MICHIGAN ENGINEERING
UNIVERSITY OF MICHIGAN

Six Sigma Certification Project Report Guidelines

Project Purpose

The intent of the project practicum is to demonstrate the application of course problem-solving tools and methodologies to an industry-specific problem. Candidates should work closely with their supervisors to select a project that adds value to their organization. In addition, candidates are expected to demonstrate a quantifiable improvement or at least the potential for improvement. For example, candidates should be able to demonstrate their project will result in a cost savings, an improvement in processing or lead time, or a reduction in quality defects. To ensure support for the project from both the University of Michigan and your employer, we request candidates obtain pre-approval for their projects from both. *(Note: e-mail is fine for project pre-approval.)*

Project Selection

Project topics should meet the following guidelines:

- Be considered value-added by the candidate's organization (has supervisory pre-approval)
- Be completed within approximately a 3–6 month period
- Have sufficient data available to demonstrate use of course tools/methods

Project Report Requirements

Project reports are expected to include the following:

- Identification of problem and quantitative assessment of current state of process (For example, defect level, throughput time, cost, delivery time, cycle time, % on-time delivery)
- Analysis of the problem using Lean-Six Sigma tools and problem-solving methodologies. Candidates are expected to clearly demonstrate their understanding of ***at least three*** course tools/methodologies and their ability to integrate them into the completion of a project.
- Results or potential for improvement. Candidates are expected to either demonstrate actual improvement or provide evidence of the potential for improvement using quantitative measures, such as cycle time reduction, quality yield improvement, cost savings, etc.

Project Report Confidentiality

The University of Michigan recognizes information contained in reports may be deemed sensitive or confidential. Although instructors do not share report information without consent, the University prefers that candidates avoid including any confidential information. For example, rather than discuss actual cost savings, candidates may discuss improvement in percentage terms, or they might quantify their projects by indicating a 10% cost reduction as opposed to an actual dollar amount savings. For further options regarding report confidentiality, please contact the course instructors. Upon request, projects may be reviewed only by the lead faculty of the course, Dr. Pat Hammett.

Project Pre-Approval and Submission Process

Candidates should first submit a project proposal to the course instructors (see Project Proposal Template). Upon approval of the proposal, candidates shall complete their projects. Candidates are welcome to contact UofM course instructors for project support. These instructors will provide support via e-mail, phone consultation, and/or online videoconferencing (e.g., office hours). Upon project completion, candidates should submit their completed projects per the project submission process on the course website under the project assignment. After reviewing a submitted project, instructors may accept the report toward certification, accept with minor revisions, or require major revisions before acceptance.

Once all certification requirements are met, candidates will receive an email confirmation which triggers the creation of your digital certificate (digital certificates are sent to the address under which a candidate is registered).

Report Template

Candidates are provided with a written report template with recommended report organization (e.g., title page, executive summary, problem definition, current state assessment, analysis and results, improvement recommendations, process control recommendations, conclusion, and appendices). The template also provides suggestions on grammatical style and ways to effectively present information. We also provide a separate PPT presentation template which may be helpful for internal presentations.
Of note, the University of Michigan requires a 'written report' for Six Sigma Certification Projects. We consider writing a report as part of the education process. A written report requires one to articulate one's approach in addition to presenting results. PowerPoint presentations, by design, are intended to be shortened summaries accompanied by verbal remarks. Written reports also provide a more comprehensive summary for others to build upon in the spirit of continuous improvement (i.e., for future-related projects).

Teamwork Policy Statement

The University of Michigan considers certification an individual accomplishment and therefore prefers all participants to complete their own project and written report. Still, we recognize that for some projects, participants will work in teams. Here, our preference is for individuals to provide separate reports where each participant works on a unique aspect of the problem and clearly distinguishes their contribution. We do recognize that some information (e.g., from Define or Measure phase) will appear in multiple reports.
In some instances, champions/supervisors at client sponsors may find it desirable to have participants work in teams on a particular problem and prepare a ***single high-quality report*** versus two separate reports. For this situation, we request the following:

1. Teams are limited to two candidates
2. Written acknowledgement (e.g., email) from supervisor that they approve of a team report
3. Project is pre-approved as a *team project* by the University of Michigan (prior to starting).
4. Here, each candidate may be asked to provides a short description (1-3 paragraphs) detailing their individual contribution to the project and report.

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Six Sigma Certification Project Report Quick Reference

General Requirements for Report:

- Main Reports should be approximately 7-15 pages *(including tables and figures)* - Additional information should be included in an Appendix
- Reports must be text documents viewable in Microsoft Word or as a PDF file
- Reports must follow the DMAIC outline and meet all minimum requirements identified below including the use of at least three tools/methods discussed in your course

Required Section Content

*The italicized text below includes items that **must** be in your final written report. For more detailed explanation and examples of each of these sections, refer to the Six Sigma Project Report Template.*

Cover Page: Title, Name, E-mail, Company and Date of Submittal

***Executive Summary** (maximum 1-page)* with:

- Problem Statement/Description
- Summary of Approach
- Major results/findings
- Recommendations and Conclusions

Define Phase Improvement Opportunity

- Problem statement/process description
- Key metric used to evaluate project
- Project Scope considerations

Current State Measure Phase

- Quantify current performance level (e.g., Yield, PPM, DPMO, time, cost, etc.)
- Discuss measurement system used (discuss any potential issues)
- Identify key process input and output variables studied (or include in Analyze)
- Identify target performance level or improvement goal

Analyze Phase

- Qualitative Process Analysis: Identify opportunities for improvement and potential causes to investigate
- Data Analysis
  - You must show evidence of at least **one data analysis tool/method** discussed in this course.
  - You may accomplish this by including at least one table, graphs, and/or diagram within the main body of the text. (e.g., Pareto Chart, Stratification table, Scatter plot, etc.) (Black Belt projects should include ***at least three analyses***)
  - *Note 1*: Please paste graphs/tables as pictures into reports to reduce file size
  - *Note 2*: We encourage the use of data analysis tools and ***may*** request re-submittal to include additional analysis where appropriate.

Improve Phase Recommendations

- Discuss alternative solutions considered (only if applicable)
- Discuss recommended solution/action plan
- Provide data to verify recommendations where possible

Control Phase

- Discuss recommended methods for future process monitoring & control (e.g., New monitoring system, error detection system, control plan, etc.)

Summary/Conclusion

- Summarize report/key findings
- **Restate** project results or at least ***expected*** results. Note: If your results are incomplete or sensitive, you may discuss results in relative terms (e.g., A 20% reduction in error rates or a 10% cost savings)
- May discuss future related opportunities and lessons learned from project

Appendix (Optional)

- Include additional information for reference