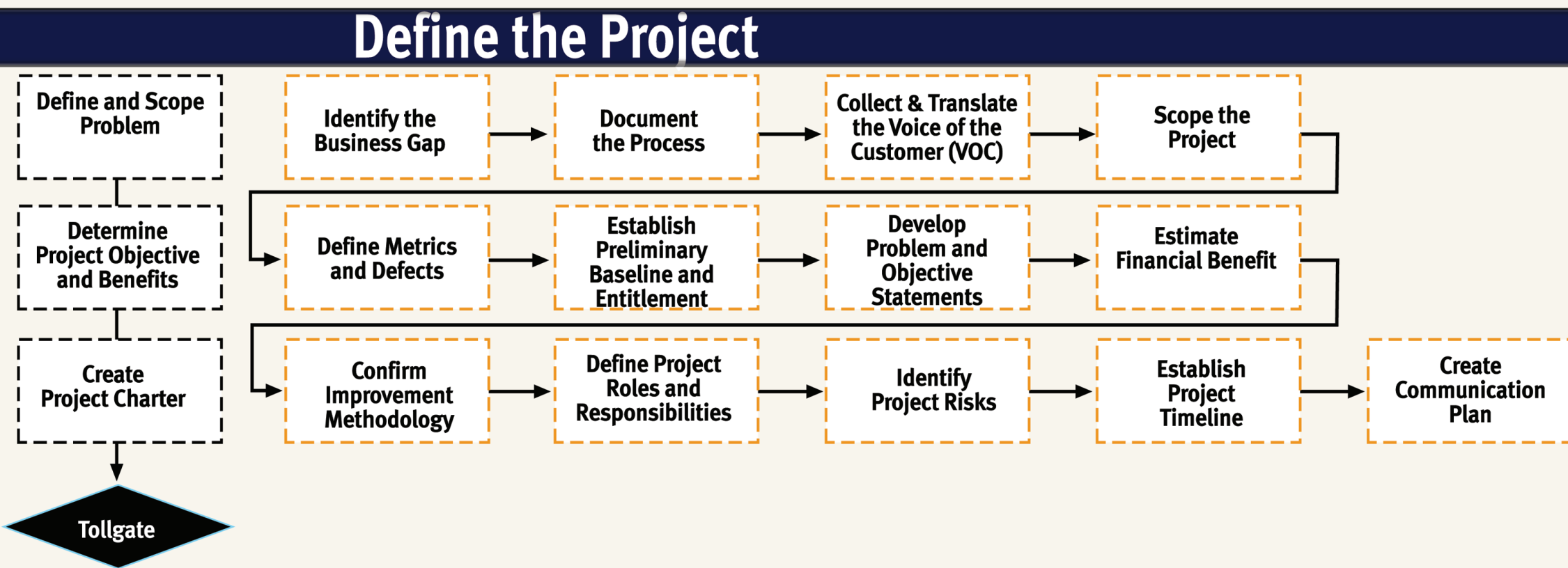


## Define

Identify the business problem to be solved, scope the process and the boundaries, define the measurable objectives and agree upon the project plan.

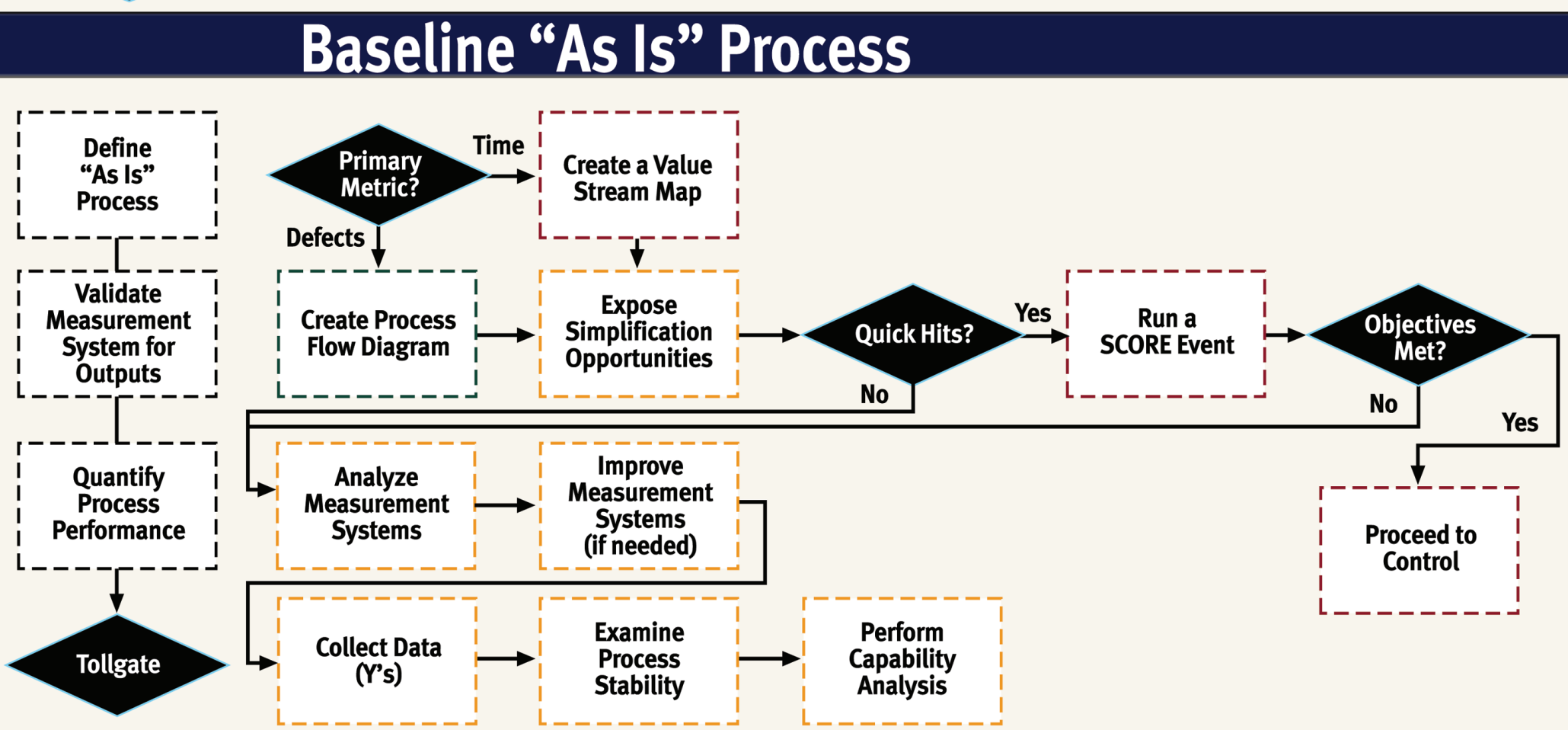


Deliverables	1. Define and Scope Problem 2. Determine Project Objective and Benefits 3. Create Project Charter
Tasks	<ul style="list-style-type: none"> <li>Identify the Business Gap</li> <li>Scope the Project</li> <li>Document the Process</li> <li>Collect and Translate the VOC</li> <li>Define Metrics and Defects</li> <li>Establish Preliminary Baseline and Entitlement</li> <li>Develop Problem and Objective Statements</li> <li>Estimate Financial Benefit</li> <li>Confirm Improvement Methodology</li> <li>Define Project Roles and Responsibilities</li> <li>Identify Project Risks</li> <li>Establish Project Timeline</li> <li>Create Communication Plan</li> </ul>
Tools and Techniques	<ul style="list-style-type: none"> <li>Project Definition Worksheet</li> <li>SIPOC</li> <li>Surveys and Interviews</li> <li>Affinity Diagrams</li> <li>Brainstorming</li> <li>In/Out of Frame</li> <li>Pareto Charts</li> <li>CT Trees</li> <li>Cost Benefit Analysis</li> <li>Benchmarking</li> <li>Metric Charts</li> <li>Stakeholder Analysis</li> <li>Communication Plan</li> </ul>

## DEFINE

## Measure

Document the current process flow and establish the performance baseline for the primary metric (Y).

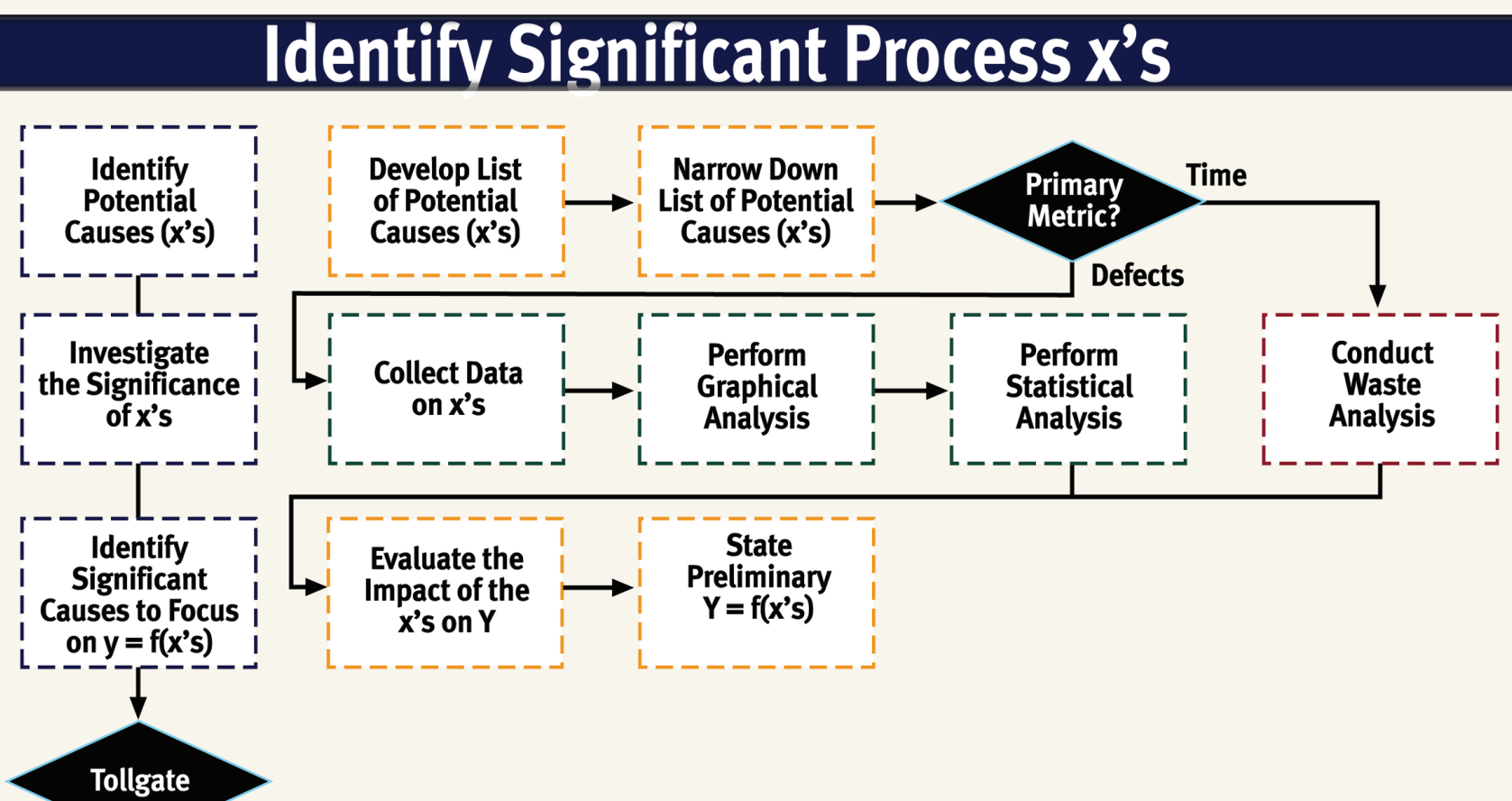


Deliverables	4. Define "As Is" Process 5. Validate Measurement Systems for Outputs 6. Quantify Process Performance
Tasks	<ul style="list-style-type: none"> <li>Create a Value Stream Map</li> <li>Create a Process Flow Diagram</li> <li>Expose Simplification Opportunities</li> <li>Run a SCORE Event (if needed)</li> <li>Analyze Measurement Systems</li> <li>Improve Measurement Systems (if needed)</li> <li>Collect Data (Y's)</li> <li>Examine Process Stability</li> <li>Perform a Capability Analysis</li> </ul>
Tools and Techniques	<ul style="list-style-type: none"> <li>Data Collection Plan</li> <li>Process Flow Diagram</li> <li>Value Stream Map</li> <li>Spaghetti Diagram</li> <li>SCORE</li> <li>Measurement Systems Analysis</li> <li>Check Sheets</li> <li>SPC</li> <li>Capability Analysis</li> <li>Run Chart</li> <li>Graphical Analysis</li> <li>Elements of Waste</li> <li>5S</li> </ul>

## MEASURE

## Analyze

Investigate the potential inputs (x's) that are affecting the primary metric (Y), discover which are the most significant inputs (x's) to focus on.

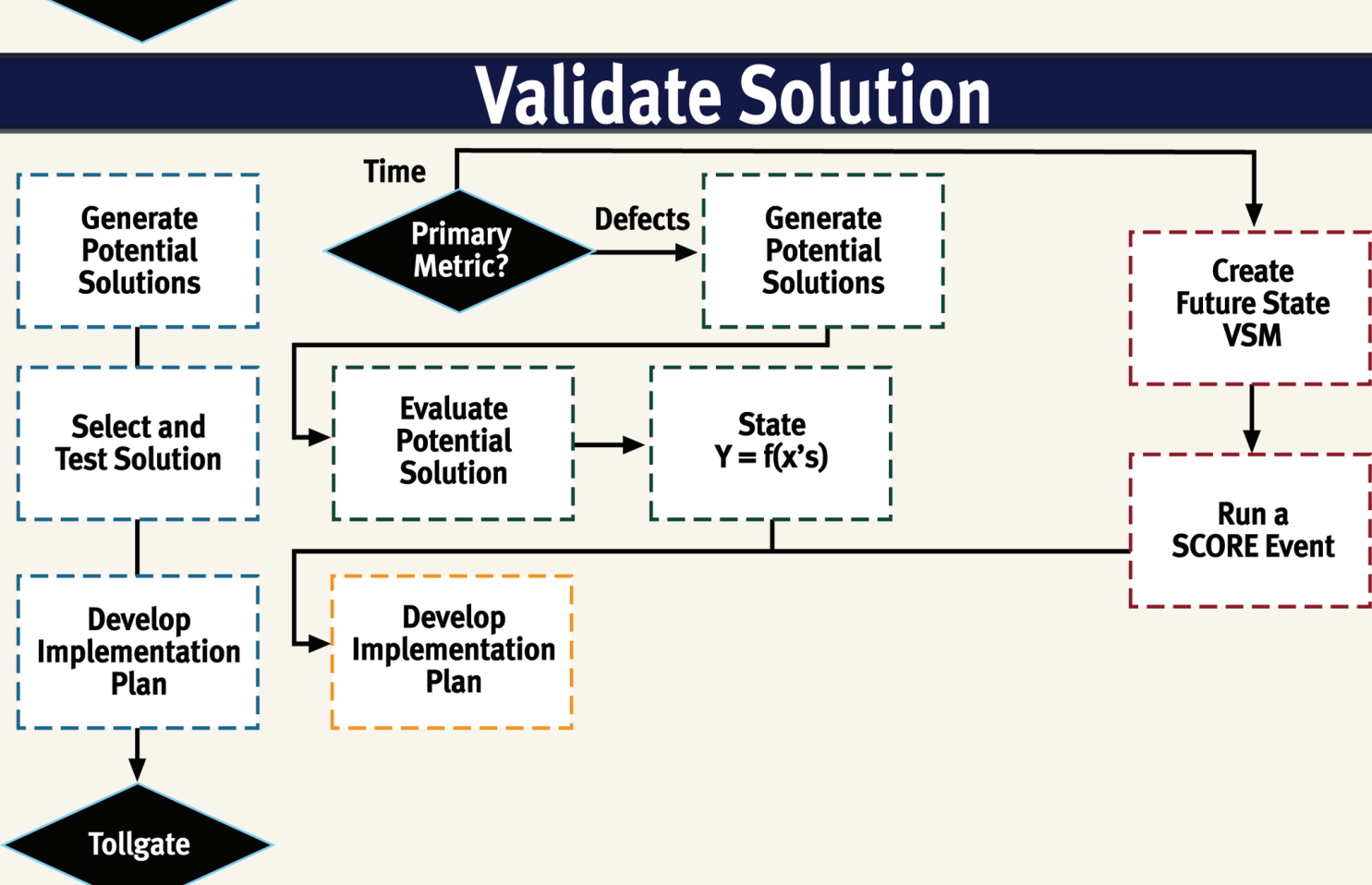


Deliverables	7. Identify Potential Causes (x's) 8. Investigate Significance of x's 9. Identify Significant Causes to Focus on $y=f(x's)$
Tasks	<ul style="list-style-type: none"> <li>Develop a List of Potential Causes</li> <li>Narrow Down List of Potential Causes (x's)</li> <li>Collect Data on x's</li> <li>Perform Graphical Analysis</li> <li>Perform Statistical Analysis</li> <li>Conduct Waste Analysis</li> <li>Evaluate the Impact of the x's on Y</li> <li>State Preliminary <math>Y=f(x's)</math></li> </ul>
Tools and Techniques	<ul style="list-style-type: none"> <li>Fishbone</li> <li>Process Flow Diagram</li> <li>Value Stream Map</li> <li>FMEA</li> <li>Cause &amp; Effect (C&amp;E) Matrix</li> <li>Data Collection Plan</li> <li>Graphical Analysis Selection Matrix (Hypothesis Testing and Regression)</li> <li>Statistical Analysis Selection Matrix (Hypothesis Testing and Regression)</li> <li>Takt Time</li> <li>Workload Balancing</li> <li>Work Combination Chart</li> </ul>

## ANALYZE

## Improve

Create the equation for  $Y=f(x)$  for the problem. Use that knowledge to design and test a final solution.

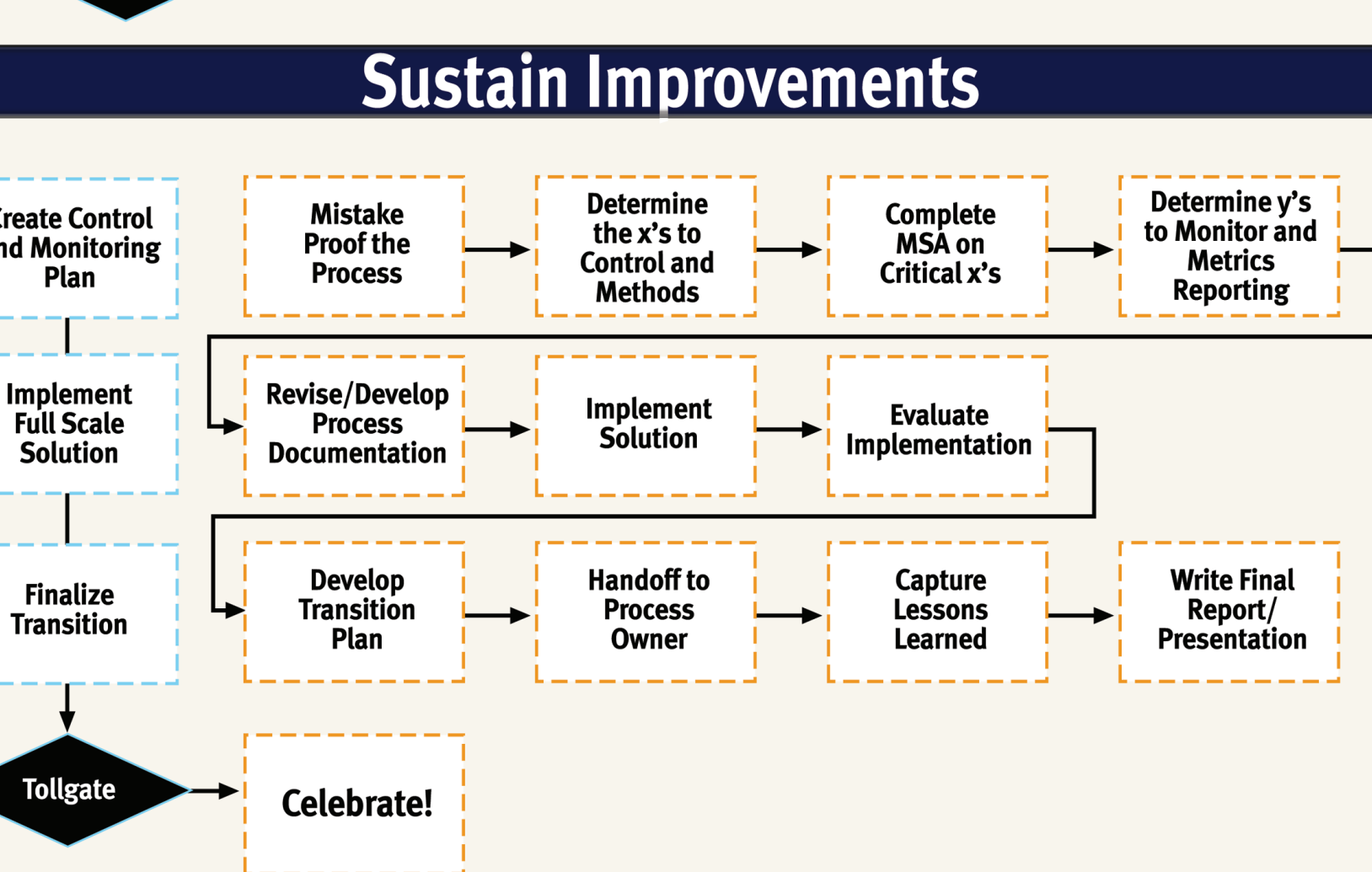


Deliverables	10. Generate Potential Solution 11. Select and Test Solution 12. Develop an Implementation Plan
Tasks	<ul style="list-style-type: none"> <li>Generate Potential Solutions</li> <li>Create Future State VSM</li> <li>Evaluate Potential Solution</li> <li>State <math>y=f(x's)</math></li> <li>Run a SCORE Event (if needed)</li> <li>Develop an Implementation Plan</li> </ul>
Tools and Techniques	<ul style="list-style-type: none"> <li>Future State Value Stream Map</li> <li>Random Word</li> <li>TRIZ</li> <li>Six Thinking Hats</li> <li>Cellular Layout</li> <li>SCORE</li> <li>Kanban</li> <li>DOE</li> <li>Solution Selection Matrix</li> <li>Implementation Plan</li> <li>SMEI</li> <li>TPM</li> <li>Mistake Proofing</li> </ul>

## IMPROVE

## Control

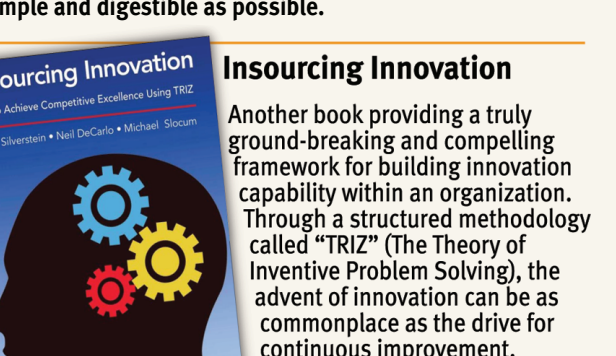
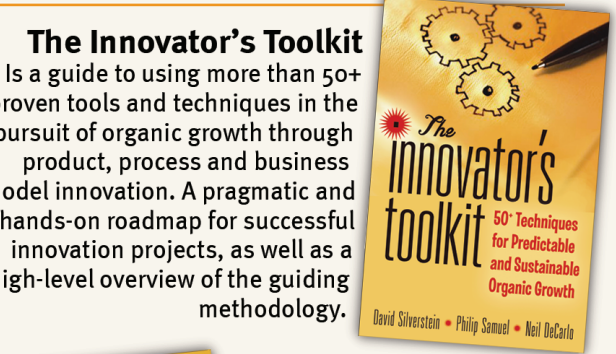
Build the structure for sustaining the improvements, hand off the solution to the process owner, and celebrate with the team for all of their hard work!



Deliverables	13. Create Control and Monitoring Plan 14. Implement Full Scale Solution 15. Finalize Transition
Tasks	<ul style="list-style-type: none"> <li>Mistake Proof the Process</li> <li>Determine the x's to Control and Methods</li> <li>Complete MSA on Critical x's</li> <li>Determine y's to Monitor and Metrics Reporting</li> <li>Revise/Develop Process Documentation</li> <li>Implement Solution</li> <li>Evaluate Implementation</li> <li>Develop Transition Plan</li> <li>Handoff to Process Owner</li> <li>Capture Lessons Learned</li> <li>Write Final Report/Presentation</li> <li>Celebrate!</li> </ul>
Tools and Techniques	<ul style="list-style-type: none"> <li>SPC</li> <li>Control Plan</li> <li>MSA</li> <li>Mistake Proofing</li> <li>Dashboard</li> <li>Project Transition Action Plan (PTAP)</li> <li>Capability Analysis</li> <li>Communication Plan</li> </ul>

## CONTROL

### Lean Methods Publications



### What Kind of Project Do You Have?

