

Six Sigma in Service Organizations

A tailored roadmap designed by KPA Ltd.

Background on Six Sigma

What is Six Sigma? Six Sigma provides organizations with a series of interventions and statistical tools that lead to breakthrough profitability and quantum gains in quality. Sigma is a letter in the Greek alphabet used to denote the standard deviation of a process (standard deviation measures the variation or amount of spread about the process mean).

A process with "Six Sigma" capability means having twelve standard deviations between the upper and lower specification limits. Essentially, process variation is reduced so that no more than 3.4 parts per million fall outside of the specification limits. The higher the sigma number, the better.

Six Sigma also refers to a philosophy, goal and or methodology utilized to drive out waste and improve the quality, cost and time performance of any business. On average, one Six Sigma project will save an organization between \$150,000 and \$200,000. Black Belts with 100% of their time allocated to projects can execute five or six projects during a 12 month period, potentially adding over \$1 Million to annual profits

Six Sigma implementation is through projects. Projects can be of different size and duration. We define a project as a structured and systematic approach to achieving Six Sigma levels of improvement. Six Sigma levels of quality are achieved using the **Measure Analyze Improve Control** Problem-Solving and Improvement methodology. Crucial to any successful Six Sigma implementation are its Champions. These senior management personnel are charged with driving and supporting Six Sigma to achieve business and operational objectives by driving out waste and increasing customer satisfaction.

An employee of an organization that participates in Six Sigma teams is referred to as a **Green Belt**. A Green Belt will have sufficient knowledge to support and champion Six Sigma implementation and to participate in Six Sigma projects as team leader or team member. A managerial level or technical specialist assigned full responsibility to implement Six Sigma throughout the business unit is referred to as a **Black Belt**. This term as well as Green Belts were coined by Motorola. A Black Belt is a Six Sigma implementation expert. Each project is expected to have at least one Black Belt as a team member.

Background on KPA and ISRU

KPA Ltd. was founded in 1990 to improve the competitive position of its customers by promoting the implementation of advanced management methodologies. The company consultants are currently involved in a wide range of organizations from the industrial, service and public sectors in Israel and Europe.

KPA provides expertise in practical tools, techniques and methodologies for attaining and maintaining competitive position and quality leadership. These are tailored to meet specific customer needs while delivering world-class services and include: Strategic Planning, Six Sigma and Six Sigma initiatives, Change Management Methodologies, Enterprise Knowledge Development, Business Process Surveys, Customer Satisfaction Surveys, Team Facilitation, Organizational Development, Performance Appraisal and Compensation Systems, Statistical Analysis, Software Quality Engineering, Management Dashboards, Design for Six Sigma and Robust Design Methodologies.

The Six Sigma Roadmap for Service Organizations

KPA's Six Sigma roadmap for service organizations consists of a six months intensive program combining training and implementation projects. The training consists of 16 full time equivalent training days and projects span six months. Following completion of the projects and the training program the project leaders get certified as Black Belts, the team members as Green Belts.

Projects are conducted in small teams lead by the candidate Black Belts. A **KPA** Black Belt mentors the various projects and provides the necessary training. In order to graduate as a certified Black Belts, candidates must demonstrate results. As part of the Six Sigma Black Belt training, **KPA** will review, critique, and advise the Black Belt candidates.

In parallel to launching and managing Six Sigma improvement initiatives, **KPA** is typically designing and implementing organizational measurement systems including **Key Process Indicators** and **Balanced Scorecards**.

For a detailed description of how to set up such systems see two recent books co-authored by Ron Kenett: *Process Improvement and CMMI for Systems and Software*, Taylor and Francis Auerbach publications, 2010 and *Operational Risk Management: A Practical Approach to Intelligent Data Analysis*, John Wiley and Sons, 2010

The **KPA** Six Sigma roadmap covers the following topics in a mix of frontal and hands on training and implementation steps:

Month 1, DEFINE:

- Six Sigma basics
- Elicitation of potential Six Sigma projects
- Screening of Six Sigma Projects and Black Belt candidates
- Defining and launching of Six Sigma projects

Month 2, MEASURE:

- Process Baselineing
- VOC & QFD
- 7 Basic Tools Review
- Process Flow Mapping
- Collect & Analyzing Data
- Defect Metrics
- Cycle Time
- Benchmarking

Month 3, ANALYZE:

- Project Reviews
- Analyzing Your Process
- Measurement System Evaluation
- FMEA
- Systems Thinking
- Statistical Thinking
- Control Charts
- FAB-PV
- 10X Metrics/Capability
- Statistical Inference
- Decision & Risk Analysis
- Project Management
- Financial Impact

Month 4, IMPROVE:

- Project Reviews
- Regression Modeling
- Design of Experiments
- Tolerancing
- Variance Components

Month 5, IMPROVE:

- Project Reviews
- Robust Design
- Pugh Concept
- DFA/DFM
- Lean Manufacturing

Month 6, CONTROL:

- Project Reviews
- Evaluation of results
- Lessons learned

A specific roadmap implementation spans six months with two weeks of full time training and one day/week of a combination of training and project team meetings. Typical areas of application in financial organizations are described in the Figure below.

