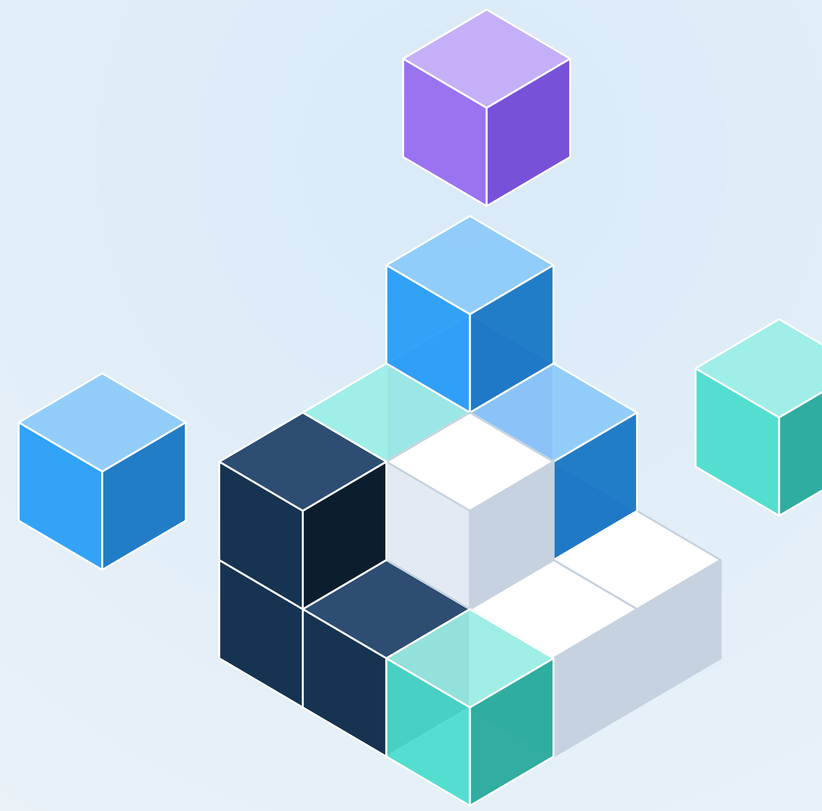
PROCESS IMPROVEMENT

DMAIC Explained

DMAIC is the five-phase Six Sigma roadmap for improving an existing process with data: Define, Measure, Analyze, Improve and Control.



01 THE CORE MODEL

FIVE-PHASE ROADMAP · DATA-DRIVEN PROJECTS

01 D — Define
Problem, goal, scope and customer requirements (CTQs).

→

02 M — Measure
A reliable measurement system and a baseline.

→

03 A — Analyze
Root causes verified with data and statistics.

→

04 I — Improve
Solutions piloted and confirmed against the goal.

→

05 C — Control
Control plan, SPC and handover to the process owner.

CTQ
Critical to quality: a measurable customer requirement.

Measurement system analysis
Checks that the data can be trusted before analysis starts.

Control plan
Defines how the gain is monitored and who reacts when it slips.

02 WHEN TO USE DMAIC

Use DMAIC when the cause is unknown and data can find it.

JUST DO IT ——— DMAIC

QUICK FIXES

+ Cause known, solution obvious
+ Low risk, cheap to reverse
− Fail on complex, variable problems

DMAIC PROJECTS

+ Complex problem, unknown cause
+ Data available or obtainable
− Takes weeks to months

03 WORKED EXAMPLE

FILL WEIGHT VARIATION ON A FILLING LINE · ILLUSTRATIVE

DEFINE
Overfill cost
goal agreed with finance

→

MEASURE
Gauge R&R passed
baseline: wide spread

→

ANALYZE
Nozzle temperature
drives the variation

→

IMPROVE · CONTROL
Heater control
SPC on fill weight

04 MANAGEMENT TAKEAWAYS

01 — Spend time on Define
A sharp problem statement saves weeks later.

02 — Trust the data first
Check the measurement system before drawing conclusions.

03 — Hand over properly
A project ends when the process owner runs the control plan.

05 COMMON MISTAKE

LIMITATION

DMAIC for everything
Running a full project for an obvious fix wastes time. Match the method to the problem.