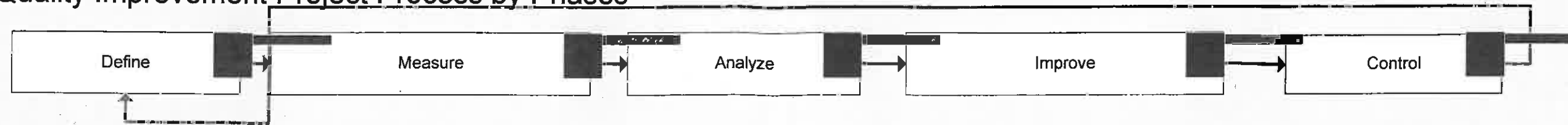


Quality Improvement Project Process by Phases



Activities

Define

- Form team
- Develop charter
- Understand the “voice of the customer” – understand the CTQs
- High level mapping due
- High level project plan completed

Measure

- Collect baseline data on defects and their possible causes
- Plot defect data over time and analyze for special causes
- Create and stratify frequency
- Calculate process sigma and/or process yield
- Create detailed process maps
- Validate measurement system (reproducibility, repeatability, bias, residual error)

Analyze

- Pareto analysis
- Root cause analysis
 - Explore potential causes
 - Organize potential causes
 - Collect data
- Prove/quantify cause-and-effect relationships

Improve

- Create possible solutions for root causes
- Select solutions
- Create future state process map and quantify projected costs/benefits
- Develop implementation plan based on the future state map
- Run a pilot and measure results
- Verify benefits
- Modify future state process map and implementation plan, if needed, based upon pilot results

Control

- Develop and document standard practices
- Train teams on changes and new standard practices
- Create process for updating procedures (changing the standards)
- Determine process control points and measures that will be monitored
- Determine how performance will be monitored and communicated
- Upon approval, launch the full implementation plan
- Monitor performance
- Summarize and communicate learnings
- Recommend future plans

Deliverables

Define

- Team composition/availability list
- Sponsor name/availability
- List of customers and CTQs for the process
- Project charter
- High-level mapping of current state

Measure

- Key measures that the team identified
- High impact defects that the team identified
- Data collection plan (and results)
- Process variation displayed (based on the data collected)
- Long- and short-term variability characterized (based on the data collected)
- Current state performance baseline (in terms of DPMO, process sigma, yield, and/or process capability, based on the data collected)
- Validation of measurement system

Analyze

- Gaps between current and desired performance that the team identified, quantified and prioritized
- List of possible root causes/sources of defect/variation created, segmented, stratified, and prioritized (and linked to specific gaps)
- Verification and quantification of the “vital few” root causes

Improve

- List of possible solutions
- Optimal solutions, based on testing and analysis
- Future state map (that achieves the target performance)
- Implementation plan that addresses the gaps between current and future state
- Cost/benefit analysis of the proposed future state
- Small scale pilots of the proposed future state and results
- Any other impact statement (besides cost/benefit)

Control

- Control/Transition plan to ensure that the gains are sustained
- Documented process standardization (new SOPs, templates, visual cues, etc.)
- Reaction plan (what happens if the process goes out of standard)
- Project closure/handoff plan
- List of key learning points from the project, to be disseminated to others

Tools

Define Phase

- Project Charter
- ARCIVD Matrix
- Stakeholder Analysis
- Impact Wheel
- Communication Plan
- Voice of the Customer (VOC)
- Kano Analysis
- Critical to Quality (CTQ) Tree
- SIPOC
- Cost/Benefit / ROI
- Project Plan
- Business case
- Change Management Plan

Measure phase

- Data Types
- Measure Types
- Process Mapping
- Identify and Remove Waste
- Descriptive Stats
- Value Stream Mapping-Current State
- Change Management Tools
- Data Visualization tools
- Effective Communication-A3
- Data Collection
- Sampling
- Confidence Intervals
- Special & Common Cause Variation
- Control Charts
- Change Management Tools

Analyze phase

- Control Charts
- Cause and Effect Diagram
- Failure Mode and Effects Analysis (FMEA)
- Qualitative Analysis Techniques (Spaghetti Diagram, Circle of Work, TAKT Time)
- Process Capability
- Rational Subgrouping
- Change Management Tools

Improve phase

- Improvement Basics (6-3-5, Affinity, Impact-Effort Grid, Prioritization Matrix)
- Value Stream Mapping-Future State
- Tools for Stabilizing (5S, Visual Management)
- Tools for Optimizing Flow (Standard Work in Process, Balanced Workload, Cell Design, Constraint Management, Push/Pull, Kanban)
- Approaches to Mistake-proofing
- Human Factors
- Hypothesis Testing/ANOVA
- Implementation Plan
- Small Test of Change (PDSA)
- Making Quality Visible (Andon)
- Kaizen events
- Design of experiments (DOE)
- Regression/Correlation
- Change Management Tools

Control phase

- Control Charts
- Statistical process control
- Control Plan
- Transition Plan
- Reaction Plan
- Project closure documents
- Change Management Tools