

Building Discipline Around the DMAIC Methodology: Tollgate Review Best Practices

Supplemental Notes

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FUNDAMENTAL TOLLGATE POINTS

*Illustration from a recent sponsor organization—not complete and not intended to be the ‘perfect’ answer to the question asked regarding Fundamental Questions

DMAIC Phase	Key Activities	Outputs
<p>DEFINE</p> <p><i>Developing the overall project design</i></p>	<p>1) Confirmation of the Project Charter: The team begins a project by reviewing the following together.</p> <ul style="list-style-type: none"> • Project scope • Operational Definition of DONE, Success • Business Requirements on getting to DONE/Realization • Required resources and ground rules and operating principles • Team member roles and accountabilities <p>2) Voice of the Customers, Employees, Business, and other Stakeholders</p> <ul style="list-style-type: none"> • The team collects data to: <ul style="list-style-type: none"> ○ Define who the critical stakeholders are ○ Define how to collect stakeholder information ○ Define ‘quality’ from the customer’s perspective ○ Identify the product or service the customer receives ○ Translate customer needs into specific measurable metrics <p>3) Voice of the Process</p> <ul style="list-style-type: none"> • Map the current process in the context of the larger value stream • Define the start and finish points of the process • Define how the process interconnects with the customer • Define what data will be used to document how well the process is performing 	<p>Definition of customers, their needs, and core business process</p> <ol style="list-style-type: none"> 1) Mutual understanding of the project goals, deliverables and scope by the sponsor, process owner, project manager and team members. 2) Identification and documentation of customer needs and requirements 3) Process map for the current process
<p>MEASURE</p> <p><i>Specifying and collecting the necessary data to understand today’s performance</i></p>	<p>1) Measuring the product or service</p> <ul style="list-style-type: none"> • An external perspective of performance from our customers or downstream stakeholders <ul style="list-style-type: none"> ○ What does the customer define as a defect? ○ How does the customer see our performance? ○ How can we measure the service or product performance <u>from the customer’s</u> point of view? ○ Is this measurement repeatable and reproducible? <p>2) Measuring the process that creates the product or service</p> <ul style="list-style-type: none"> • An internal perspective of performance <ul style="list-style-type: none"> ○ What do <u>we</u> define as a defect? ○ How do <u>we</u> measure performance of the process? ○ How many opportunities exist to create a defect as defined by the customer? ○ How many key steps are in the process? ○ How do <u>we</u> collect the process metrics and performance data? ○ Is the measurement data repeatable and reproducible? 	<ol style="list-style-type: none"> 1) Customer’s definition of a defect or poor performance 2) Baseline performance from the customer’s point of view <ul style="list-style-type: none"> • Process performance baseline • Defects per million opportunities • Rolled throughput yield • Internal metrics defining process performance 3) Gap analysis of customer demands and current process performance

<p>ANALYZE</p> <p><i>Determining root causes and quantifying improvement opportunities</i></p>	<p>1) Preliminary Process Analysis</p> <ul style="list-style-type: none"> • Combine customer’s viewpoint and process data • Create a detailed process diagram • Identify non-value adding activities • Summarize current process analysis <p>2) Potential Root Causes</p> <ul style="list-style-type: none"> • Why is there a gap between current and desired performance? • How can a defect occur? • Does the data support the root causes identified? <p>3) Selecting the Root Causes that hinder our performance</p> <ul style="list-style-type: none"> • What is the effect and risk level for each identified root cause? • Do we understand the cause and effect relationship? • How can we validate the root causes and their effects? 	<ol style="list-style-type: none"> 1) Identify root causes for the gap in performance 2) Understanding how each root cause effects performance 3) Define opportunities to enhance efficiency 4) Validation of the root causes
<p>IMPROVE</p> <p><i>Developing and validating the solution</i></p>	<p>1) Solution development and selection</p> <ul style="list-style-type: none"> • Define criteria for the solution • List every possible solution • Document how each solution addresses each root cause • Select the solution • Create a process map showing how the new process will operate <p>2) Validate the solution</p> <ul style="list-style-type: none"> • Run a short production test to validate the solution works 	<ol style="list-style-type: none"> 1) Solution options 2) Approved solution proposal 3) Development of validation testing 4) Confirmation of results
<p>IMPLEMENT/ REALIZE/ CONTROL</p> <p><i>Implementing and maintaining the new process</i></p>	<p>1) Implementing the new process</p> <ul style="list-style-type: none"> • Define control methods and plan • How will the new process be monitored • How will everyone learn the new process <p>2) Documenting and Maintaining the new process</p> <ul style="list-style-type: none"> • Update the process maps • Update process documentation • Update control plan and methods • Validate everyone understands the new process and their roles • Monitor and report key metrics <ul style="list-style-type: none"> ○ Financial savings ○ Customer satisfaction ○ Defects per million opportunities ○ Short term capability ○ Rolled throughput yield • Close-out project 	<ol style="list-style-type: none"> 1) Documented new process map 2) Documented new process with work instructions 3) Implemented monitoring plan 4) Validation of customer satisfaction 5) Validation of new process performance against project goals and target values