Six Sigma
Research
Institute

A Proposal For A Standardized Process
To Select, Train, And Certify Six Sigma Black Belts

Executive Summary

In order to implement Six Sigma Quality Goals throughout Motorola by 1992, it will be necessary to identify, select, and train a cadre of broadly-experienced engineers in the statistical tools and methodologies necessary to accomplish this key corporate strategy. The present proposal describes a program for the selection and training of a resulting "Black Belt" who is defined as:

> *"An individual who has developed a synergistic proficiency between his respective technical discipline and the Six Sigma strategies, tactics, and tools. This individual will continually work towards institutionalizing the effective use of these tools throughout the corporation, its customers, and its suppliers"*

A new program, the Motorola Technical Institute (MTI) is suggested as a vehicle for instituting a corporate infrastructure focused on Six Sigma excellence. MTI would closely parallel the successful Motorola Management Institute (MMI) format, but will select personnel with broad technical expertise. Graduates of the MTI program would then be considered as candidates for Black Belt Certification.

A Black Belt candidate is assigned a mentor, usually at the same work-site, who works with both the candidate and the candidate's immediate supervisor to assess skills already present, and to develop an internship plan for acquiring other skills (including "soft skills" such as communication and group dynamics) necessary to produce a fully-trained Black Belt.

When the internship program is completed, the mentor's written evaluation of the candidate is sent to the Black Belt Certification Committee. This committee will review the candidate's progress and will either recommend further training via another internship, or will confer Black Belt status upon the candidate.

Black Belts will serve within their own business units as internal consultants in the application of Six Sigma methods to any and all problems of the business unit for which such skills are applicable. They will provide direct training in statistical methods, statistical consulting services, and leadership in the use of statistics to improve designs, processes, and services.

Motorola Technical Institute
September 3, 1991
M. Harry

1. Description:

The Motorola Technical Institute (MTI) is a leading edge program which closely parallels the successful Motorola Management Institute (MMI) format, except for the fact that the program targets technical ladder personnel and management. MTI is a means to surface, crystallize, and subsequently focus the analytical talent within Motorola Inc. in relation to a cross-funtional application roadmap aimed at the attainment of Six Sigma designs, processes, software, and services.

2. Purpose:

MTI is intended to:

    a. Support the development of a corporate wide hierarchical consulting infrastructure related to the application of six sigma tools, methods, practices, and procedures.

    b. Serve as entry point for the *Six Sigma Black-Belt* certification program.

    c. Provide a cross-sectional forum for the presentation and subsequent discussion of current/future analytical and organizational issues pertaining to such topics as:

- concurrent engineering,
- robust design,
- real-time process control,
- machine characterization,
- process optimization,
- systems analysis,
- software optimization,
- metrology,
- service analysis,
- design simulation.

    d. Provide a platform from which world-class speakers can present their vision of the future in terms of analytical paradigms and the organizational structures required to support such change.

    e. Provide a real-time laboratory experience which models the product design and manufacturing environment via the *Black-Box Simulation System**

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* The Black-Box Simulator System is a software program which can be readily configured to emulate a manufacturing process. The software displays a "control panel" which consists of n number of knobs, dials, and switches, as well as a data display window (for histograms, control charts etc.). The user would employ the simulator to discover how the various six sigma tools are applied under different manufacturing scenarios. The