DMAIC Process Guide

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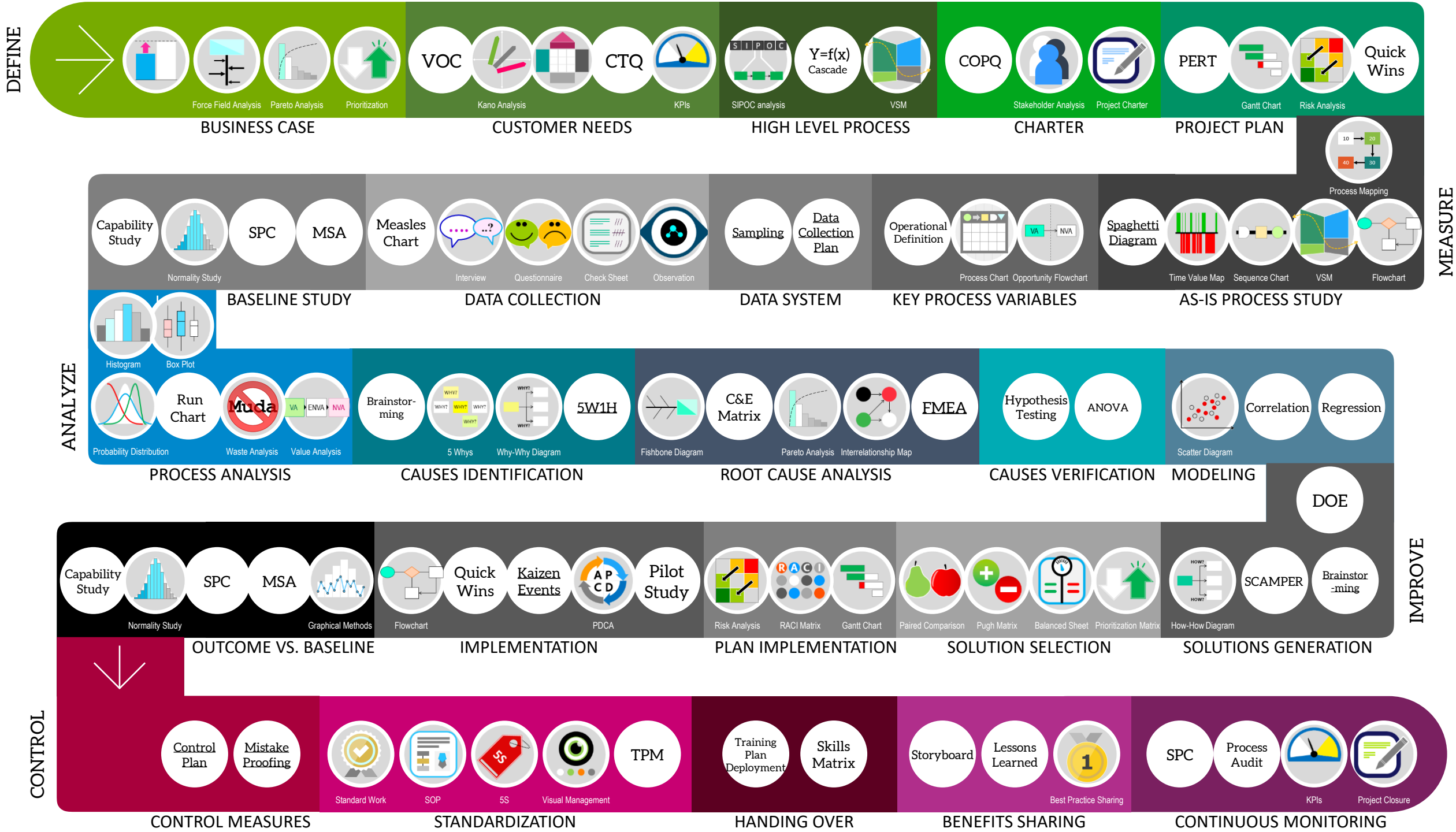
DEFINE
1 Define problem and goal statements
2 Define customer needs
3 Identify high level process map
4 Develop project charter
5 Develop project plan
BUSINESS CASE
CUSTOMER NEEDS
HIGH LEVEL PROCESS
CHARTER
PROJECT PLAN
MEASURE
5 Evaluate measurement system, stability & capability
4 Collect data on the problem and factors
3 Establish a data system
2 Identify key process input variables
1 Create AS-IS process map
BASELINE STUDY
DATA COLLECTION
DATA SYSTEM
KEY PROCESS VARIABLES
AS-IS PROCESS STUDY
ANALYZE
1 Review the results of graphical & basic analysis
2 Identify all potential root causes
3 Narrow down potential root causes
4 Verify root causes using statistic
5 Create a prediction model
PROCESS ANALYSIS
CAUSES IDENTIFICATION
ROOT CAUSE ANALYSIS
CAUSES VERIFICATION
MODELING
IMPROVE
5 Confirm improvement against baseline
4 Pilot and implement the plan
3 Develop Implementation plan
2 Evaluate, select and optimize best solutions
1 Generate solutions to eliminate root causes & NVAs
OUTCOME VS. BASELINE
IMPLEMENTATION
PLAN IMPLEMENTATION
SOLUTION SELECTION
SOLUTIONS GENERATION
CONTROL
1 Prepare a control plan and select control methods
2 Standardize the solutions by updating the SOPs
3 Transfer ownership to process owner
4 Capture and share realized benefits
5 Prepare an audit process and set-up a control dashboard
CONTROL MEASURES
STANDARDIZATION
HANDING OVER
BENEFITS SHARING
CONTINUOUS MONITORING

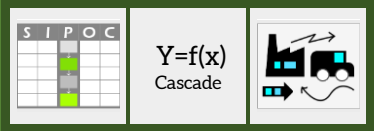

DEFINE
Force Field Analysis
Pareto Analysis
Prioritization
BUSINESS CASE
VOC
CTQ
Kano Analysis
KPIs
CUSTOMER NEEDS
SIPOC analysis
Y=f(x)
Cascade
VSM
HIGH LEVEL PROCESS
COPQ
Stakeholder Analysis
Project Charter
CHARTER
PERT
Gantt Chart
Risk Analysis
Quick Wins
PROJECT PLAN
MEASURE
Process Mapping
Capability Study
Normality Study
SPC
MSA
BASELINE STUDY
Measles Chart
Interview
Questionnaire
Check Sheet
Observation
DATA COLLECTION
Sampling
Data Collection Plan
DATA SYSTEM
Operational Definition
Process Chart
Opportunity Flowchart
KEY PROCESS VARIABLES
Spaghetti Diagram
Time Value Map
Sequence Chart
VSM
Flowchart
AS-IS PROCESS STUDY
ANALYZE
Histogram
Box Plot
Run Chart
Muda
Probability Distribution
Waste Analysis
Value Analysis
PROCESS ANALYSIS
Brainstor-ming
5 Whys
Why-Why Diagram
5W1H
CAUSES IDENTIFICATION
Fishbone Diagram
C&E Matrix
Pareto Analysis
Interrelationship Map
FMEA
ROOT CAUSE ANALYSIS
Hypothesis Testing
ANOVA
CAUSES VERIFICATION
Scatter Diagram
Correlation
Regression
MODELING
DOE
Capability Study
Normality Study
SPC
MSA
Graphical Methods
OUTCOME VS. BASELINE
Flowchart
Quick Wins
Kaizen Events
PDCA
Pilot Study
IMPLEMENTATION
Risk Analysis
RACI Matrix
Gantt Chart
PLAN IMPLEMENTATION
Paired Comparison
Pugh Matrix
Balanced Sheet
Prioritization Matrix
SOLUTION SELECTION
How-How Diagram
SCAMPER
Brainstor-ming
SOLUTIONS GENERATION
IMPROVE
CONTROL
Control Plan
Mistake Proofing
CONTROL MEASURES
Standard Work
SOP
5S
Visual Management
TPM
STANDARDIZATION
Training Plan Deployment
Skills Matrix
HANDING OVER
Storyboard
Lessons Learned
Best Practice Sharing
BENEFITS SHARING
SPC
Process Audit
KPIs
Project Closure
CONTINUOUS MONITORING

DEFINE

BUSINESS CASE

VOC | Kano Analysis | CTQ

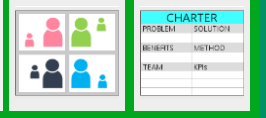
CUSTOMER NEEDS



Y=f(x) Cascade

HIGH LEVEL PROCESS

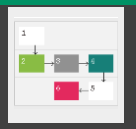
COPQ



CHARTER

PERT | Risk Analysis | Quick Wins

PROJECT PLAN

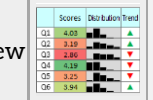


MEASURE

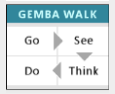
Capability Study | Normality Study | SPC | MSA

BASELINE STUDY

Measles Chart | Interview

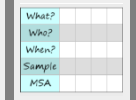


Check Sheet



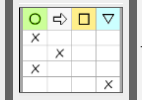
DATA COLLECTION

Sampling



DATA SYSTEM

Operational Definition

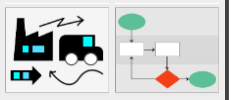


Opportunity Flowchart

KEY PROCESS VARIABLES

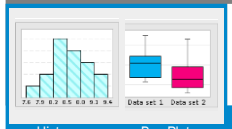
Spaghetti Diagram

Process Sequence Chart



AS-IS PROCESS STUDY

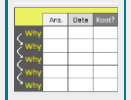
ANALYZE



Probability Distribution | Run Chart | Waste Analysis | Value Analysis

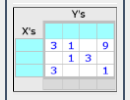
PROCESS ANALYSIS

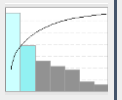
Brainstor-ming



Why-Why Diagram | 5W1H

CAUSES IDENTIFICATION



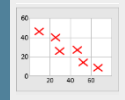


Relationship Mapping

ROOT CAUSE ANALYSIS

Hypothesis Testing | ANOVA

CAUSES VERIFICATION



Correlation | Regression

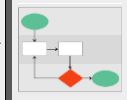
MODELING

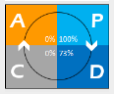
DOE

IMPROVE

Capability Study | Normality Study | SPC | MSA | Graphical Methods

OUTCOME VS. BASELINE

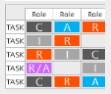


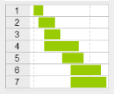


Pilot Study

IMPLEMENTATION

Risk Analysis

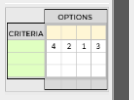




PLAN IMPLEMENTATION

Paired Comparison

Decision Balanced Sheet



SOLUTION SELECTION

How-How Diagram | SCAMPER | Brainstor-ming

SOLUTIONS GENERATION

CONTROL

Mistake Proofing

CONTROL MEASURES

Standard Work

TPM

STANDARDIZATION

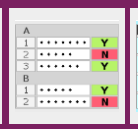
Training Plan Deployment

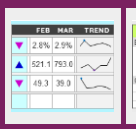
HANDING OVER

Storyboard | Lessons Learned | Best Practice Sharing

BENEFITS SHARING

SPC





CONTINUOUS MONITORING

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