silicon beach TRAINING

DMAIC Tools Map

Define → **Measure** → **Analyse** → **Improve** → **Control**

Define

Project charter
- sponsor
- leader
- facilitator
- team
- stakeholders
- scope
- current state
- future state
- proposal
- costs & resources
- benefits & measures
- project plan
- risk analysis
- related projects

Project selection
- Theory of Constraints
- Decision analysis KT
- Urgent important matrix

SIPOC   **Value stream map**   DFSS/DFM/DMADV

System thinking / system diagram

PDCA continuous improvement kaizen culture

Knowledge management & information flow

Swim lane deployment chart   **Customer pull / just in time**

Overall equipment effectiveness OEE

Cost of (poor) quality   WIP & inventory control

General tools
Additional transactional & service tools
More detailed & manufacturing-related tools

Measure

Voice of the customer
- customer survey
- Kano diagram
- CTQ tree
- Quality function deployment / HOQ

Theory of constraints ToC
- Five Focussing Steps

Service demand & capacity analysis

Failure demand analysis

Current state → future state → vision

Flowchart   **Time value map**

Spaghetti diagram

Time management

Metrics
- quality
- cost
- delivery
- customer & employee engagement

Measurement systems (gage) analysis

Correlation/regression analysis

Sampling calculations

Heijunka load levelling   Jidoka autonomation   Andon   ANOVA

Cycle time analysis. Takt time   Kanban systems

Analyse

Pareto chart
- power law (long tail)

Activity sampling
- detailed diary
- interruptions log

Root cause analysis
- Five whys
- Why why cause diagram
- Reality tree
- Ishikawa fishbone diagram
- Interrelationship digraph
- Change analysis
- Barrier analysis

Critical chain project management

Overall professional effectiveness

Probability distributions

Capability analysis Cpk Ppk

SMED rapid changeover

Operational definition

Hypothesis testing   Lean cell

Design of experiments

Yamazumi balancing chart

Total productive maintenance

Improve

Risk analysis
- impact-probability matrix
- FMEA
- PDPC

Poka yoke mistake proofing

Pilot testing

Control

Innovation
- brainstorming
- affinity diagram
- Six Thinking Hats
- Mindmapping
- paradigms
- TRIZ; Pugh matrix
- morphological box
- creativity tools

5S organisation

After action review

Standard work

Visual workplace

Control charts

Change management
- kaizen blitz
- hoshin kanri
- leadership
- mentors/champions
- culture
- communications plan
- RACI chart
- incremental / strategic
- Forcefield analysis