



DMAIC TOLLGATE OUTLINE

DEFINE Tollgate Review

Project charter, which includes the sponsor, champion, and other stakeholders

Does the team have the required resources and support?

Is there a clear start and end to the project?

Is each project member's role defined?

At what cadence will project meetings occur

Are there enough steps and tasks defined to track progress?

Identify the Clients, their needs and requirements ([Voice of the Customer](#))

Who are they?

What do they need? (try a 1 word answer)

What is absolutely critical to success? (Use a [Critical to Quality Tree](#))

Make a [Process Map](#)

Does the Process Map cover the entire scope of the project?

Does the map drill down to the required process steps or actions?

Are the correct symbols used to clarify actions in the map?



SIPOC Map (Supplier Input Process Output Customer)

Does the SIPOC Map demonstrate a thorough understanding of the problem at a global level?

Are participating stakeholders in agreeance with the map?

MEASURE Tollgate Review

Data Collection Plan

How was the data gathered and who gathered the data?

Are there enough samples to successfully conduct hypothesis testing?

Why is this particular data important for the six sigma project?

Is the data type Continuous or Discrete? If Discrete, is there any way it can be converted to Continuous?

Measurement of current state

Was a Gauge R&R conducted?

How was the Gauge R&R controlled to prevent bias data?

Was the data used historical or current data?

Determine Baseline Sigma (Process Capability)

Are the correct defects accounted for in process capability? Includes CTQs, defects, units, and opportunities

Is long term or short term data used? Pp/Ppk vs Cp/Cpk

What implications are drawn from this process capability?



List of Potential Xs and Measured Ys

What method was used to determine potential Xs?

Does the data collected accurately reflect the potential Xs?

Is there a need to collect additional data?

ANALYZE Tollgate Review

Data and Process Analysis

What value-added analysis took place to identify gaps in the current process?

Does the provided graphics accurately show the relationship between input and output variables?

What factors will be used to build the Design of Experiment (DOE)?

Identify Root Causes

Were Pareto charts, Fishbone diagrams, multi-variation charts, or scatter plots used to show root causes?

How can potential Xs be narrowed down?

Hypothesis Testing

Was the correct hypothesis test conducted?

Was any sensitivity analysis conducted towards the level of significance?



Is the data statistically significant or is it just by chance?

IMPROVE Tollgate Review

Implementation of basic improvements

What lean principles were applied for process improvements? How were they applied?

Testing Possible Solutions Including Design of Experiment

Was a Design of Experiment created (DOE)? If so what primary factors affect the process outcome?

What tools were used to tap into the creative power of the team?

Improvement solutions picked

Can all of the improvements be implemented within budget? If not, which solutions yield the greatest returns?

Was a Cost Benefit Analysis conducted?

Pilot Program

Was the period of time to pilot the program long enough to confirm and sustain improvements?

What must be done to implement the improvements on a larger scale?

Are any additional insights gained from the pilot?



CONTROL Tollgate Review

Revised control processes in place

Are there any inter-department conflicts that can hurt project gains?

Were trainings conducted? Are additional training needed?

What is the most recent Cp/Cpk or Pp/Ppk figure? How much has the process improved?

Does the process performance meet customer's requirements?

Control Charts (SPC)

Are the appropriate control charts in place?

Do supporting documents explain to technicians what to do when the process falls out of control?

Completed Process Documentation

Are all associated Standard Operating Procedures revised to help sustain results?

Was a Total Productive Maintenance (TPM) deployed to keep machinery running efficiently?

Is there an updated process map?

Hand Over Process from Project Lead to Process Owner

Is the process owner up to date on all changes made?

Are all concerns resolved for the process owner?

How will the process owner insure improvements are sustained?