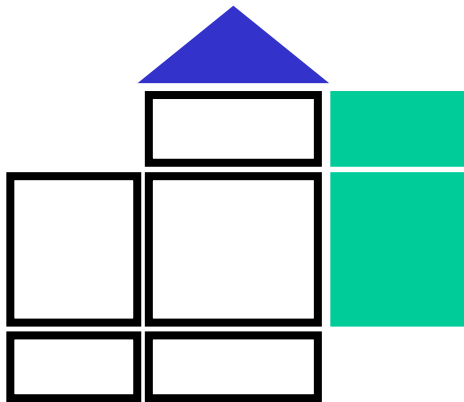# Continuous Improvement Toolkit

Quality Function Deployment (QFD)

Managing Risk

PDPC

FMEA

RAID Logs

Fault Tree Analysis

Risk Assessment*

Traffic Light Assessment

Deciding & Selecting

Pros and Cons

Break-even Analysis

Importance-Urgency Mapping

Cost -Benefit Analysis

Force Field Analysis

Pugh Matrix

Voting

SWOT

Decision Tree

QFD

Matrix Diagram

TPN Analysis

Kano Analysis

Prioritization Matrix

Critical-to Tree

Paired Comparison

Planning & Project Management*

RACI Matrix

Stakeholders Analysis

PEST

PERT/CPM

Activity Diagram

Roadmaps

Project Charter

Gantt Chart

PDCA

Control Planning

Gap Analysis

Hoshin Kanri

Kaizen

How-How Diagram

Understanding Performance

Lean Measures

KPIs

OEE

Capability Indices

MSA

RTY

Descriptive Statistics

Cost of Quality

Reliability Analysis

Graphical Analysis

Run Charts

Control Charts

Benchmarking

Sampling

Tree Diagram**

Standard work

Cause & Effect Matrix

Pareto Analysis

Simulation

TPM

Identifying & Implementing Solutions***

Mistake Proofing

Confidence Intervals

Understanding Cause & Effect

Probability Distributions

ANOVA

Hypothesis Testing

Design of Experiments

Scatter Plot

Correlation

Regression

5 Whys

Chi-Square Test

Multi-Vari Charts

Relations Mapping*

Fishbone Diagram

Pull Systems

JIT

Ergonomics

Work Balancing

Automation

Bottleneck Analysis

Visual Management

Flow

5S

Value Analysis

Wastes Analysis

SMED

Time Value Map

Process Redesign

Data Collection

Focus groups

Interviews

Photography

Check Sheets

Measles Charts

Surveys

Critical Incident Technique

Observations

Brainstorming

Analogy

TRIZ***

SCAMPER***

Nominal Group Technique

Mind Mapping*

Affinity Diagram

Attribute Analysis

Lateral Thinking

Visioning

Flowcharting

IDEF0

Value Stream Mapping

SIPOC

Flow Process Chart

Process Mapping

Service Blueprints

Creating Ideas**

Designing & Analyzing Processes

Continuous Improvement Toolkit . www.citoolkit.com

- Quality Function Deployment

❑ A methodology for taking the Voice of the Customer.

❑ Used to translate customer requirements into product specifications or design parameters.

❑ A prerequisite to QFD is Market Research.

❑ Requires cross functional team effort, bringing together the skills of:

- Marketing.
- Development.
- Manufacturing.
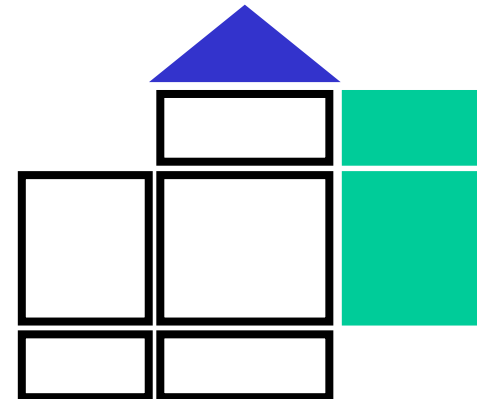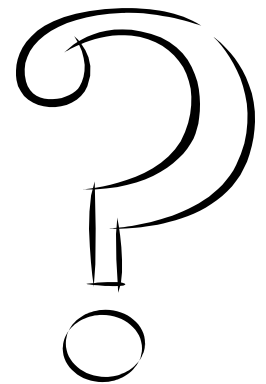
- Quality Function Deployment

- ❑ Used mainly by manufacturing companies and by some service companies.
- ❑ Used to refine existing processes.

- ❑ **Engineering** uses it to focus on significant product or service design features.
- ❑ **Marketing** uses it to determine marketing strategies.
- ❑ **Operation** uses it to identify the processes that are crucial to improving quality.
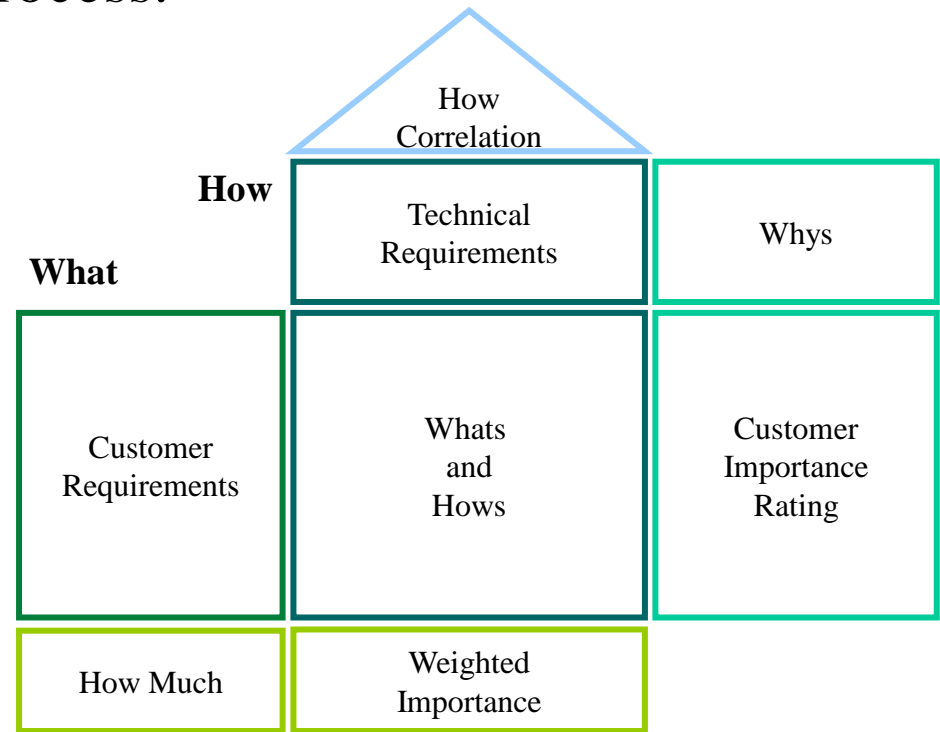
- Quality Function Deployment

It Answers:

❑ What do our customers need and want (**VOC**)?

❑ How well are we doing relative to our competitors (**CA**)?

❑ What technical measures relate to our customers' needs (**VOE**)?

❑ What are the relationships between the voice of the customer and the voice of the engineer (**Correlations**)?

❑ How does our service or product performance compare to that of our competition (**Technical Comparison**)?

❑ What are the potential technical **Trade-offs**?

- Quality Function Deployment

❑ Consists of matrices that analyze data sets according to the objective of the QFD process.
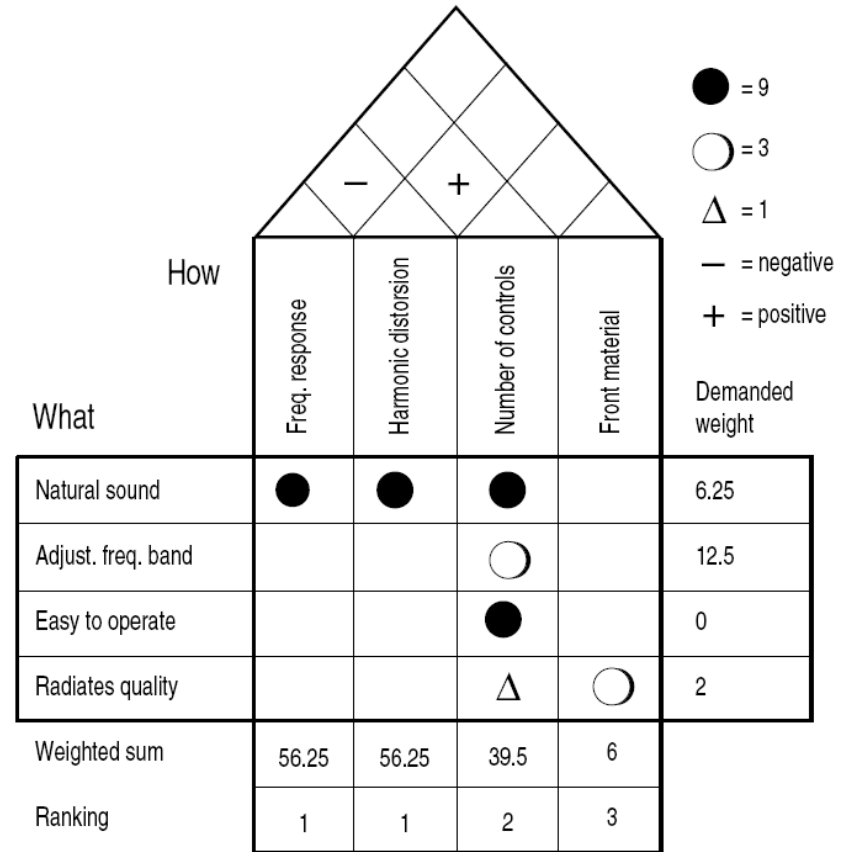
- Quality Function Deployment

□ Typically you have customer and technical requirements.

□ Weighted scores are assigned based on the market research information collected.

	Importance to customer	Surface of nozzle	Power (depression)	Size of vacuum cleaner	Weight of vacuum cleaner	Filter bag volume
Direction of Optimisation		↑	↑	↓	↓	↑
Technical requirements / Customer requirements						
Low weight	3			△	⊙	
Easy handling/cleaning	3	○		○		○
Quiet operation	4					
Saving energy	2	○	⊙			
Good dirt pickup	4		⊙			
Fast cleaning	3	⊙	⊙			⊙
Small size	3			⊙	△	
Reliable product	3					○
Multi-functionality	0			○		
Importance Weighting		42	81	39	30	45

⊙ Factor 9   ○ Factor 3   △ Factor 1

- Quality Function Deployment

❑ At the centre is the interaction matrix.

❑ At the roof, the interaction between design parameters are indicated.

- Quality Function Deployment

Product Design → Parts Development

Production Planning ← Process Planning