Construct and interpret a histogram and describe several purposes
 - **Basic Probability** - Understand basic probability theory and how it relates to process improvement
 - **Pre-Control Charts** - Describe the fundamental rules that guide the operation of a standard pre-control plan
 - **Control Charts** - Explain the purpose of statistical process control charts and the logic of their operation
 - **Score Cards** - Understand the purpose of Six Sigma score cards and how they are deployed
 - **Search Patterns** - Explain how the use of designed experiments can facilitate problem solving
 - **Concept Integration** - Understand how to sequence a given selection of quality tools to better solve problems
 - **Quality Simulation** - Employ the related quality tools to analyze data generated by the process simulator
- Knowledge Assessment – Quality Tools

M09 Basic Statistics | Duration - 11.1 hrs.

- **Performance Variables** - Identify and describe the types of variables typically encountered in field work
- **Statistical Notation** - Recognize and interpret the conventional forms of statistical notation
- **Performance Variation** - Explain the basic nature of variation and how it can adversely impact quality
- **Normal Distribution** - Describe the features and properties that are characteristic of a normal distribution
- **Distribution Analysis** - Explain how to test the assumption that a set of data is normally distributed
- **Location Indices** - Identify, compute, and interpret the mean, median, and mode
- **Dispersion Indices** - Identify, compute, and interpret the range, variance, and standard deviation
- **Quadratic Deviations** - Understand the nature of a quadratic deviation and its basic purpose
- **Variation Coefficient** - Compute and interpret the coefficient of variation
- **Deviation Freedom** - Explain the concept of degrees-of-freedom and how it is used in statistical work
- **Standard Transform** - Describe how to transform a set of raw data into standard normal deviates
- **Standard Z-Probability** - Describe how to convert a standard normal deviate into its corresponding probability

- **Central Limit** - Understand that the distribution of sampling averages follows a normal distribution
 - **Standard Error** - Recognize that the dispersion of sampling averages is described by the standard error
 - **Student's Distribution** - Understand that the T distribution applies when sampling is less than infinite
 - **Standard T-Probability** - Describe how to convert a T value into its corresponding probability
 - **Statistics Simulation** - Employ basic statistics to analyze data generated by the process simulator
- [Knowledge Assessment – Basic Statistics](#)

M10 Continuous Capability | Duration - 10.5 hrs.

- **Performance Specifications** - Explain the basic nature and purpose of performance specification limits
 - **Rational Subgrouping** - Explain how to form rational subgroups and describe their purpose in Six Sigma work
 - **Capability Study** - Understand the concept of process capability and how it applies to products and services
 - **Instantaneous Capability** - Understand the concept of instantaneous capability in relation to Six Sigma work
 - **Longitudinal Capability** - Understand the concept of longitudinal capability in relation to Six Sigma work.
 - **Cp Index** - Compute and interpret Cp
 - **Cpk Index** - Compute and interpret Cpk
 - **Pp Index** - Compute and interpret Pp
 - **Ppk Index** - Compute and interpret Ppk
 - **Process Shifting** - Understand the impact of process centering error on short-term capability
 - **Process Qualification** - Determine the required level of short-term capability necessary to qualify a process
 - **ConcaP Simulation** - Apply continuous indices of capability to the process simulator
- [Knowledge Assessment – Continuous Capability](#)

M11 Discrete Capability | Duration - 6.7 hrs.

- **Defect Metrics** - Identify and describe the defect metrics commonly used in Six Sigma work
 - **Defect Opportunities** - Understand the nature and purpose of defect opportunities in terms of quality reporting
 - **Binomial Distribution** - Describe the features and properties that are characteristic of a binomial distribution
 - **Poisson Distribution** - Describe the features and properties that are characteristic of the Poisson distribution
 - **Throughput Yield** - Compute and interpret through put yield in the context of Six Sigma work
 - **Rolled Yield** - Compute and interpret rolled-through put yield in the context of Six Sigma work
 - **Metrics Conversion** - Convert yield and defect metrics to the sigma scale of measure
 - **DiscaP Simulation** - Apply discrete indices of capability to the process simulator
- [Knowledge Assessment – Discrete Capability](#)

M12 Hypothesis Testing | Duration - 8.1 hrs.

- **Statistical Inferences** - Explain the concept of a statistical inference and its primary benefits
- **Statistical Questions** - Explain the nature and purpose of a statistical question
- **Statistical Problems** - Understand why practical problems must be translated into statistical problems
- **Null Hypotheses** - Define the nature and role of null hypotheses when making process improvements

- **Alternate Hypotheses** - Define the nature and role of alternate hypotheses when making process improvements
 - **Statistical Significance** - Explain the concept of statistical significance versus practical significance
 - **Alpha Risk** - Explain the concept of alpha risk in terms of the alternate hypothesis
 - **Beta Risk** - Define the meaning of beta risk and how it relates to test sensitivity
 - **Criterion Differences** - Explain the role of a criterion difference when testing hypotheses
 - **Decision Scenarios** - Develop a scenario that exemplifies the use of hypothesis testing
 - **Sample Size** - Define the statistical elements that must be considered when computing sample size
- [Knowledge Assessment – Hypothesis Testing](#)

4.2.1 TECHNICAL PRACTICES | 74.8 hrs.

M13 Confidence Intervals | Duration – 4.8 hrs.

- **Mean Distribution** - Comprehend and characterize the distribution of sampling averages
 - **Mean Interval** - Compute and interpret the confidence interval of a mean
 - **Variance Distribution** - Comprehend and characterize the distribution of sampling variances
 - **Variance Interval** - Compute and interpret the confidence interval of a variance
 - **Proportion Distribution** - Comprehend and characterize the distribution of sampling proportions
 - **Proportion Interval** - Compute and interpret the confidence interval of a proportion
 - **Frequency Interval** - Describe how frequency of defects is related to confidence intervals
- [Knowledge Assessment – Confidence Intervals](#)

M14 Control Methods | Duration – 6.4 hrs.

- **Statistical Control** - Explain the meaning of statistical control in terms of random variation
- **Control Logic** - Explain the logic that underpins the application of a control chart
- **Control Limits** - Reconcile the difference between specification limits and control limits
- **Chart Selection** - Explain how to rationally select a control chart
- **Chart Interpretation** - Interpret an SPC chart in terms of its control limits
- **Zone Testing** - Explain the concept of zone tests and their application to SPC charts
- **Variables Chart** - Characterize the role and purpose of a variables chart
- **Attribute Chart** - Characterize the role and purpose of an attribute chart
- **Individuals Chart** - Construct and interpret an individuals control chart
- **IMR Chart** - Construct and interpret an individual moving range control chart
- **Xbar Chart** - Construct and interpret a control chart for subgroup averages
- **Range Chart** - Construct and interpret a control chart for subgroup ranges
- **Proportion Chart** - Construct and interpret a control chart for sampling proportions
- **Defect Chart** - Construct and interpret a control chart for defect occurrences

- **Other Charts** - Describe several other types of control charts used in Six Sigma work
 - **Capability Studies** - Explain the role of capability studies when making process improvements
 - **Control Simulation** - Apply common SPC methods to the process simulator
- [Knowledge Assessment – Control Methods](#)

M15 Parametric Methods | Duration – 10.3 hrs.

- **Mean Differences** - Determine if two means are statistically different from each other
 - **Variance Differences** - Determine if two variances are statistically different from each other
 - **Variation Total** - Compute and interpret the total sums-of-squares
 - **Variation Within** - Compute and interpret the within-group sums-of-squares
 - **Variation Between** - Compute and interpret the between-group sums-of-squares
 - **Variation Analysis** - Explain how the analysis of variances can reveal mean differences
 - **One-Way ANOVA** - Construct and interpret a one-way analysis-of-variance table
 - **Two-Way ANOVA** - Construct and interpret a two-way analysis-of-variance table
 - **N-Way ANOVA** - Construct and interpret an N-way analysis-of-variance table
 - **ANOVA Graphs** - Construct and interpret a main effects plot as well as an interaction plot
 - **Linear Regression** - Conduct a linear regression and construct an appropriate model
 - **Multiple Regression** - Conduct a multiple regression and construct an appropriate model
 - **Residual Analysis** - Compute and analyze the residuals resulting from a simple regression
 - **Parametric Simulation** - Apply general regression methods to the process simulator
- [Knowledge Assessment – Parametric Methods](#)

M16 Chi-Square Methods | Duration – 5.3 hrs.

- **Statistical Definition** - Describe how to translate a practical problem into a statistical problem
 - **Model Fitting** - Explain what is meant by the term "Model Fitting" and discuss its practical role in Six Sigma work
 - **Testing Independence** - Explain how a test of independence can be related to the idea of correlation
 - **Contingency Coefficients** - Understand how a contingency coefficient relates to a cross-tabulation table
 - **Yates Correction** - Describe the role of Yates correction in terms of the chi-square statistic
 - **Testing Proportions** - Test the significance of two proportions using the Chi-square statistic
- [Knowledge Assessment – Chi Square Methods](#)

M17 Survey Methods | Duration – 4.7 hrs.

- **Research Design** - Explain how the idea of research design fit with the idea of problem Solving
- **Information Sources** - Explain how the idea of research design fit with the idea of problem Solving
- **Questionnaire Construction** - Describe the role of survey demographics when analyzing closed-form survey data
- **Formulating Questions** - Identify several things that should be avoided when developing survey questions

- **Question Quality** - Explain what is meant by the term "question quality" and how this idea relates to data analysis
 - **Sampling Plans** - Describe several different types of sampling plans commonly used in survey research
 - **Data Analysis** - Explain how categorical survey data can be analyzed to establish strength of association
- [Knowledge Assessment – Survey Methods](#)

M18 Nonparametric Methods | Duration – 3.4 hrs.

- **Nonparametric Concepts** - Explain the difference between parametric and nonparametric methods
 - **Median Test** - Execute a median test on two groups and then determine if the difference is statistically significant
 - **Runs Test** - Conduct a runs test to determine if a time series pattern is random
 - **Other Tests** - Identify two nonparametric methods other than a median or runs test
- [Knowledge Assessment – Nonparametric Methods](#)

M19 Experimental Methods | Duration – 12.6 hrs.

- **Design Principles** - Understand the principles of experiment design and analysis
 - **Design Models** - Describe the various types of designed experiments and their applications
 - **Experimental Strategies** - Outline a strategy for designing and analyzing a statistical experiment
 - **Experimental Effects** - Define the various types of experimental effects and how they impact decisions
 - **One-Factor Two Level** - Configure and analyze a one-factor two-level statistically based experiment
 - **One-Factor Multi Level** - Configure and analyze a one-factor multi-level statistically based experiment
 - **Full Factorials** - Understand the nature and underlying logic of full factorial experiments
 - **Two-Factor Two Levels** - Configure and analyze a two-factor two-level statistically based experiment
 - **Two-Factor Multi Level** - Configure and analyze a two-factor multi-level statistically based experiment
 - **Three-Factor Two Level** - Configure and analyze a three-factor two-level statistically based experiment
 - **Planning Experiments** - Understand the planning and implementation considerations related to statistical experiments
 - **Fractional Factorials** - Understand the nature and underlying logic of fractional factorial experiments
 - **Four-Factor Half-Fraction** - Configure and analyze a four-factor half-fraction statistically based experiment
 - **Five-Factor Half-Fraction** - Configure and analyze a five-factor half-fraction statistically based experiment
 - **Screening Designs** - Understand how to select, implement, and analyze a screening experiment
 - **Robust Designs** - Explain the purpose of robust design and define several practical usages
 - **Experiment Simulation** - Describe how a DOE can be employed when measurement data is not available
- [Knowledge Assessment – Experimental Methods](#)

M20 Design for Six Sigma (DFSS) Methods | Duration – 6.0 hrs.

- **QFD Method** - Explain how quality function deployment can be used to help identify design specifications
- **Capability Flow-Down** - Describe how a capability flow-down can be used as a risk allocation and abatement tool
- **Capability Flow-Up** - Describe how a capability flow-up can be used to analyze the reproducibility of a design

- **Tolerance Analysis** - Demonstrate how the RSS method can be used to analyze assembly tolerances
- **Monte-Carlo Simulation** - Explain how Monte-Carlo simulation can be used during the process of design

Knowledge Assessment – DFSS Methods

M21 Measurement Analysis | Duration – 3.3 hrs.

- **Measurement Uncertainty** - Understand the concept of measurement uncertainty
- **Measurement Components** - Describe the components of measurement error and their consequential impact
- **Measurement Studies** - Explain how a measurement systems analysis is designed and conducted

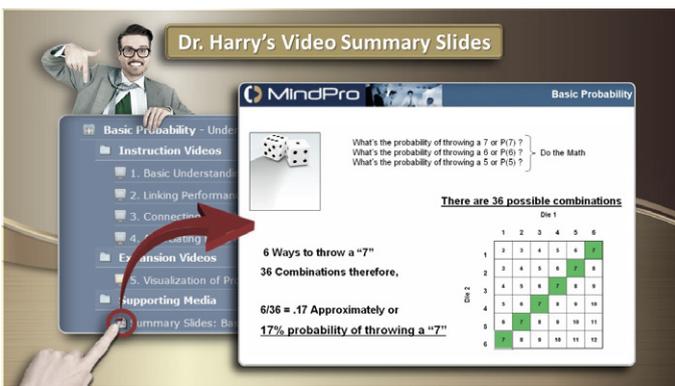
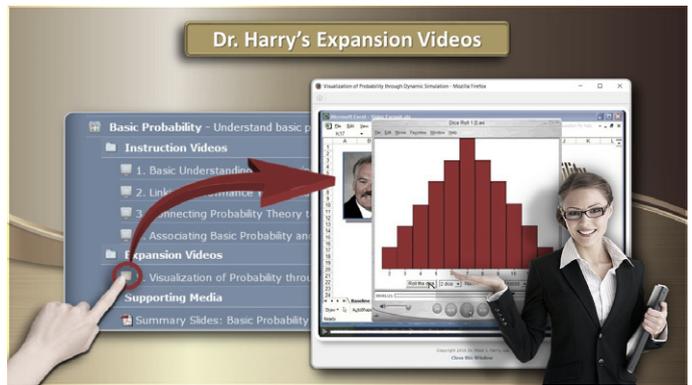
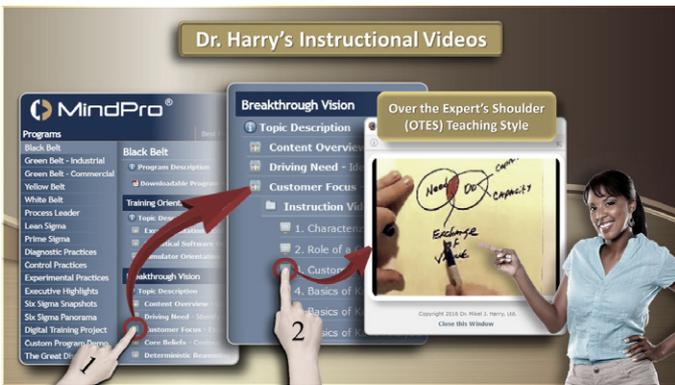
Knowledge Assessment – Measurement Analysis

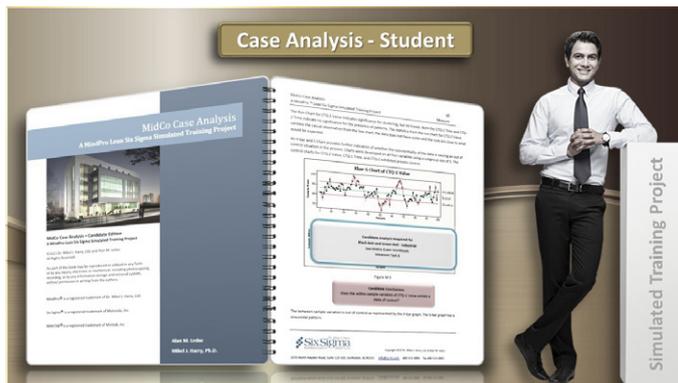
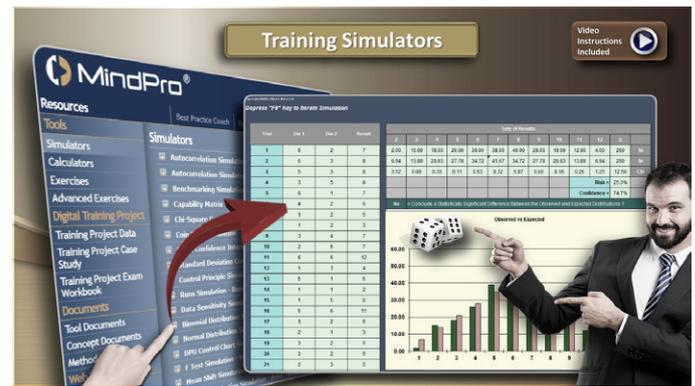
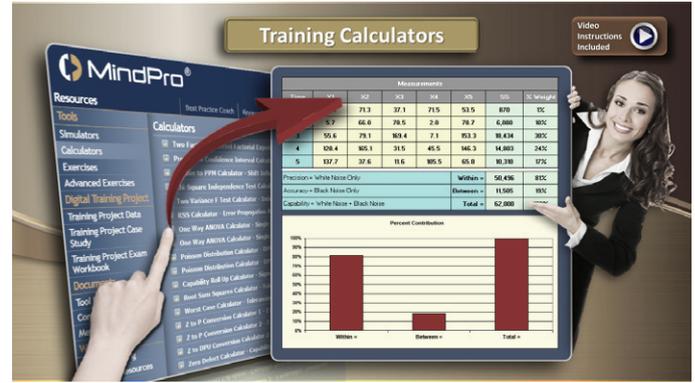
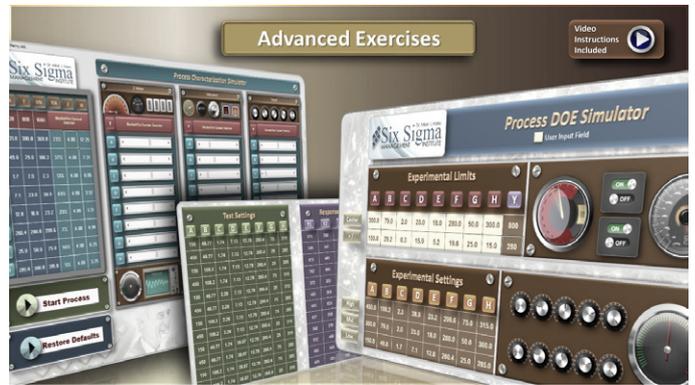
Digital Training Project | Duration – 11.9 hrs.

- **Project Introduction** - Understand the steps to deploy a Training Project
- **Recognize Phase** - Understand the tools used during the Recognize Phase
- **Define Phase** - Execute the steps needed during the Define Phase
- **Measure Phase** - Understand the tools needed during the Measure Phase
- **Analyze Phase** - Become familiar with the tools used during the Analyze Phase
- **Improve Phase** - Become familiar with the tools needed for improvement
- **Control Phase** - Recognize the usage of tools needed for Process Control
- **Survey Analysis** - Execute the techniques to analyze Survey data
- **Risk Analysis** - Understand the tools needed for a Risk Analysis

Digital Training Project Assessment

4.3 MindPro Ver. 4.0 Features





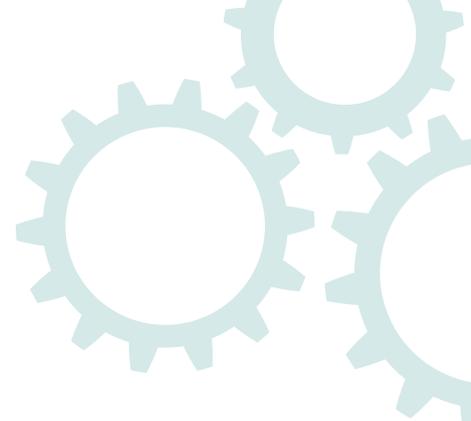
4.4 Classroom Coverage | 90 hrs.

In-class sessions are generally conducted over a scattered schedule as review sessions for participants to clarify doubts on the programme first hand with an SSMI Certified Instructor. In-class sessions will also cover additional topics, on request of the audience and those are determined as necessary for the specified industry. The additional topics that will be covered during the sessions, but not limited to will include the following:

- o Lean Six Sigma Historical Brief
- o Value Stream Mapping
- o Introduction to iGrafx & Excel macros
- o Introduction to ISO 18404: 2015
- o Introduction to ISO 13053-1: 2015 & ISO 13053:2: 2015
- o Ideation Tools
- o Hoshin Kanri / Strategic planning
- o Additional topics (based on time availability):
 - Introduction to Mixed model VSM
 - Warranty analysis
 - Analytical Hierarchical Process (AHP)
 - Metrics conversion
 - QNS Reporting
 - Lean Six Sigma deployment planning
 - Advance 6S Workplace organization method
 - Total Productive Maintenance
 - Forecasting methods – Qualitative & Quantitative



5. Lean Six Sigma Black Belt Blended Programme Schedule



 Lean Six Sigma Black Belt Programme (Blended)		Training Week																		Hrs.	
Module	Title	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Global Concepts	Training Orientation	1.0																			1.0
	1 Breakthrough Vision	8.6																			8.6
	2 Business Principles	5.4																			5.4
	3 Process Management		9.7																		9.7
	4 Installation Guidelines		3.9																		3.9
General Practices	5 Application Projects		3.4																		3.4
	6 Value Focus				1.7																1.7
	7 Lean Practices				1.7																1.7
	8 Quality Tools					6.6	6.6														13.2
	9 Basic Statistics								9.1												9.1
Technical Practices	10 Continuous Capability								8.5												8.5
	11 Discrete Capability									4.7											4.7
	12 Hypothesis Testing											6.1									6.1
	13 Confidence Intervals												2.8								2.8
	14 Control Methods												4.4								4.4
	15 Parametric Methods													8.3							8.3
	16 Chi-Square methods														3.3						3.3
	17 Survey methods															2.7					2.7
	18 Nonparametric methods															1.4					1.4
	19 Experimental Methods																5.3	5.3			10.6
	20 DFSS Methods																		4.0		4.0
21 Measurement Analysis																		1.3		1.3	
	Training Project																		3.9	3.9	
	Certification Exams	4.0	6.0		4.0		6.0	4.0	4.0	4.0		4.0	4.0	4.0	6.0		6.0	8.0		64.0	
	In-class Hours (Optional)			27.0							27.0								36.0	90.0	
	Online Study + Exam Hours	19.0	23.0		7.4	6.6	12.6	13.1	12.5	8.7		10.1	11.2	12.3	13.4	5.3	11.3	17.2		183.7	
	Additional Referencing Hours	5.0	5.6		1.1	2.2	2.2	3.0	2.8	1.6		2.0	3.5	2.8	2.4	1.7	1.7	3.1		40.7	
	Total Hours	24.0	28.6	27.0	8.5	8.8	14.8	16.1	15.3	10.3	27.0	12.1	14.7	15.1	15.8	7.0	13.0	20.3	36.0	314.4	

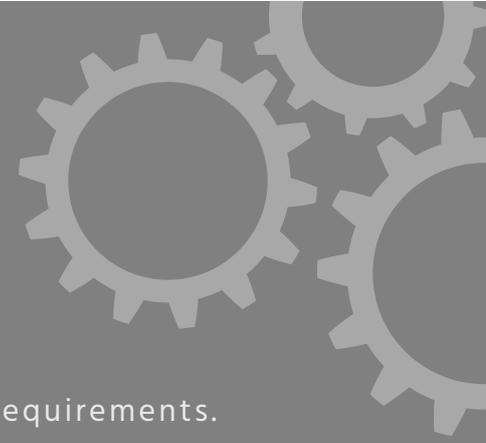
6. Material Provided

- Twelve months' unlimited access to Dr Mikel J Harry SSMI® Black Belt Body of Knowledge consisting of 1500+ videos personally designed and delivered by Dr. Mikel J Harry
- Twelve months' access to SSMI Black Belt® Examination portal
- Free readiness assessment test
- Additional training on Minitab, JMP and Excel statistical software
- 647 training slides
- 55 Concept documents
- 29 Method documents
- 26 Training Simulators
- 105 Tool documents
- 17 Training Calculators
- 13 Training Exercises
- Keywords search & Best practice coach
- 27 vital web links
- Ability to purchase SigmaXL and Minitab at discounted rate
- Free Minitab 18 Trial for 30 days
- Project mentoring sessions (on request)
- Training Project - Case Analysis Guide (195 pages)
- Training Project - JMP and Minitab 17 Exam Workbook Guides
- Access to free Webinars conducted by SSMI
- Programme Qualification Letter issued by Dr Mikel J Harry SSMI, USA (delivered electronically upon successful completion of all 21 module exams)
- Programme Proficiency Letter and Black Belt Programme Completion Certificate issued by Dr Mikel J Harry SSMI, USA (delivered electronically upon completion of Digital Training Project Assessment)
- You can also order printed versions of the certificate at an additional fee of \$150 per copy

Dr Mikel J Harry SSMI
Lean Six Sigma
Black Belt certificate



7. Programme Completion Requirements



To obtain your SSMI® Lean Six Sigma Black Belt (CLSSBB) credential, you are required to complete the following two requirements.

1. Successful Completion of online Knowledge Assessments at the end of each module

- The SSMI® Lean Six Sigma Black Belt Certification (CLSSBB) programme consists of 21 modules.
- Each module comprises of an open book Knowledge Assessment that needs to be completed at the end of each module.
- Participants are provided with three free attempts to complete each knowledge assessment and there's no time limit or an order to complete each assessment.
- The pass mark for each knowledge assessment is 70% or above.
- You can take up the assessments anytime of the day or year based on your convenience being anywhere in the world.
- All knowledge assessments are conducted using a dedicated SSMI® testing website www.mindprotesting.com

2. Completion of Digital Training Project Assessment OR / And Submission of Live project based on Project Story Board (available on request)

- Participants have the option to execute a digital training project contained within MindPro®, post formal training and complete the training project assessment.
- The Digital Training Project assessment comprises of 232 questions and the pass mark is 70% or above.
- The simulated project provides each candidate with the opportunity to exercise all the key tools and methods, yet done so in the context of a life-like DMAIC project. In this way, candidates are able to practice their new skills in a controlled environment and then be evaluated on their efforts prior to being made responsible for the execution of a live on-the-job value-centric project.
- Participants are provided three free attempts to complete the Project assessment and there's no time limit for the assessment.
- You can take your exam anytime of the day or year based on your convenience from anywhere in the world.
- Digital project assessment is conducted using a dedicated SSMI® testing website www.mindprotesting.com
- For participants opting to take up a real-life project, along with the Digital Training Project Assessment, a Project story board will be provided for project submission. The project will then be evaluated by a SSMI Executive Master Black Belt based on SSMI® Lean Six Sigma Black Belt Certification Project Evaluation criteria.

8. Programme Duration



The Black Belt programme of study consists of approximately 160+ hours of training videos and content that can be completed within two to four months of online or blended study. However, participants can take up to 12 months to complete their programme.

9. Enrolment Requirements

- Basic arithmetic skills are essential (i.e. Ability to perform addition, subtraction, multiplication, division and work with fractions and decimals). Basic computer skills are also essential. In this context, a rudimentary understanding of Excel is highly recommended, but not essential. Furthermore, a most rudimentary understanding of algebra is a plus, but not required.
- The successful completion of any undergraduate degree program or professional qualification is likely to support the academic demands of this program.
- Previous knowledge and understanding on Lean Six Sigma application can be helpful.
- You may try taking up our free readiness assessment available at www.mindprotesting.com if you feel necessary (this is not mandatory)
- We strongly recommend our programme to already certified Black Belts to undertake our programme to calibrate themselves against the original Black Belt programme content that was used to generate individuals in top corporates making billions of dollar savings.

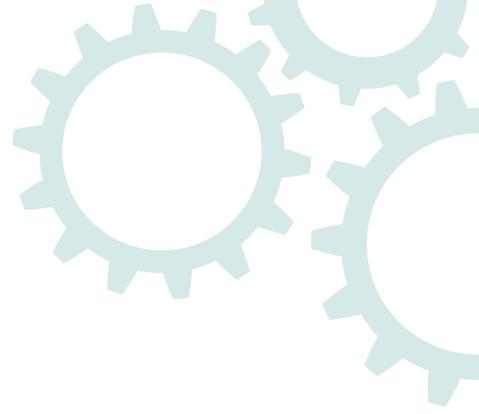
10. Programme Registration

If you wish to register for the programme, please forward the below details to [the respective SSMI regional partner](#)

- a) Programme Name
- b) Mode of Delivery – 100% Online or Blended
- c) Full Name – as it should appear on the final certificate
- d) Expected start date of the programme
- e) Nationality
- f) Residential address
- g) Billing address (if different from residential address)
- h) Valid e-mail address – All your correspondence will be sent to this address
- i) Current Organization
- j) Designation
- k) Contact numbers
- l) LinkedIn Profile address (if available)



11. Payment Options



- **Credit or Debit Card /AMEX (Preferred)**

Once you send us the registration details, an automated invoice and a payment link is generated for you to perform the required payment within 3 working days. You can use the payment link to make your payment using any type of credit card or debit card. Once the payment is received, you will be sent two unique passwords to access, MindPro learning management system and MindPro testing websites.

- **Bank Transfers**

If you wish to make your payment via bank transfers, please use below details. Please note all transfer charges shall be borne by the candidate.

Account Holder Name	: Dr. Mikel J Harry Six Sigma Management Institute, Inc.
Business Registration Number	: 1074613-4
Registered Office Address	: 3370 N Hayden Road, Suite 123-320, Scottsdale, Arizona 85251, USA
Contact Number	: 01 (480) 515-0890 / 01 (949) 842-7848 - Sandra Harry
Contact Email	: sandra.harry@ss-mi.com
Bank Name	: Wells Fargo
Bank Branch	: Scottsdale
Branch Code	: 122105278
Bank Address	: 420 Montgomery, San Francisco, CA 94105
Country Of Bank	: United States of America
Account Number	: 663 277 3468
Currency	: USD
SWIFT Number (Mandatory For Foreign Vendors)	: BICWFBIUS6S (Routing number: 122105278)

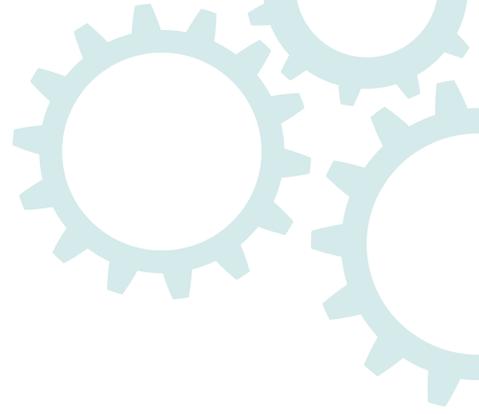


We can't improve what we don't measure. We don't measure what we don't value.

Dr. Mikel J. Harry



12. Testimonials From Asia



Suneth Jaywardena, CLSSBB
Head of Quality-
Aegis Services
Sri Lanka (pvt) Ltd

"And what sets this program ahead of the others is, it gives the opportunity to learn directly from the people who started it. And this particular program is very very cutting-edge."

"Joining SSMI ASIA was a tremendous boost for my overall understanding and my mind-set, which really enabled me in terms of improving and innovating the overall performance of my region."

Dinara Wagawatte, CLSBB
Senior Manager -
Retail Operations,
Dialog AXIATA PLC



Madura Jayathilake, CLSSBB
Senior Manager
- Operations,
Star Garments

"The SIX SIGMA BLACK BELT programme conducted by the SIX SIGMA Management Institute is formulated in such a way that it covers the DMAIC methodology in a greater depth. And it will take you through a standard transformation. I am proud to say that I have been able to reap the benefits out of this programme."

"Why I selected Dr Mikel J Harry SSMI LEAN SIX SIGMA course is, it is well structured, simple and very practical."

Tharindu Hasantha, CLSSBB
Plant Champion -
Mas LEAN Enterprises,
MAS FABRICS- Methliya,
MAS HOLDINGS



Chamara Jayan, CLSSBB
Manager Process Excellence
HConnect -
Hirdaramani Group

"It is essential that you make the right choice when selecting your institution, especially, when there are so many organisations offering poorly designed programmes with fake credentials that do not assist you in becoming a competent resource on the subject. SSMIA is the only avenue in Asia to gain access to original learning content and obtain credential directly from the Principal architect of Six Sigma, Prof. Harry."

"I also believe that SSMI BLACK BELT programme is one skill that any company or professional must possess to be competitive in the present dynamic & highly competitive marketplace."

Niroshan Ashokumar, CLSSBB
Assistant Manager -
Management Accountant,
Hemas Hospitals



Nisala Hewage, CLSSBB
Head Partner
Engagement and
Business Analytics,
Dialog Axiata PLC

"I highly recommend this learning opportunity to all business leaders, as this programme develops individuals to drive business improvement projects to reduce costs and increase customer satisfaction."



Nagarathna sai madhukar, CLSSBB
Senior Business Analyst,
Tata Consultancy Services
INDIA

“Effectively developed LEAN SIX SIGMA training modules along with excellent teaching by Dr. Mikel J Harry facilitated my learning/ understanding of LEAN SIS SIGMA concepts efficiently”

“SSMI Black Belt training programme utilizes a very comprehensive curriculum covering core concepts required to develop an effective Lean Six Sigma professional and it uses a frontier learning management system (Mindpro®) for its delivery. Learning materials were easy to comprehend & learner friendly. The delivery methods enable a faster rate of knowledge capture and use creative learning tools developed personally by Dr Mikel J Harry.”

Felix Veroya, CLSSBB
Managing Director
iExcel Review and
Training Center/ Author
PHILIPPINES



Ruwan Samantha, CLSSBB
General Manager Industrial
Engineering, Process
Improvement & Operations
Brandix Apparel Solutions Ltd

“Joining SSMI ASIA was a massive experience to boost my breakthrough thinking in organizational transformation journey in Process Excellence. I would strongly recommend this Lean Six Sigma Black Belt programme by SSMI ASIA to anyone who wishes to explore & acquire the knowledge & experience in Lean Six Sigma.”

“Why I selected SSMI was because the founder of SIX SIGMA DR. Mikel J Harry makes that course & organization. Finally I would like to invite all of you in executive & management positions, to come join with SSMI and learn, because today you can't survive without operational excellence practices.”

Eroshan Nilanga, CLSSBB
LEAN Manager,
Crystal Martin



Rohana Abeywansha, CLSBB
Assistant Manager
- Business Excellence,
MIDASSAFETY

“I am really proud of joining as a student of SSMI BLACK BELT training and the first BLACK BELT in the MIDAS SL region. It will be a remarkable change and success factor in the glove-manufacturing field with this SIX SIGMA BLACK BELT...”

“Dr. Mikel J Harry’s Six Sigma Principle is one of the best in the world to expertize breakthrough principles in the market. SSMI is the only institute, which provides you the original content directly by Dr. Mikel J Harry. I definitely recommend SSMI, as a learning partner for anybody.”

Dinesh Kumar, CLSSBB
Asst. Operations Manager
Sri Lankan
Catering (Pvt) Ltd



Pahan Warnakulasooriya, CLSSBB
Manager Process
Development & Maintenance,
Nienhuis Asia (Pvt) Ltd

“When I was searching for a learning programme which could improve my organizational goals & career I found that the best is Lean Six Sigma. No doubt that I took the right decision to follow this programme & to be certified as a Lean Six Sigma Black Belt. I can recommend this programme to any professional who needs to upraise their careers in massive scale.”

“This experience will be very helpful and will share this knowledge during the white belt and yellow belt trainings which I will be conducting. I would like to conclude by saying “WOW!””

Ranmore VanDort, CLSSBB
Lean Transformation
Manager
Nations Trust Bank



CONTACT OUR
REPRESENTATIVE
IN YOUR REGION FOR
MORE INFORMATION

Website:

www.ssmi-asia.com

 : [Dr. Mikel J Harry Six Sigma Management Institute Asia](#)

 : [leansixsigmaasia](#)

 : [leansixsigmaasia](#)

 : [@sixsigmaasia](#)

