

Six Sigma

Strategisches Prozessmanagement

Agenda

Six Sigma – Background

DMAIC Circle

Define an Initiative

Analyse Problem

Outlook

6 σ Overview



Fulfil customer requirements completely and in a profitable way

Improve quality by reducing waste in an existing process

Quality is measurable and can be described using statistical key figures (mean, derivation)

Origins in manufacturing industry (e.g. General Electric)

Central tool: DMAIC circle

What does the letter σ stand for in statistics?

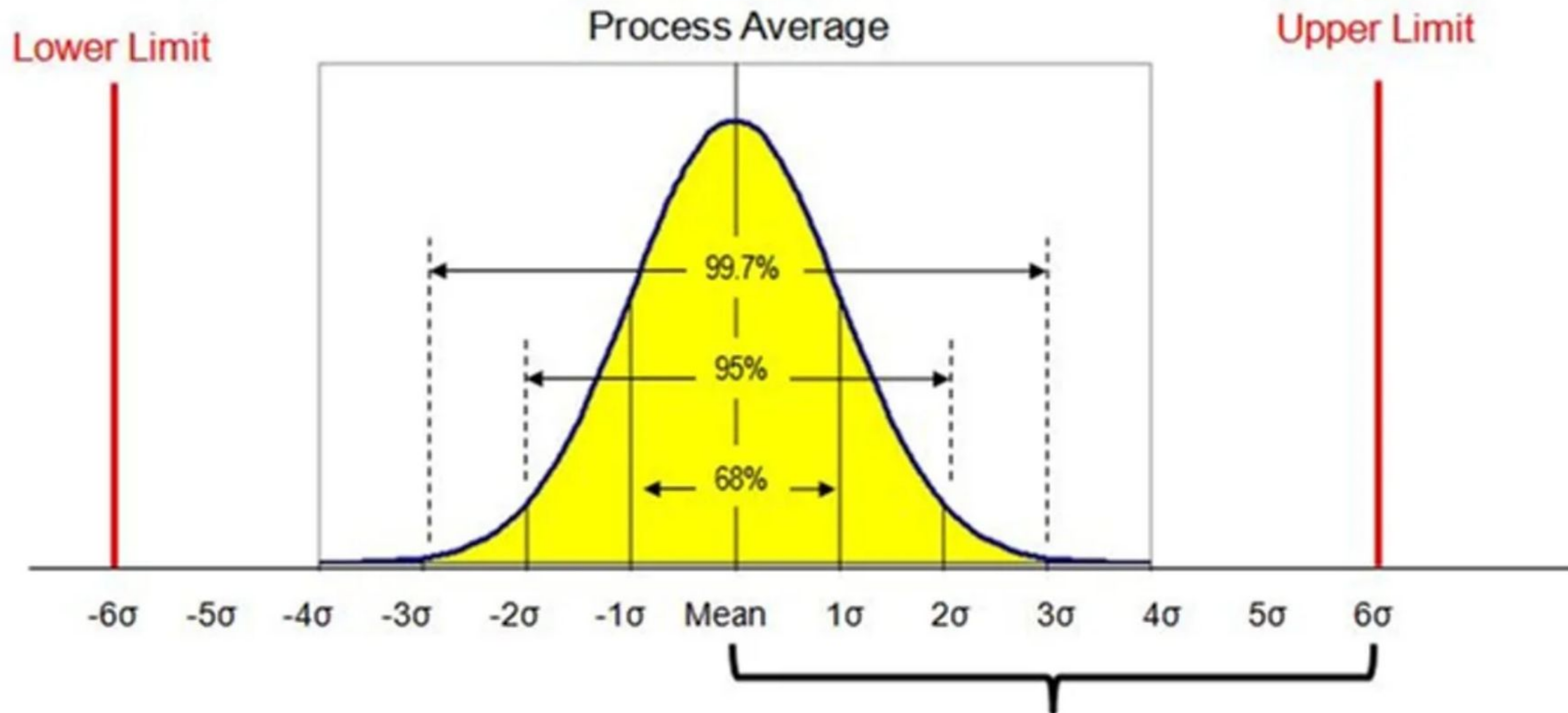
standardsabweichung

standardabweichung

standard deviation

std deviation

6 σ : Background

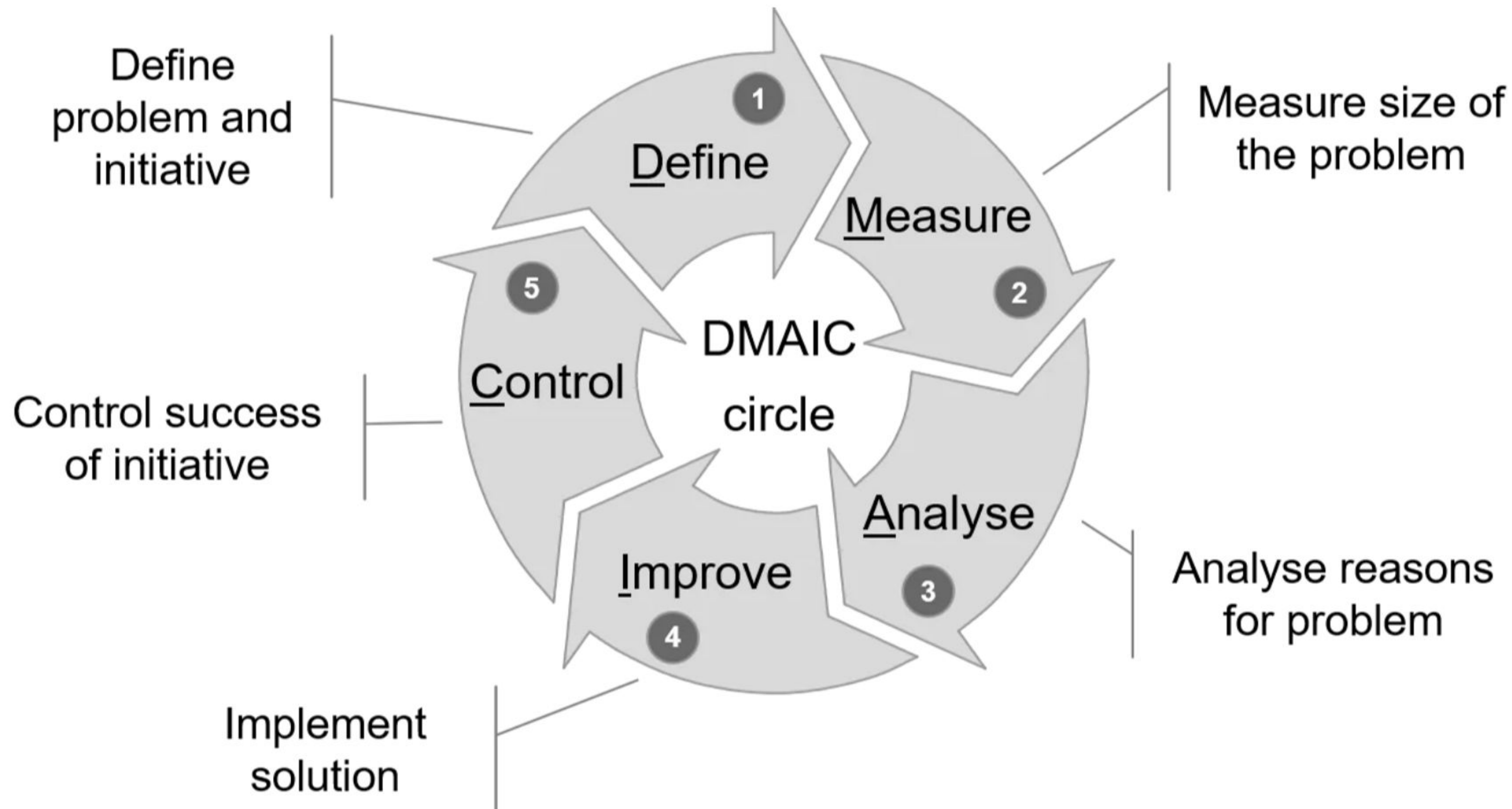


Source: <https://www.leansixsigmadefinition.com/glossary/six-sigma/>

Yield and Defects Per Million Opportunities (DPMO)

σ level	Number of defects per million opportunities	yield
1 σ	690,000	68.27%
2 σ	308,537	95.45%
3 σ	66,807	99.73%
4 σ	6,210	99.9937%
5 σ	230	99.99994%
6 σ	3.4	99.9999998%

Improvement Process: DMAIC



Criteria for Using DMAIC



Topic

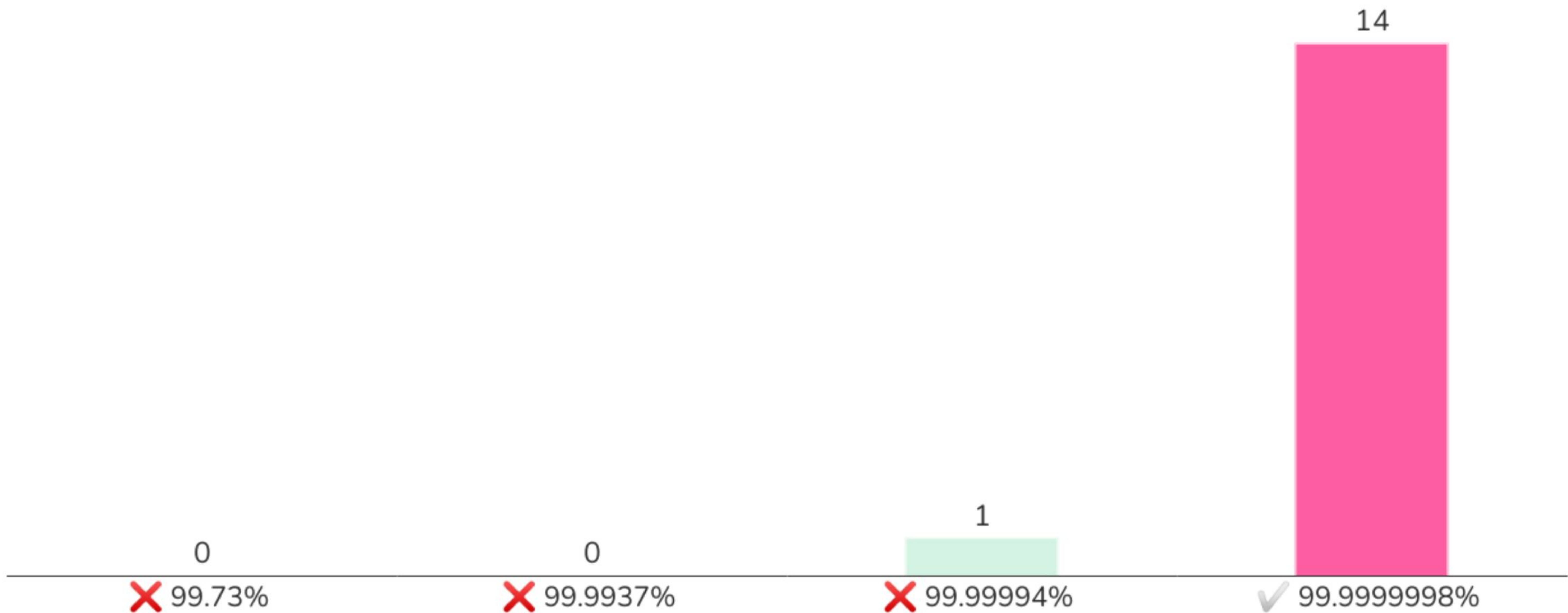
- Existing process
- Relevant to customers
- Solution not available (yet)
- Root-cause unknown
- Relevant for organization
- Measurable

Initiative

- 90 days
- 5-7 team members



What is the expected yield for 6σ?

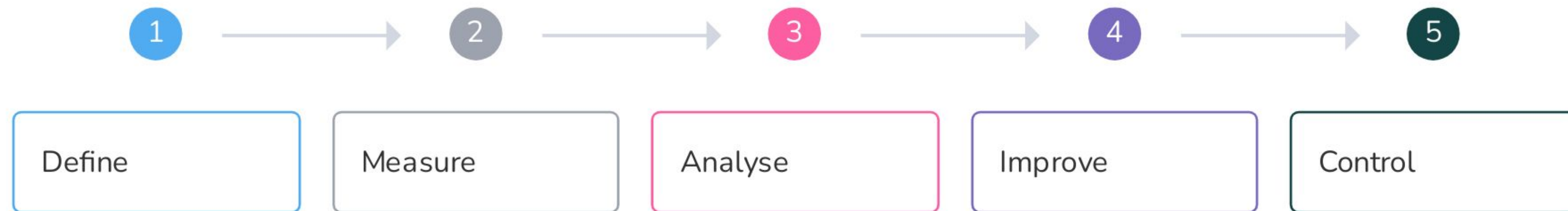


Leaderboard

15 players



Put the phases into the right order.



✓ 14 👤 | ✗ 1 👤

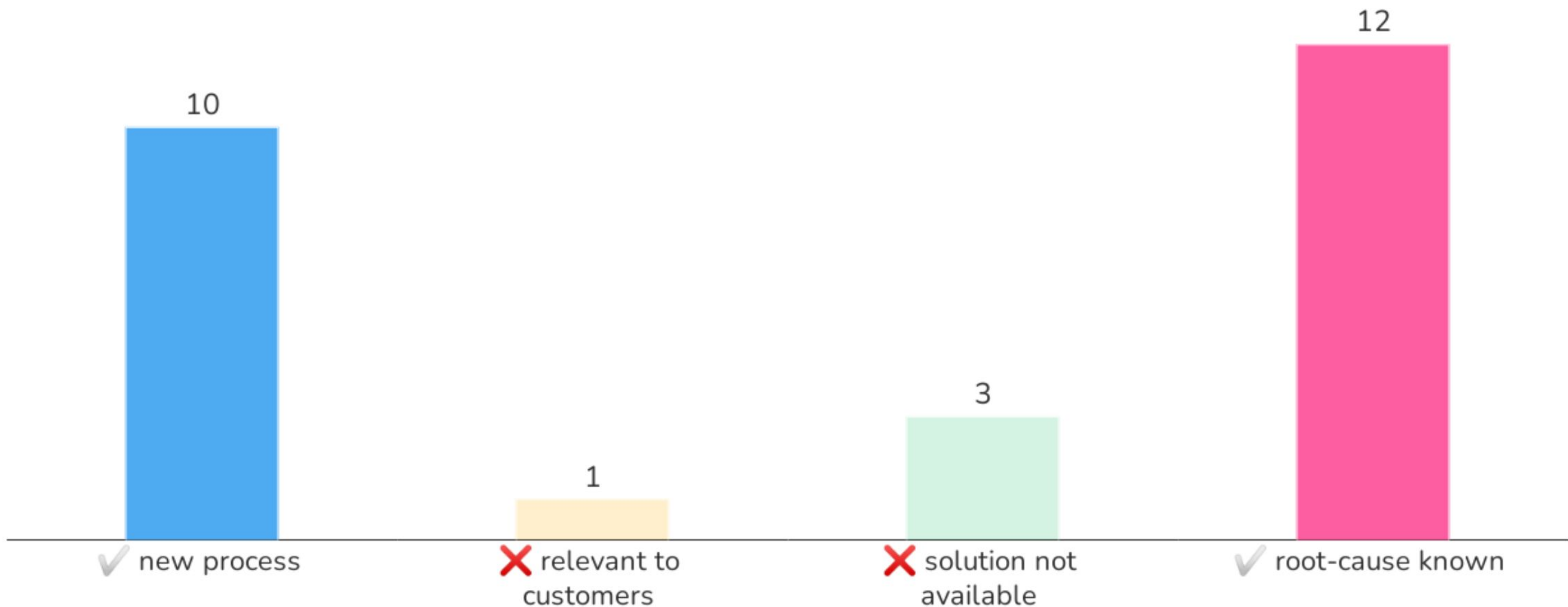
Leaderboard

15 players

1	 taube	186p +96
2	 forelle	184p +91
2	 Heute werd ich 1.	184p +91
4	 schaun wir mal	183p +92
5	 Lachs	181p +88





When should DMAIC not be used?



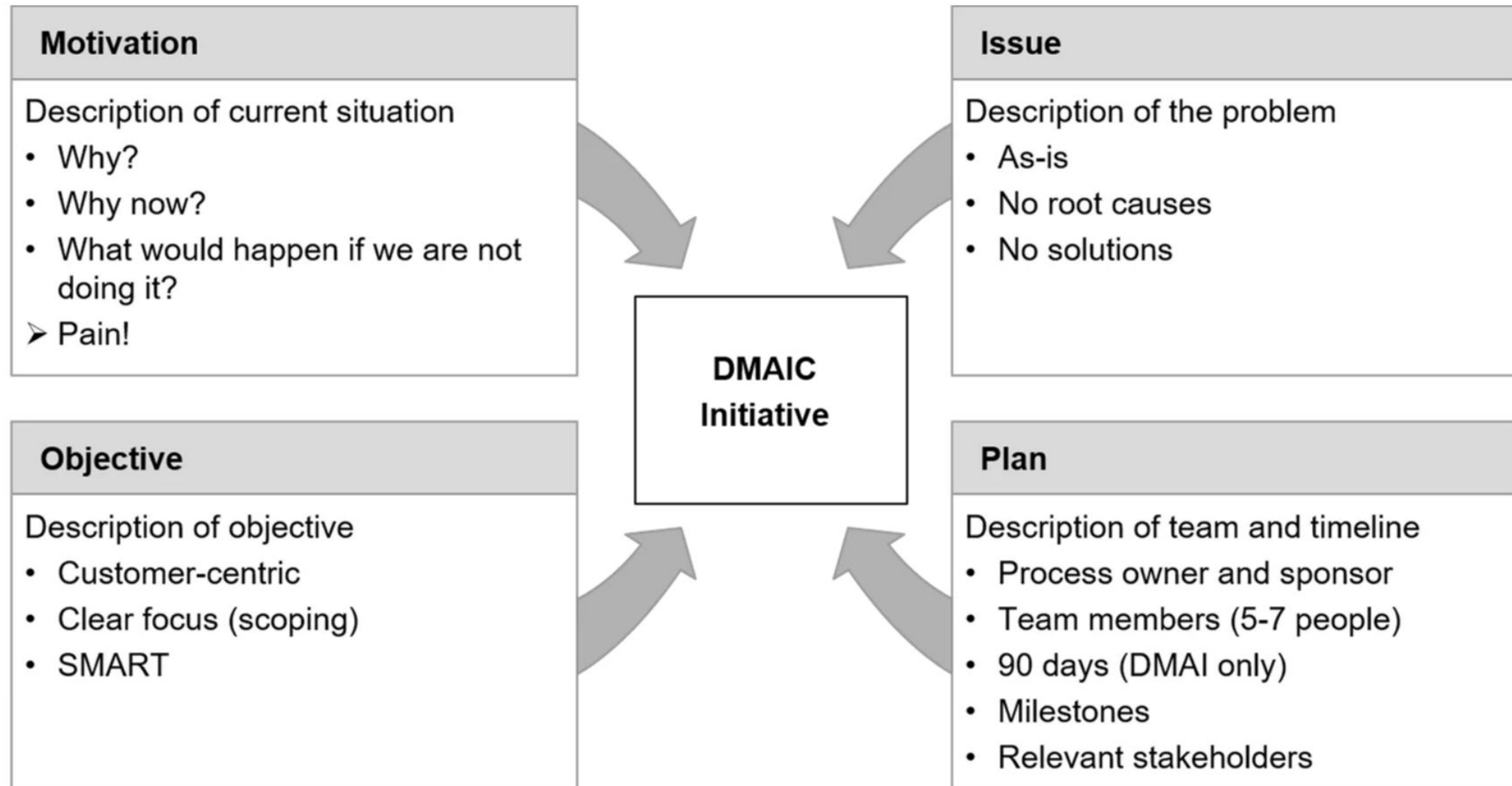
Leaderboard

15 players

 x 3  Lachs is rocking the longest streak!

1	 Lachs	274p +93
2	 forelle	268p +84
3	 Joe M.	255p +74
4	 W DMAIC	245p +71
5	 ...	230p +60

Define: Charting the Initiative



What's wrong with our process for applying for a Bachelor Thesis?

limit of 90 days

Anmeldung per Mail (umständlich)

Man wurde mehrmals nach Wochen hingewiesen, dass etwas fehlt

Search for second examiner

fehlende digitale Signatur, eigenhändige Unterschrift ist Pflicht

Die Frage ist bekannt, man darf jedoch noch nicht daran arbeiten

Papier-Prozess

man ist auf viele Personen (2 Prüfer, Prüfungsamt) angewiesen, zeitlich nah aneinanderliegend

Prozess nicht klar definiert

Dauert zu lang

Lange Wartezeiten

jeder Professor hat individuelle Anforderungen (Exposé etc.)

inoffizielle zusätzliche Anforderungen von manchen Betreuern

Define: SIPOC



Supplier	Input	Process	Output	Customer
Organisation, process or role providing input	Input required for performing the process	Major process steps (5—7)	Result created by the process	Customer (organisation, process or role) using the output

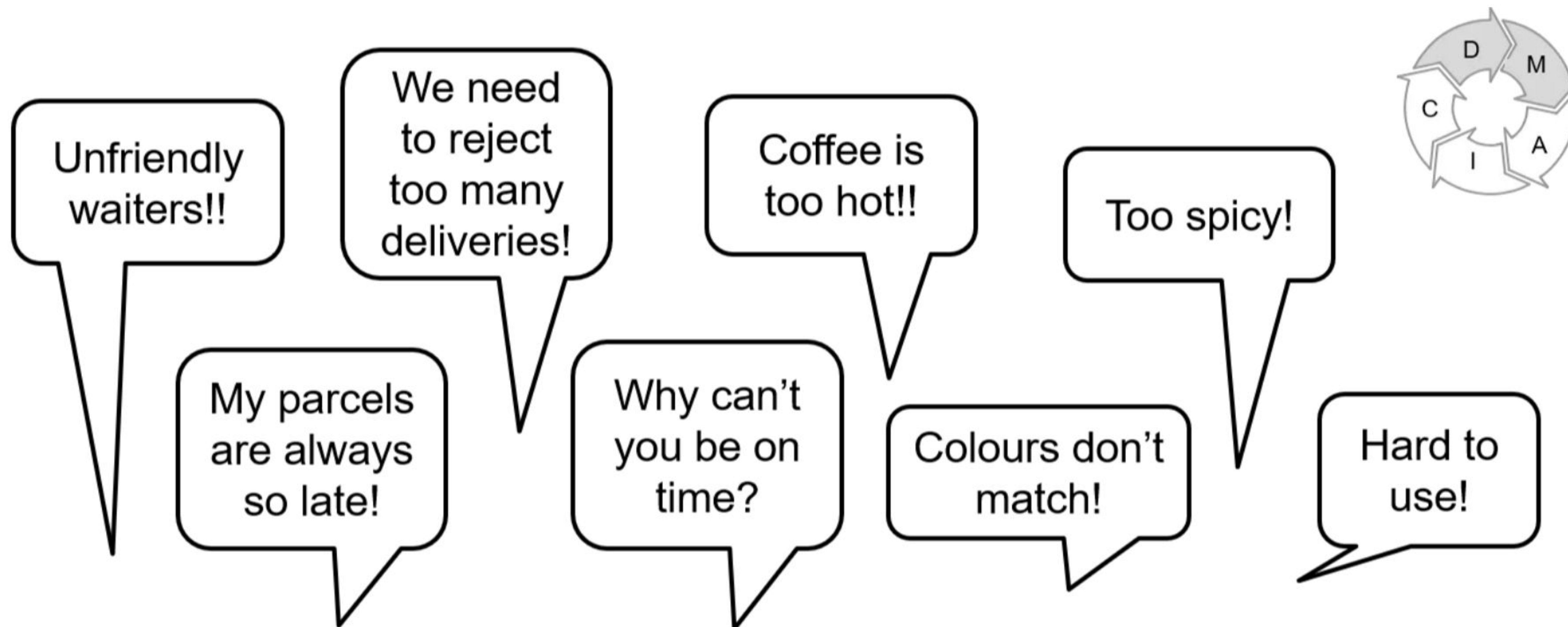
- Creating a SIPOC is team work using a wall and sticky notes
- There is no right or wrong, but just the agreement by the team
- Popular tool in process improvement initiatives

SIPOC: Inbound Mail International

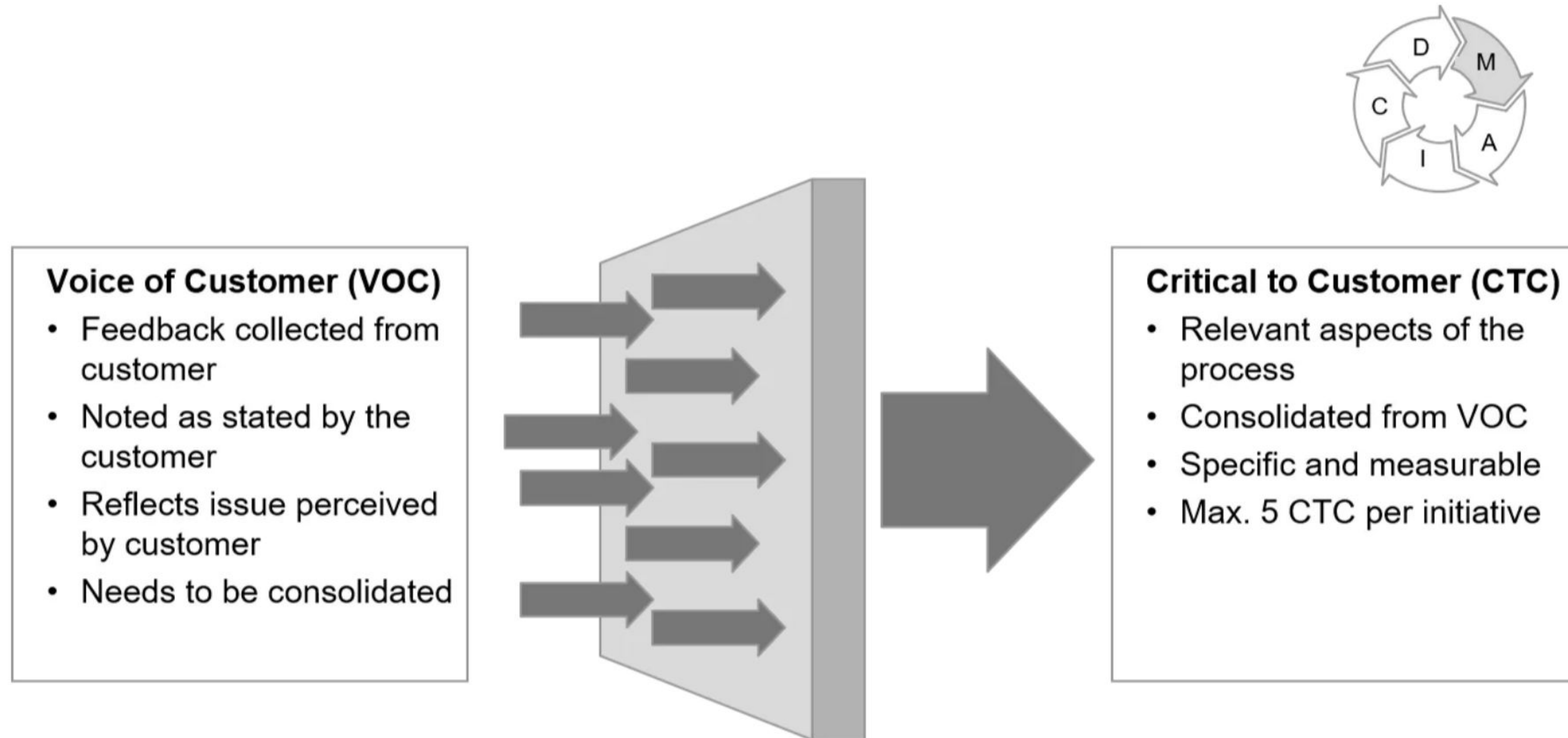


Supplier	Input	Process	Output	Customer
Airline	Consolidation (parcels in container or bag)	<ul style="list-style-type: none">• Receive consolidation• Clear customs• Split consolidation• Sort parcels into container• Create manifest• Hand-over for national delivery	Parcels sorted into container	Local postal company

Voice of the Customer -- Example



Critical to Customer -- Example



Analyse: Methods



Root cause analysis

Process analysis

Value analysis

Wich analysis methods are you aware of?

fischgräten diagramm

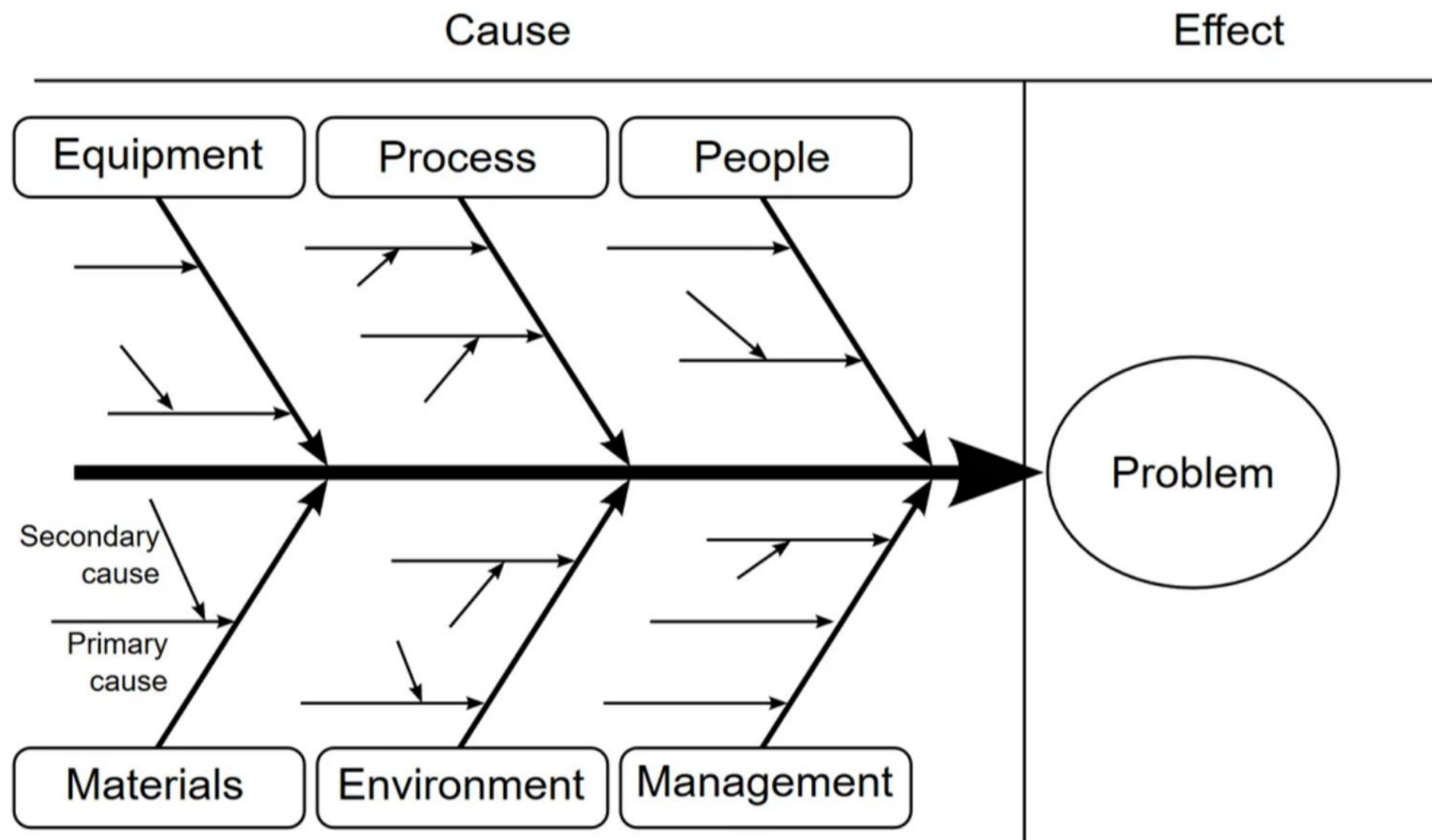
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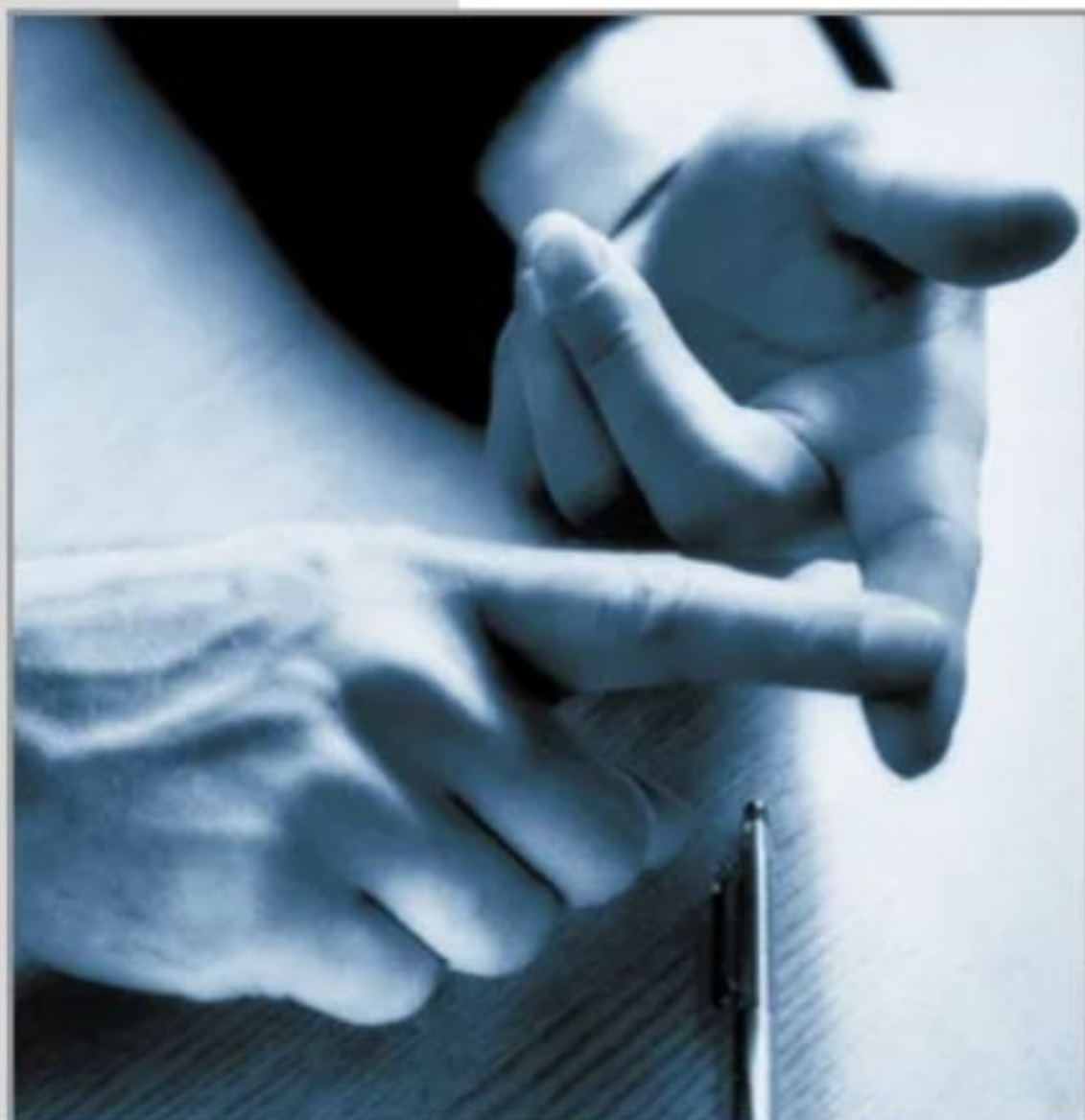
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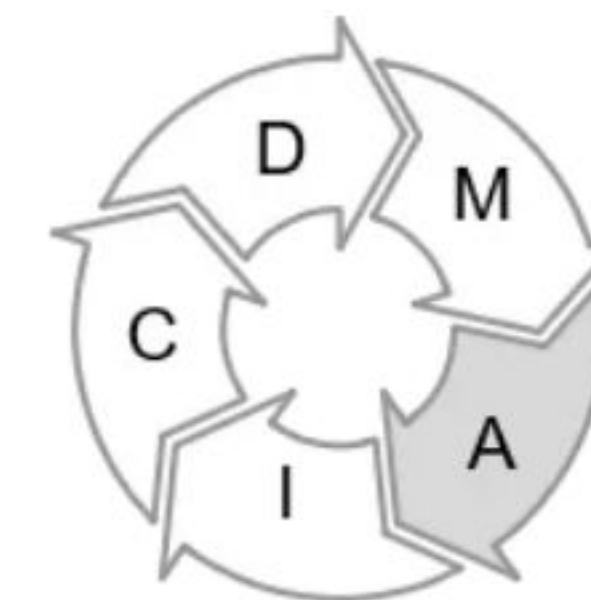
Ishikawa (or Fishbone) Diagram



Finding the Root Cause: 5 Why



- Assumed reason for existing issue
- Generated by using Ishikawa or process analysis



Why?

Why?

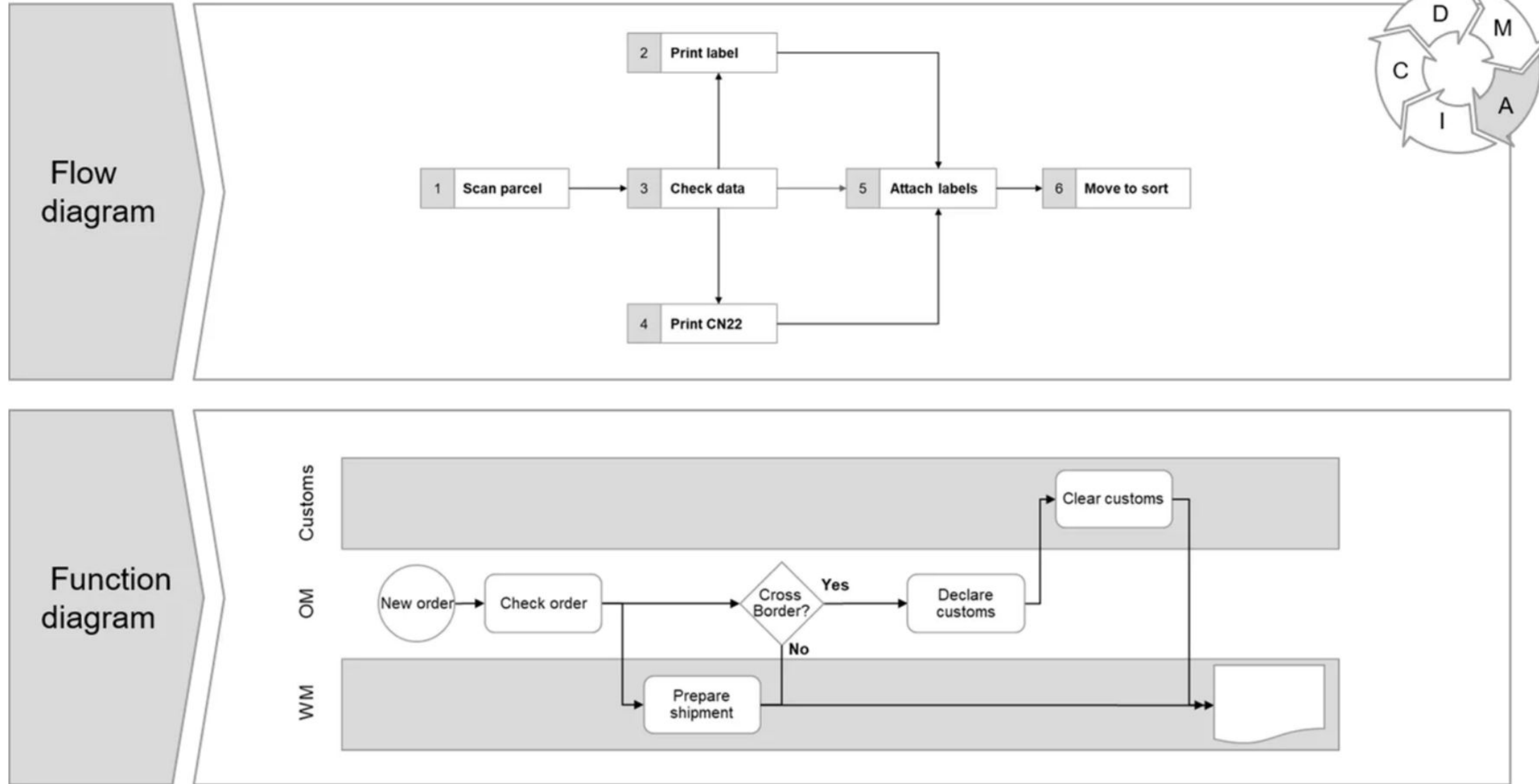
Why?

Why?

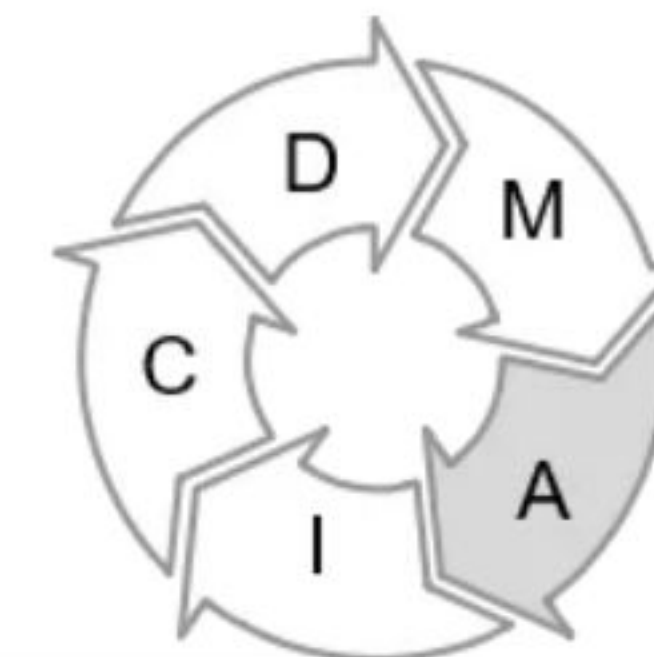
Why?

Root cause

Process Analysis

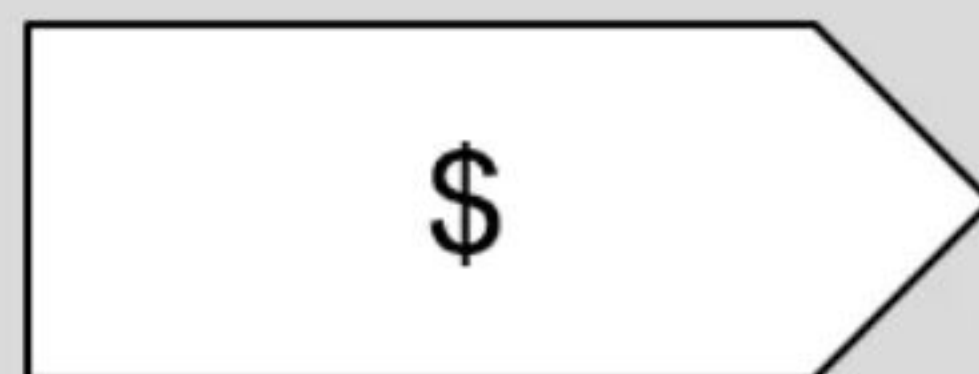


Focus on Value-add



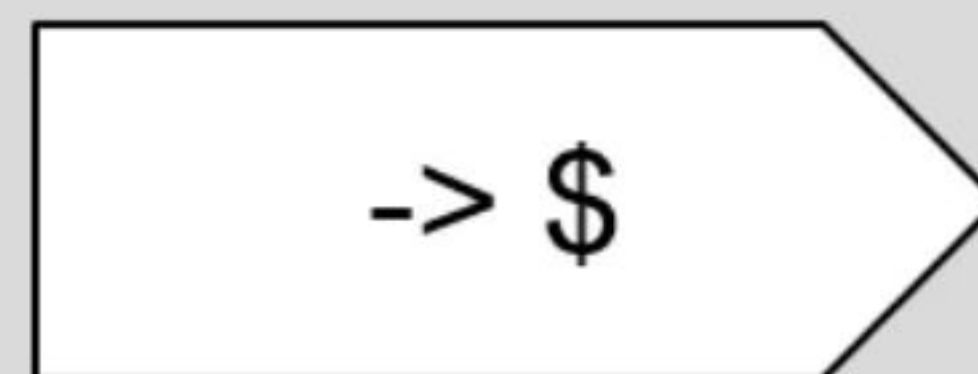
Value-adding

- Directly creates value for a customer
- “Customer pays for it”



Supporting value-add

- Required for executing value-adding activities
- Enables value creation

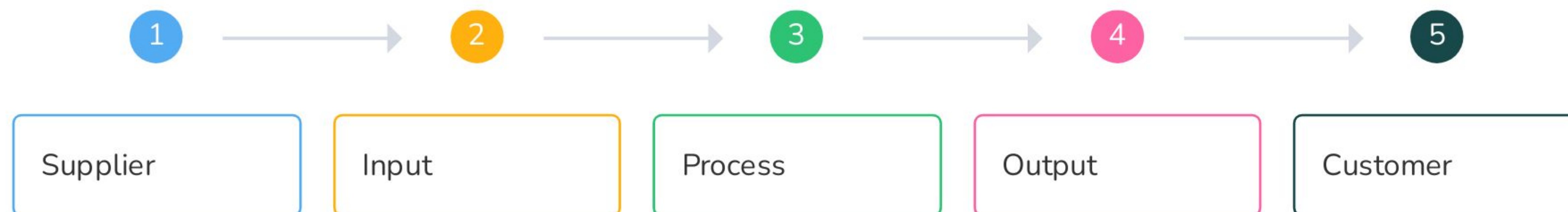


Non-value-adding

- Doesn't create value (not even indirectly)
- Jap.: muda





Bring the elements into the correct order.



✓ 11 👤 | ✗ 6 👤

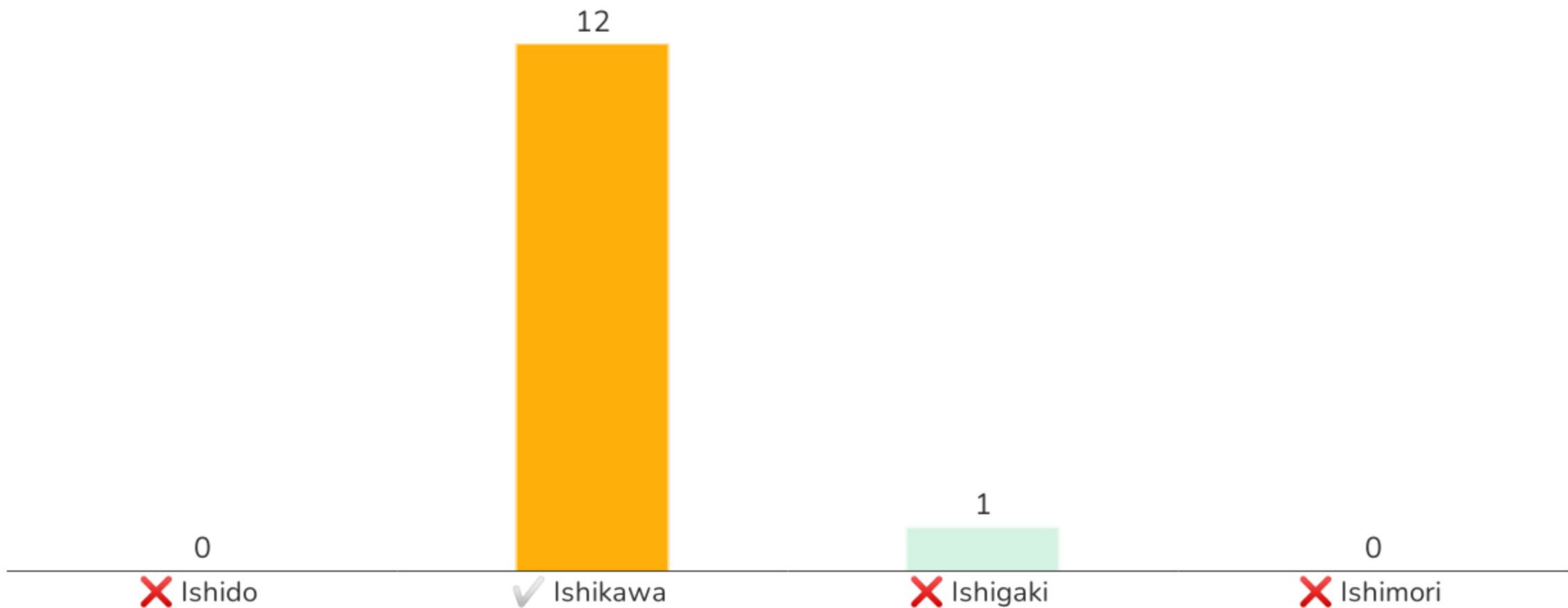
Leaderboard

18 players


x 4
 Lachs is rocking the longest streak!

1	 Lachs	365p +91
2	 forelle	359p +91
3	 Joe M.	339p +84
4	 W DMAIC	331p +86
5	 ...	321p +85

Which is a different name for the Fishbone Diagram?



Leaderboard

18 players



x 5



Lachs holds the longest streak record!



Lachs

1	Lachs	455p +90
2	forelle	452p +93
3	Joe M. 455 points	430p +91
4	W DMAIC	422p +91
5	...	412p ...

Questions and Answers

Top questions

Pinned

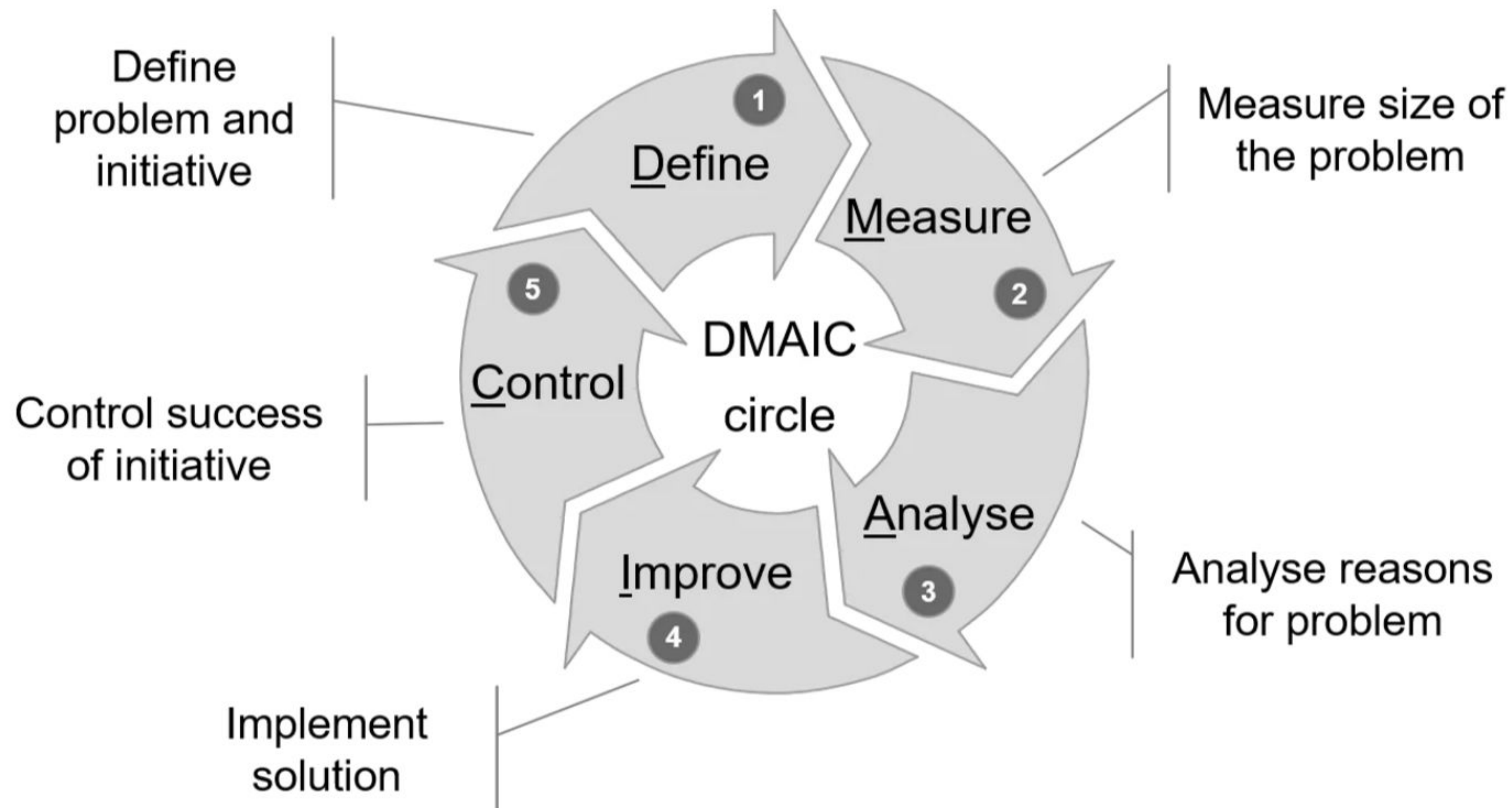
Newest

Oldest

Answered

There are no unanswered questions.

DMAIC



Next session: Improve and Control

Plus Lean

Simulation Game: Stakeholder Management

Objective: Understanding stakeholders an informal organisation.

Date: June 18, 2024

Location: BCN 424