

6-sigma Black Belt

Upgrade 6-sigma Green Belt to Black Belt



Introduction

The purpose of Six Sigma is to bring about improved business and quality performance and to deliver improved profit by addressing serious business issues that may have existed for a long time. The driving force behind the approach is for organizations to be competitive and to eliminate errors and waste. A number of Six Sigma projects are about the reduction of losses. Some organizations require their staff to engage with Six Sigma and demand that their suppliers do as well. The approach is project based and focuses on strategic business aims. There is little that is new within Six Sigma from the point of view of the tools and techniques utilized. The method uses statistical tools, among others, and therefore deals with uncertain events in order to provide decisions that are based on uncertainty. Consequently, it is considered to be good practice that a Six Sigma general program is synchronized with risk management plans and defect prevention activities

General

The main purpose of a Six Sigma project is to solve a given problem in order to contribute to an organization's business goals. Six Sigma projects should be undertaken only when the solution to a problem is not known. The specific activities of a Six Sigma project can be summarized as

- a) Gather data;
- b) Extract information from the data through analysis;
- c) Design a solution; and
- d) Ensure the desired results are obtained.

Project Work

The Six Sigma improvement methodology should be targeted on financial efficiency but should also take into consideration safety and customer satisfaction.

In all cases, an accounting model should be established, as a first step, so that the financial performance of a process is properly evaluated. Subsequently, both the financial department and operations department can look at one set of data and should be able to forecast similar outcomes.

The performance of the project under investigation should be assessed in terms of effectiveness and adaptability for the customer or the efficiency for the business. This should be reviewed regularly with the sponsor of the project.

And do not forget to get certified you have to do 2 BB project with a minimum annual saving of 50.000 € for a small enterprise a 250.000 € for an large enterprise.

Your Function as Black Belt

The Black Belt is expected to deliver the agreed benefits of a Six Sigma project to the organization. In so doing, the Black Belt will

- a) Work with others to identify and quantify opportunities for improvement,
- b) Organize multidisciplinary teams (process organization), where necessary, and manage improvement projects,
- c) Lead improvement projects or facilitate Green Belt Projects using the DMAIC methodology,

- d) Train, coach and mentor Green Belts on DMAIC methodology and associated process improvement techniques, and
- e) Participate in all gate reviews directly through prepared presentations of the work accomplished to-date with an emphasis on the accomplishments in the phase being reviewed.

Trainings program

Define phase

The outcome of this phase is a project charter that lists what is observed to be wrong. The project charter should state the description of the problem and include data about the size of the problem and its financial impact on profit. The scope of the project, together with the objectives that should be realized at the end of the project, should be clearly defined in both operational (including safety matters if appropriate) and financial terms.

The outputs from the phase, as appropriate, may include the following:

- a) a project charter including risk analysis;
- b) Six Sigma indicators;
- c) SIPOC diagrams;
- d) Flowcharts;
- e) Pareto diagrams;
- f) a list of CTQCs;
- g) Financial result costing (profit estimation); and
- h) Project review.

Measure phase

The purpose of the measure phase is to develop a data collection plan, to collect the data, to evaluate the data, and to create a baseline of recent process performance.

The “measure” phase is the phase where all the data about the variables that are believed to influence the problem should be collected. Before starting to collect data, however, an assessment should be made of the efficacy of the measurement processes that the project will depend on. All measurement systems to be used should be capable of providing data to the required level of accuracy and repeatability. This includes measurement processes that result in discrete “attribute” type data. If there is any doubt about the quality of the data, any statistical analysis that is subsequently undertaken might be invalid.

The outputs from the phase, as appropriate, may include the following:

- a) measurement systems analyses of all measurement processes used in the project, including attribute data agreement where necessary, and for all CTQC measures;
- b) data collection plan;
- c) sample size determination;
- d) DPMO;
- e) Probability distribution tests;
- f) Trend charts;
- g) Control charts;
- h) Histograms;
- i) Capability and/or performance analyses of affected processes; and
- j) Project review.

Analyse phase

The purpose of the analyse phase is to identify the gaps between baseline performance and targets, to understand the root sources of variation, and to prioritize improvement opportunities.

The data obtained during the measure phase above should be analysed in detail, using statistical techniques as appropriate, to identify, prove or verify the significant KPIVs.

As stated above (see 10.1), the findings from the analyse phase might alter the understanding of the problem and lead to a re-definition of the project.

The first three phases should be repeated until the project definition is stable.

The outputs from the phase, as appropriate, should include the following:

- a) Cause and effect diagrams;
- b) Process FMEAs;
- c) FTAs;
- d) 5-Why analyses;
- e) Further MSA;
- f) Sample size determination;
- g) Probability distribution tests;
- h) Hypothesis tests;
- i) ANOVA;
- j) Regression and correlation analyses;
- k) DOEs;
- l) a list of significant KPIVs;
- m) Value/non value add analysis/ wastes identification; and
- n) Project review.

Improve phase

The purpose of this phase is to establish a robust improvement to the process. The activities to be considered range from the practical, such as mistake-proofing certain operations, to using optimization techniques and making processes robust against noise variables through DOEs, as appropriate. During this phase, identify any "road blocks" that will prevent the selected solution from being implemented, and overcome them. Ways to overcome any potential "road blocks" should be identified before the process modification is implemented. Tools such as "solution selection matrices" should be used in situations where more than one solution exists and the choice is unclear.

The outputs from the phase, as appropriate, should include the following:

- a) Solution selection matrix;
- b) Mistake proofing;
- c) Sample size determination;
- d) Response surface DOEs;
- e) Parameter design DOEs;
- f) Updated process FMEAs;
- g) Initial process studies' capability and/or performance indices; and
- h) Process map of what the process should now be;
- i) An updated list of CTQCs;
- j) Six Sigma indicators; and
- k) Project review.

Control phase

The effectiveness of the solution should be confirmed by collecting and analysing fresh data. A forward plan for the ongoing "control" of the process should be prepared for use in the area in which the process exists.

The improved process should be handed over to the Project Sponsor, and to the area in which the process exists, after the required process improvement has been confirmed. A process audit should be carried out and its findings reviewed approximately six months on from the end of the project. A date for the process audit should be determined prior to "hand over".

Any details, facts or other information learnt during the execution of the project should be recorded and passed on to other areas where they can be applied.

The Black Belt should document any open points in the project or forward plans which the process owner and other involved persons may need to take for the improved process to

become properly embedded. Such a project transition action plan would include the planned date for the process audit.

A final report should be written and circulated to interested parties. The report should be filed for ready access by others. All reports should be formatted in a standard way and should be indexed by key-words. The report should indicate the lessons learnt to be passed onto future Six Sigma project teams.

The outputs from the phase, as appropriate, should include the following:

- a) Process control plans;
- b) An updated list of CTQCs;
- c) Further MSA;
- d) Control charts;
- e) On-going capability;
- f) 5S;
- g) TPM;
- h) Financial costing (actual versus expected); and
- i) a summary, project review, in a generic benefits analysis, that should reference the agreed objectives in the project charter.

Certification

It is mandatory that before you get certified you have fulfilled the following requirement.

1. You are a Certified Green Belt.
2. Attended 75% of the theoretical lessons.
3. Pass the exam with 75%.
4. **Close successful 2 6-Sigma Projects with a minimum annual saving of 50.000€ for an small enterprise and 250.000€ for an larger enterprise. During you project work you are online connected with your Master Blackbelt.**

Practical's:

Place: 1ste week in Bocholt, 2de week in Dronten

1. Minimum Participants 5
2. Maximum Participants 14
3. Language: Training will be in Dutch
4. Software: For this training it is required that all participant's have an Laptop with Minitab 17 or higher installed.

Cost: 7500 € for the total program this includes:

1. 15 days of class room training;
2. 2 days of personal coaching at your workplace.
3. All refreshments during the class
4. Lunch.
5. Electronical Training materials.
6. 10% rebate on Personal coaching at your site (if coaching exceeds 2 days).

Subscription:

1. Email robert.thonissen@ikmw.be or secretariaat@vormeel.com
2. After Payment of the total 7500€ (VAT not included)
3. Companies can replace participants.