



Lean Yellow Belt Operational Excellence

2

**Problem Solvency
& Eliminating
Wasteful Procedures**

What's Coming Up?



Delivered Live via Zoom



All Sessions Recorded



Free and unrestricted for DCM Members

2pm - 5pm

Sept
18

Making Lean Work
For Your
Organisation

2pm - 5pm

Oct
16

Problem Solving &
Eliminating of
Wasteful Procedures

2pm - 5pm

Nov
13

Measuring &
Continual
Improvement

Session Schedule

▶ **2.00pm – 2.50pm**

▶ **3.00pm – 3.50pm**

▶ **4.00pm – 5.00pm**

▶ **Resources**



TODAYS – SLIDE DECK

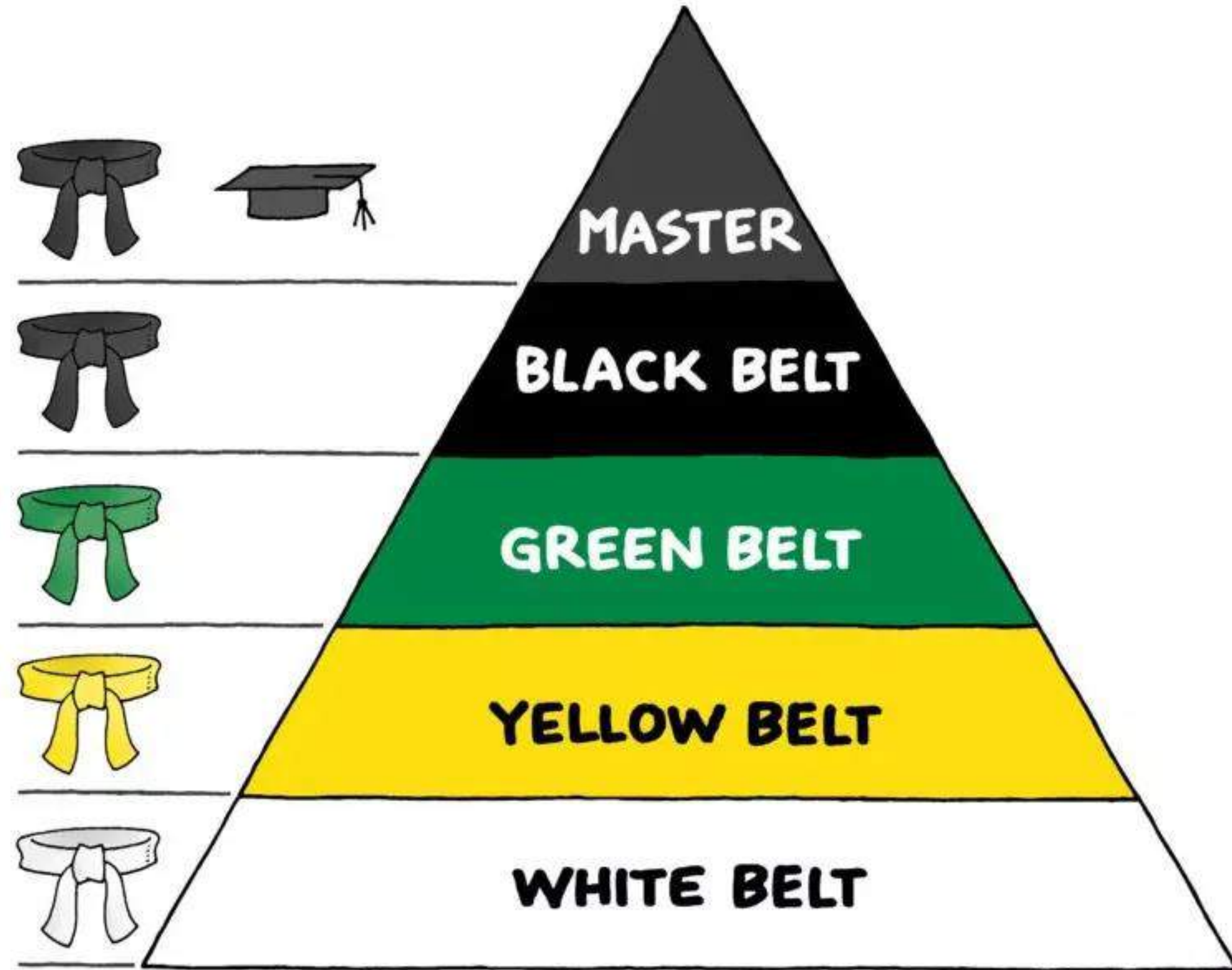
Session Content

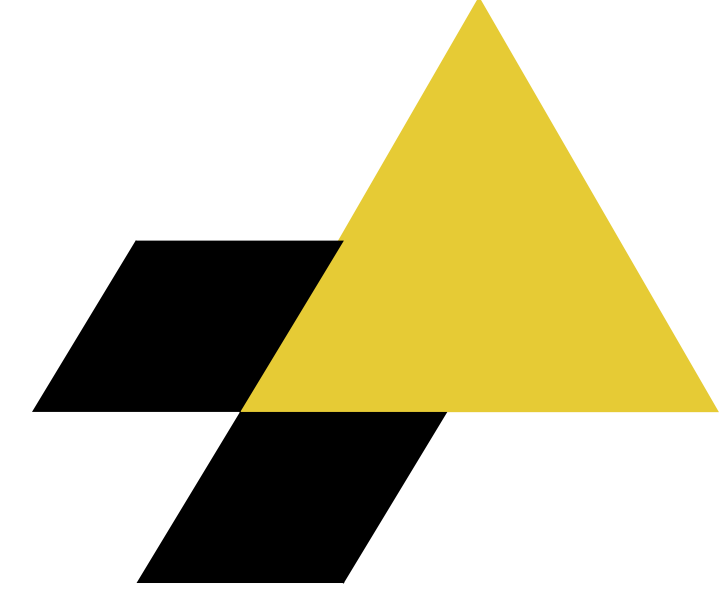
- ▶ **Problem Solving Teams**
- ▶ **Problem Statements**
- ▶ **Process Mapping**



RECAP

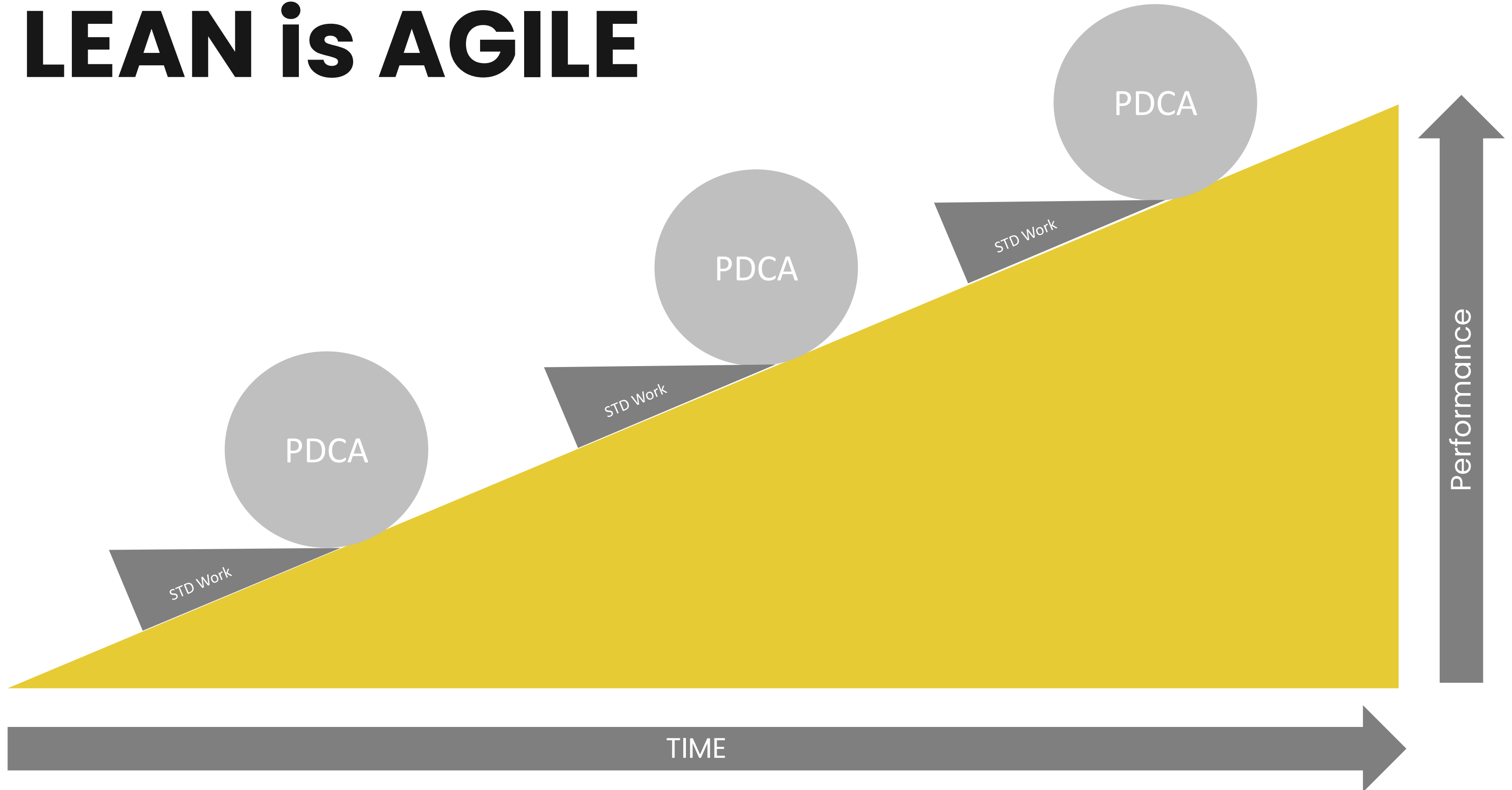
Yellow Belts



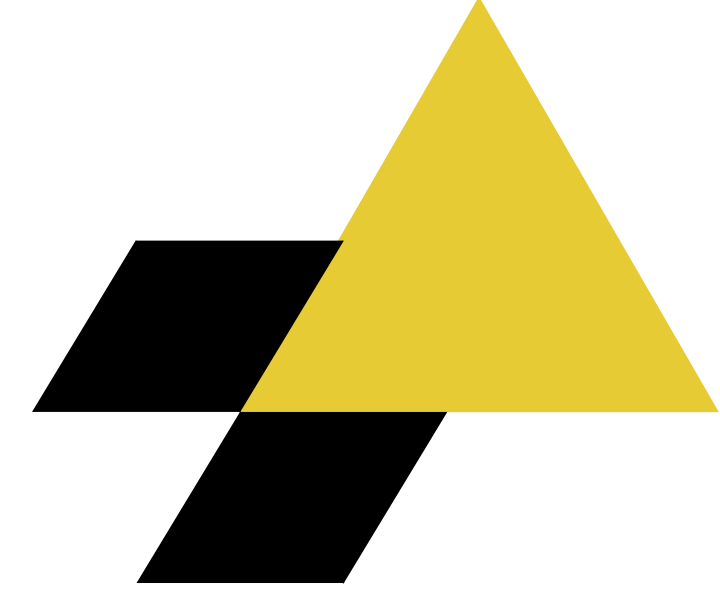


- | | | | | |
|------------|----------------|------------|-----------|------------|
| Sharpness | Swiftness | Liveliness | Alertness | Suppleness |
| Quickness | Dexterity | Promptness | Athletic | Briskness |
| Cleverness | Responsiveness | Fleetness | Expedite | Dynamic |

LEAN is AGILE



LEAN Principles



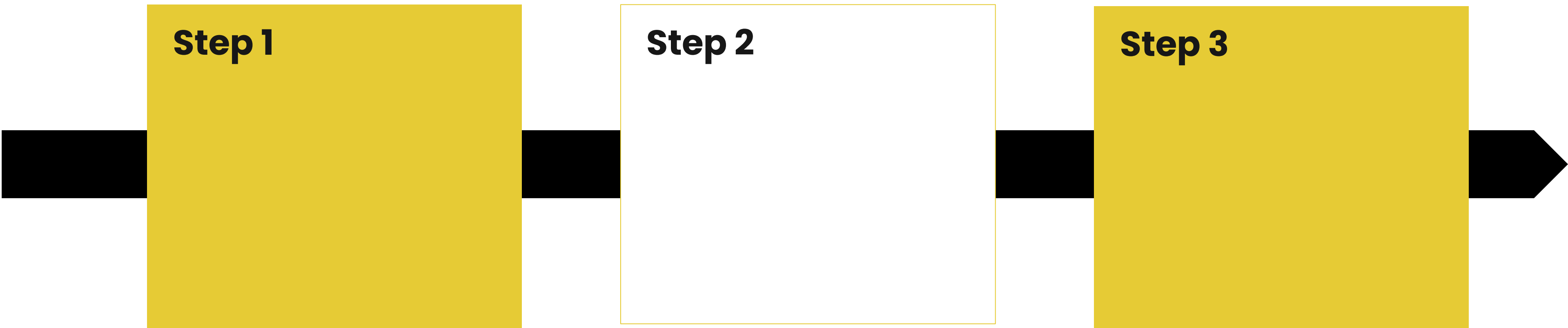
The nature of “FLOW”

Step 1

Step 2

Step 3

Was that necessary ?

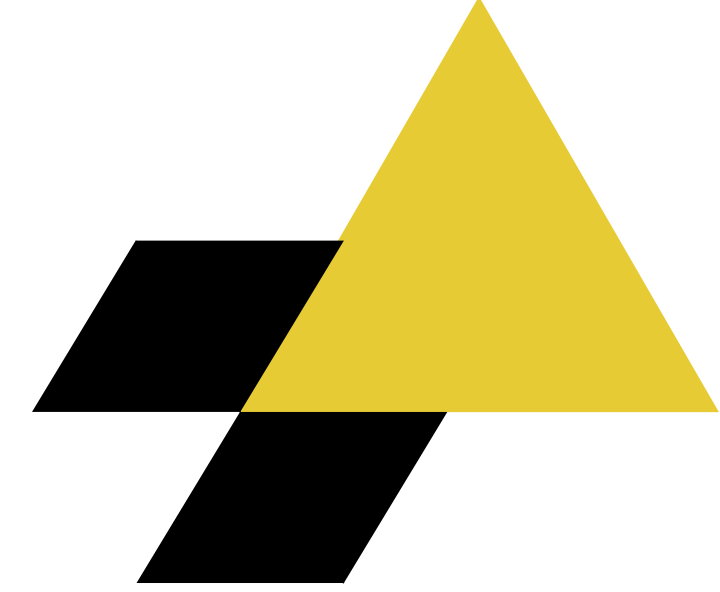
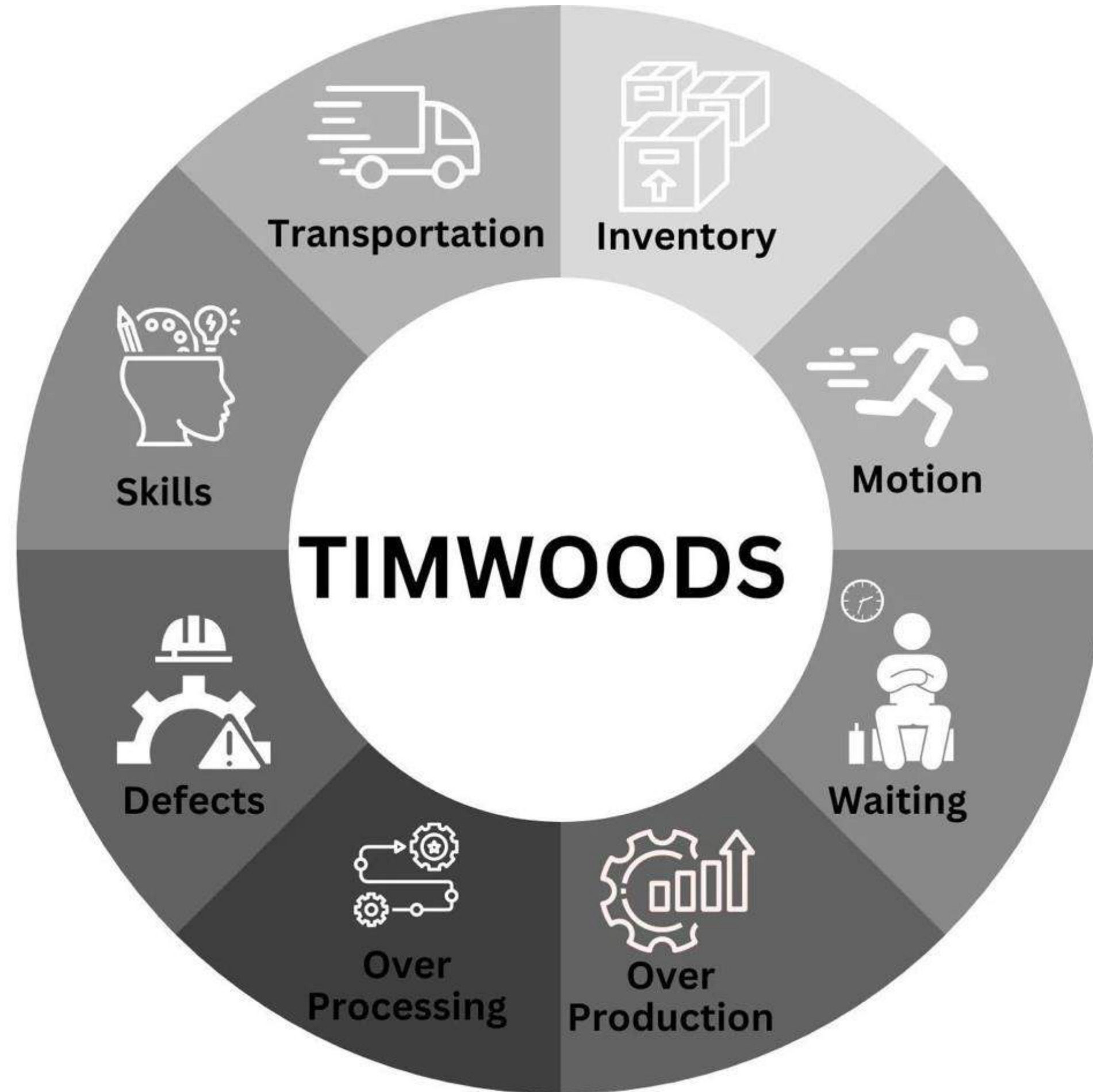


VA = Value Add

NVA = Non - Value Add

NNVA = Necessary Non Value Add

8 Muda



Cynefin Model



Simple Problems

Known
Knowns

OBVIOUS

Chaotic Problems

Unknowable's

NOVEL

Complicated Problems

Known
Unknowns

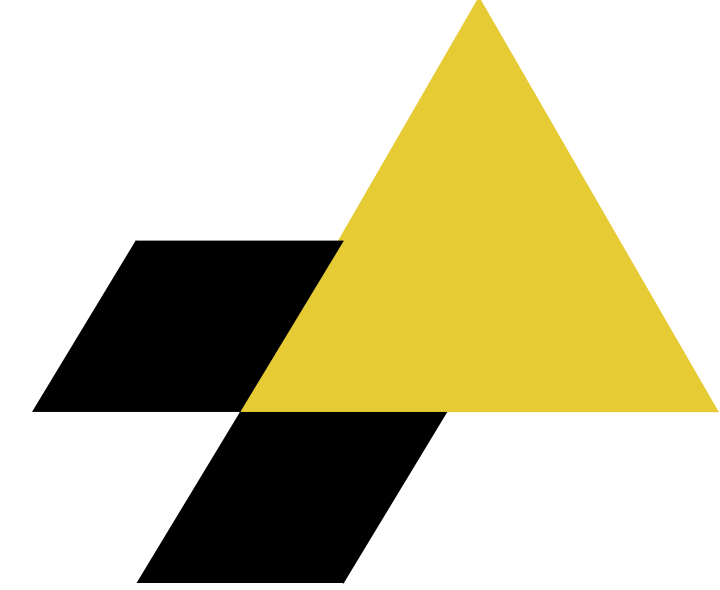
BEST Practise
Experts

Complex Problems

Unknown
Unknowns

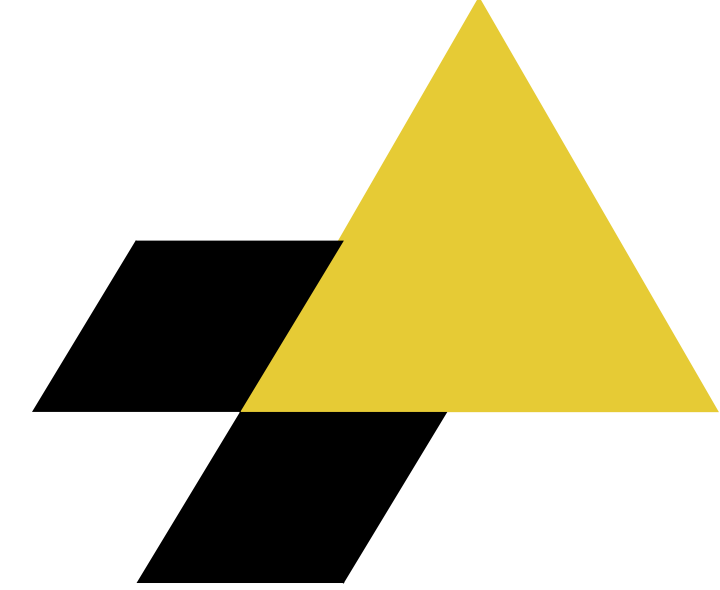
PROBE / SENSE
AGILITY

Cynefin Model



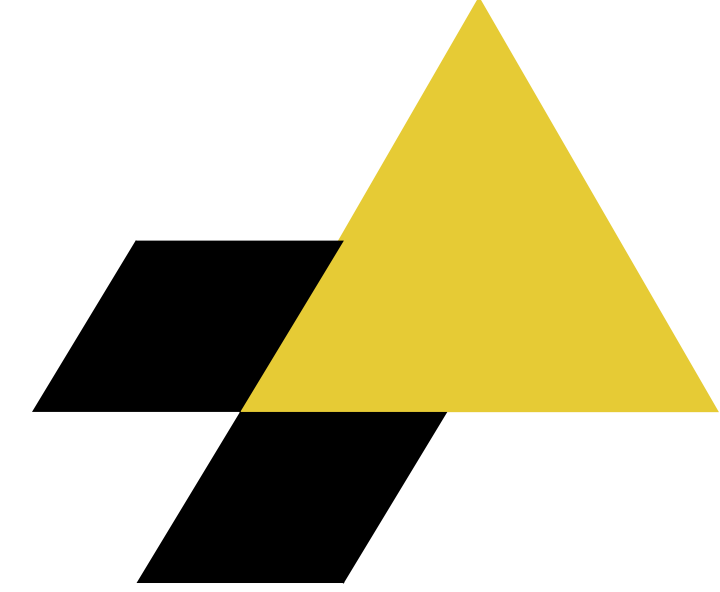
- The Simple Problem
- The Complicated Problem
- The Complex Problem
- The Chaotic Problem

The Simple Problem



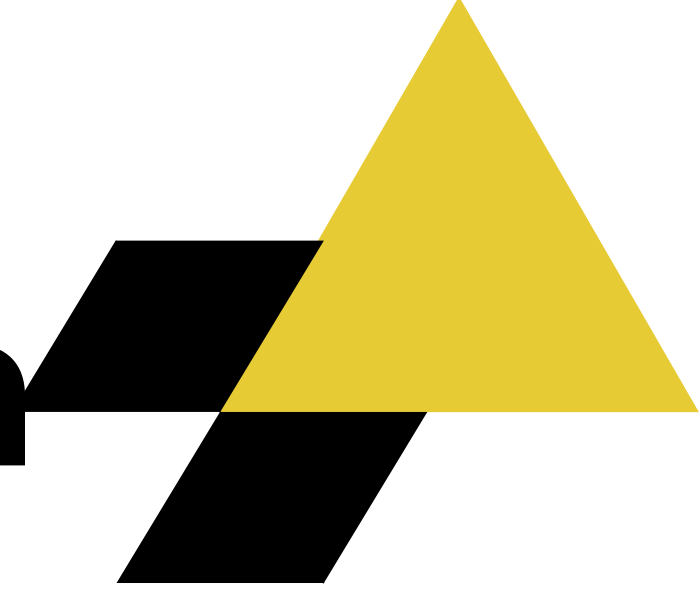
- The first type of problem in Snowden's framework is *simple* and *obvious*.
- It has already been solved, and there actually is a best practice that works all the time

The Complicated Problem



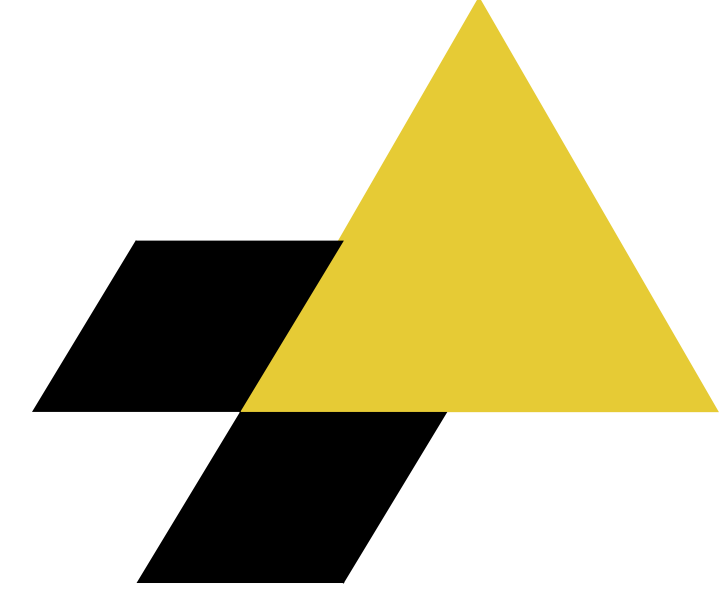
- Known Unknown
- Ship stuck in the Suez Canal – Problem is known but the exact solution isn't obvious

The Complex Problem



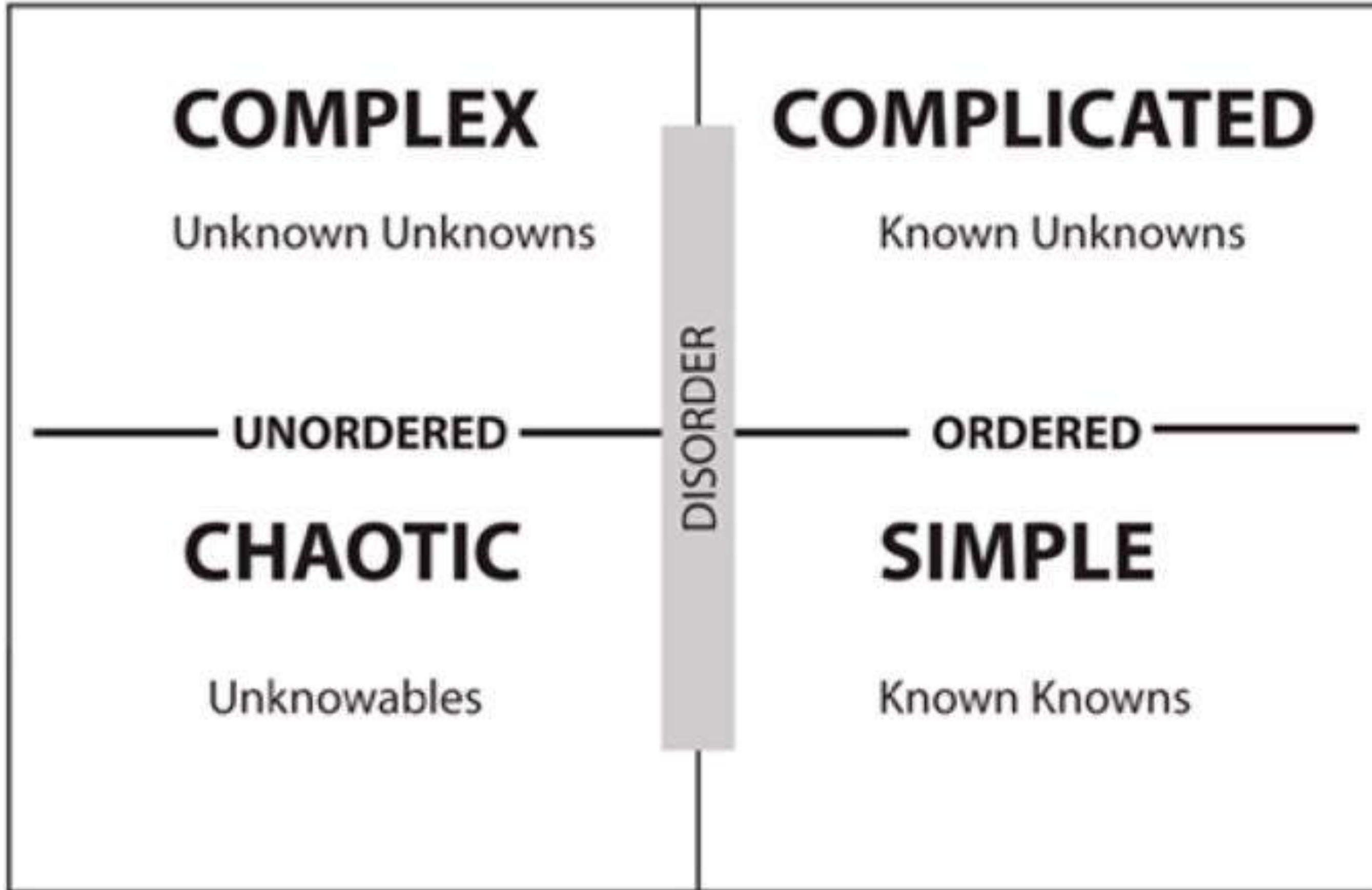
- Multiple unknown forces
- Climate Change

The Chaotic Problem

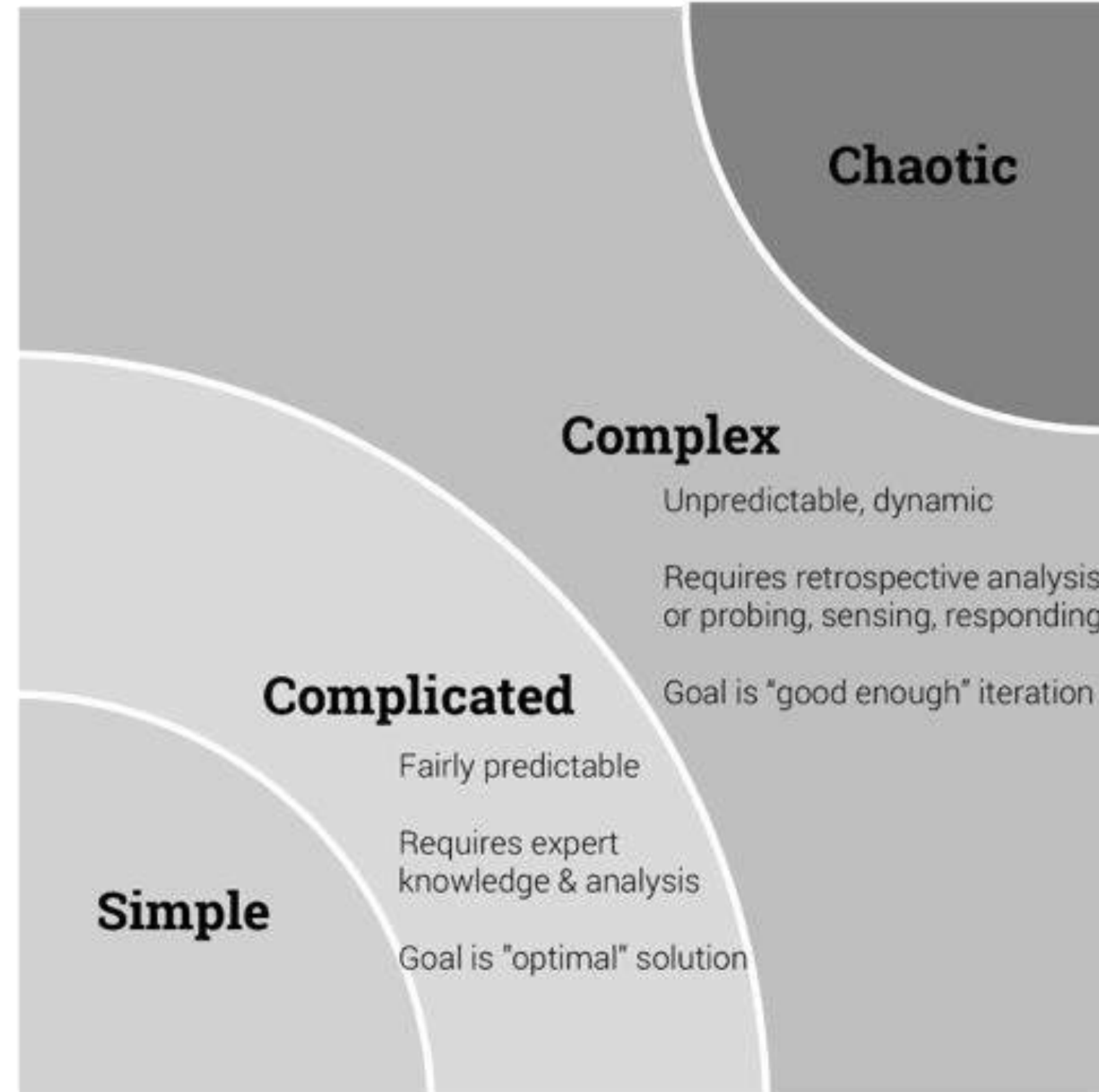


- Essentially a Crisis
- A Tsunami, Riot, Storm, Stock Market crash, Power outage, Covid -19

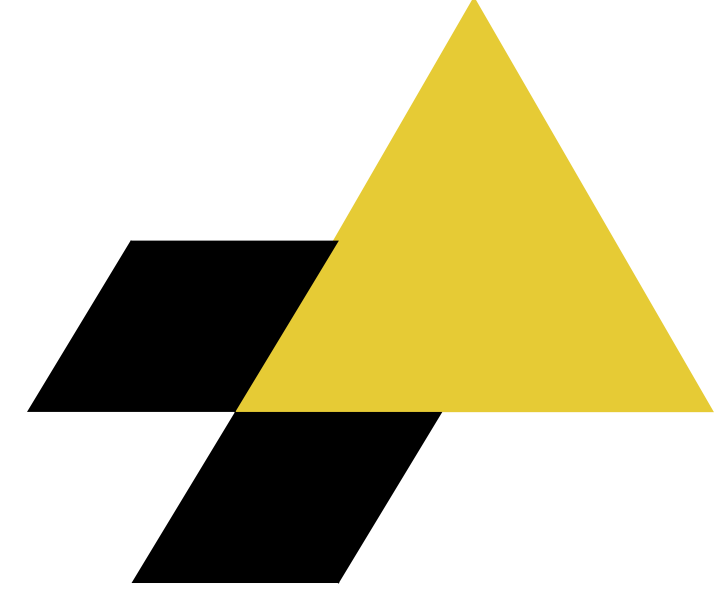
PART 1



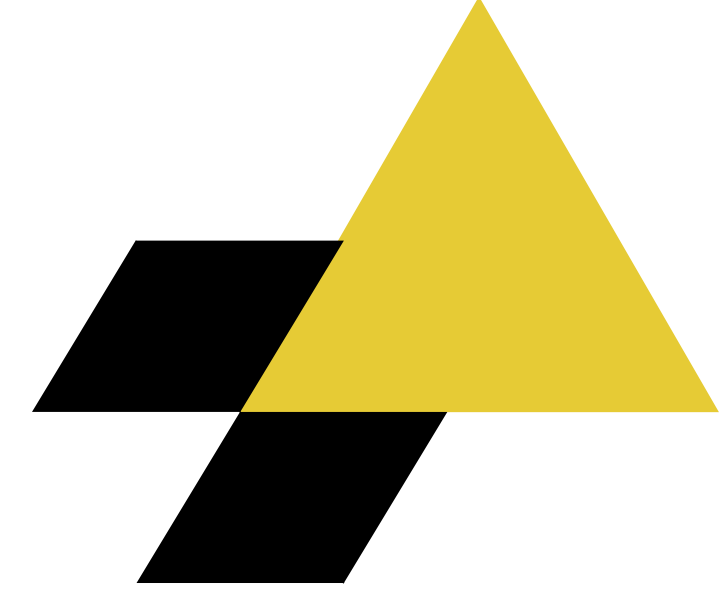
No disagreement



No certainty



LEAN Teams



Different problems require different solutions

KAIZEN

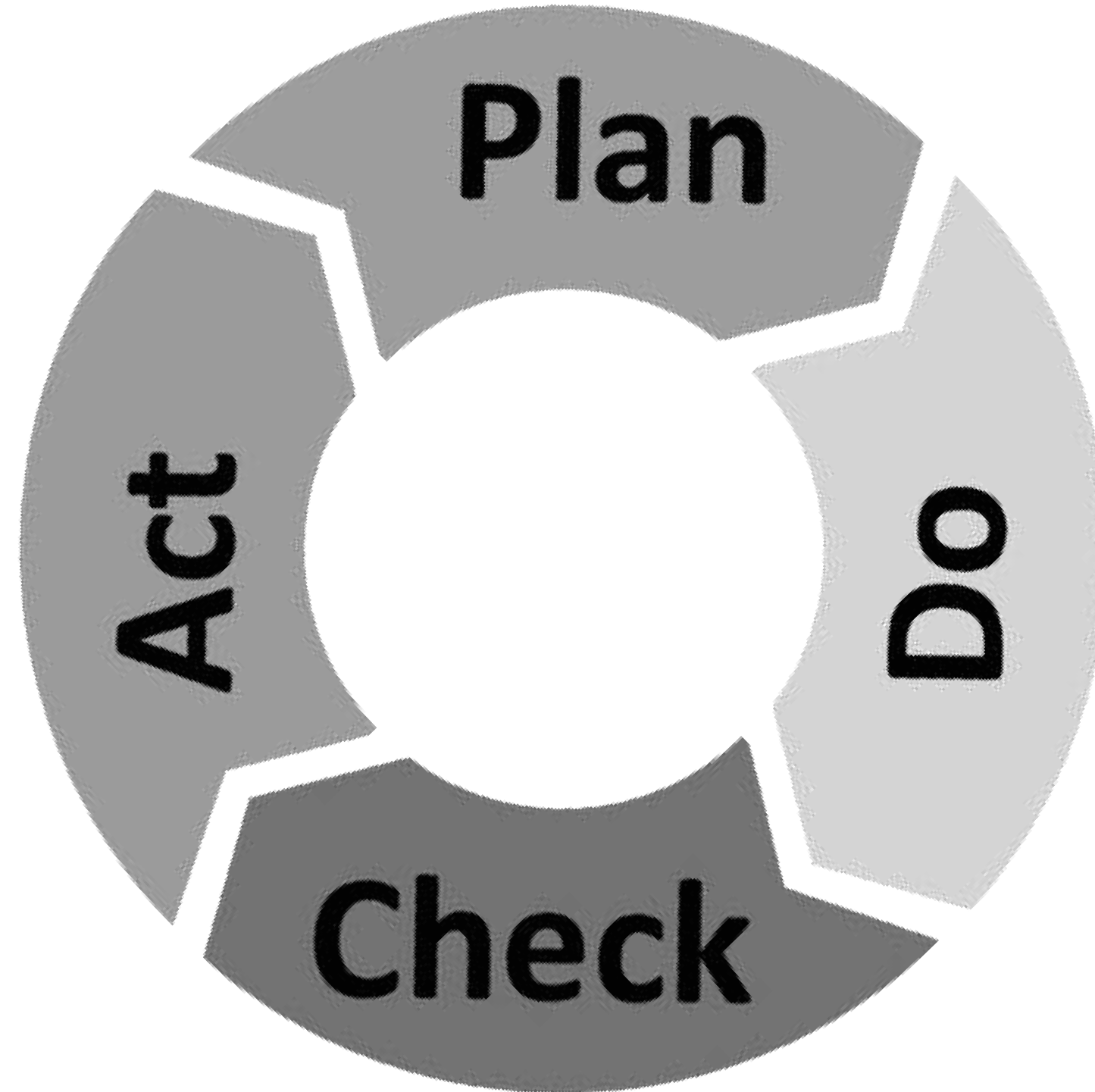
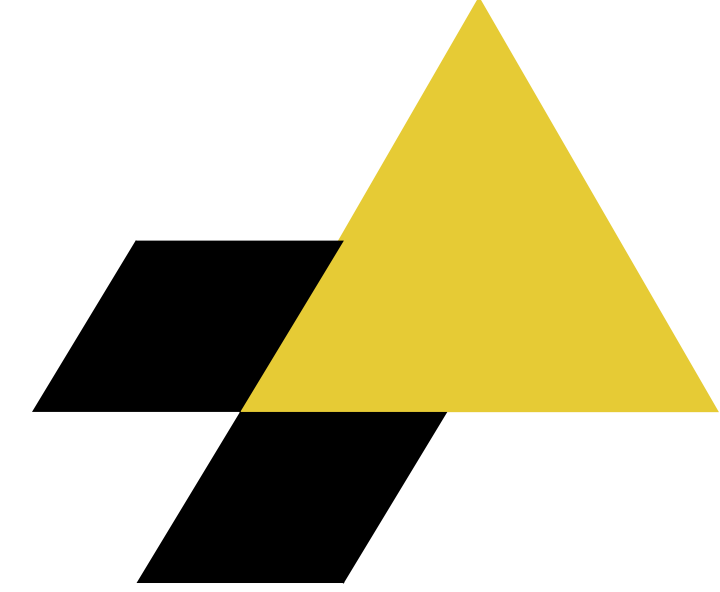
A3

DMAIC

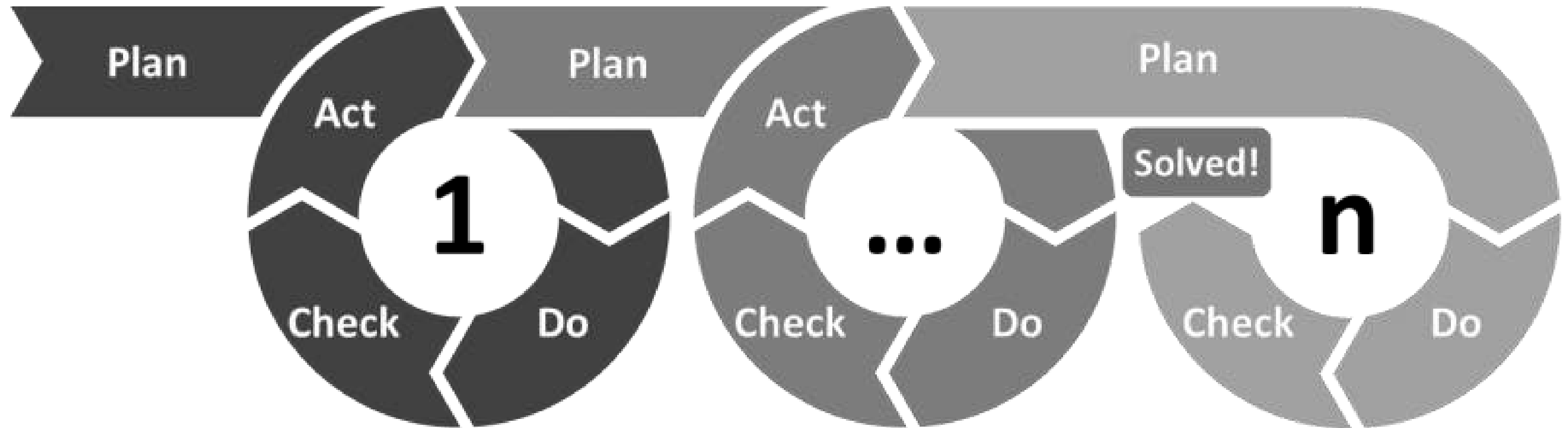
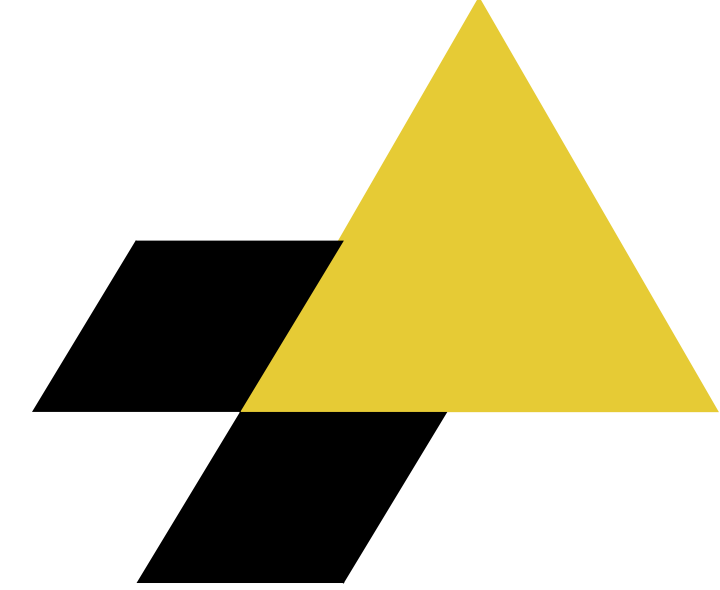


PDCA – Plan – Do – Check – Act

The Deming Cycle



The Deming Cycle



Kaizen

KAIZEN

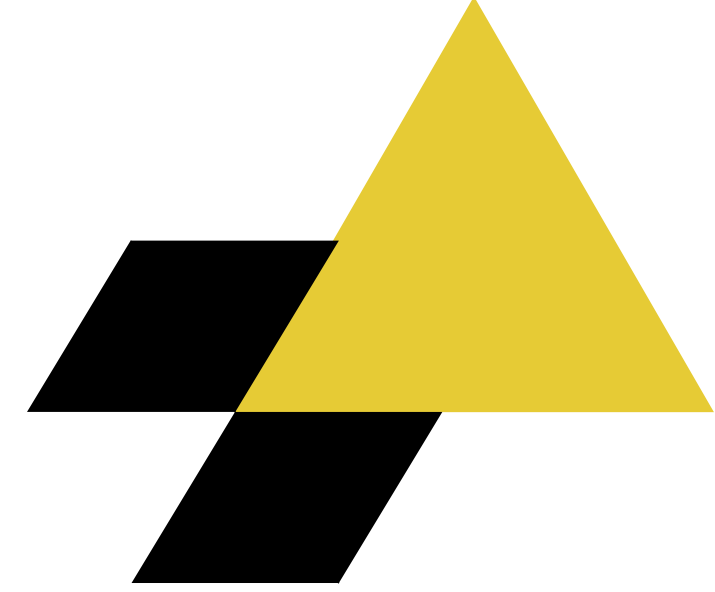
KAI

ZEN

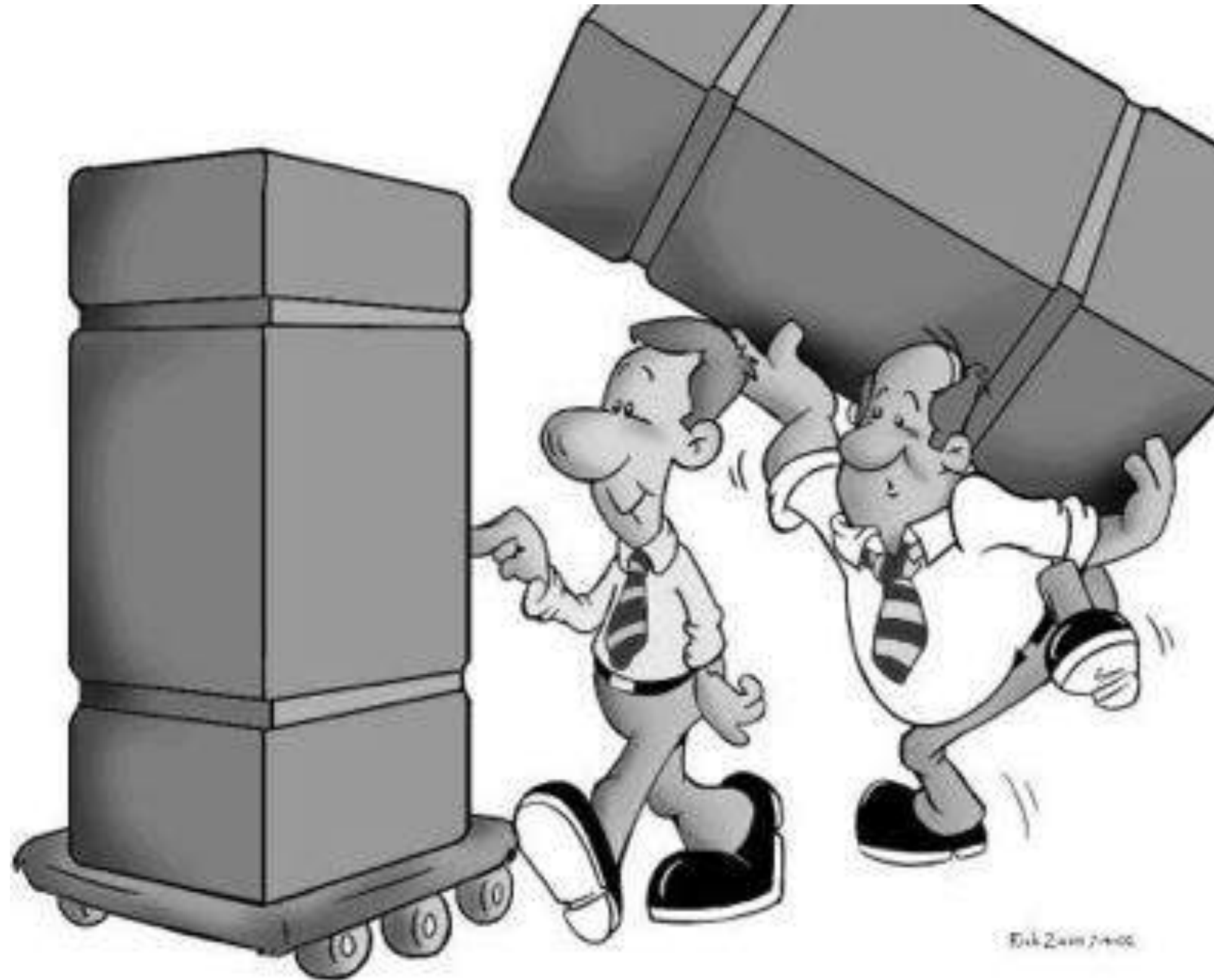
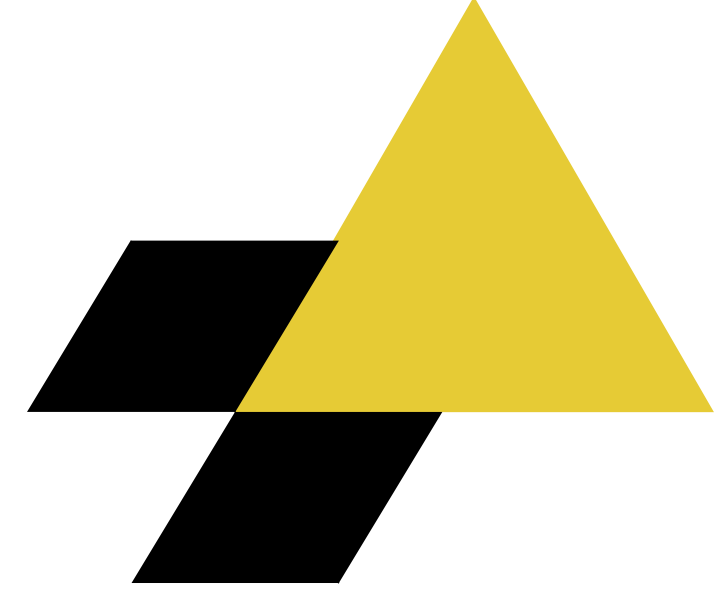
改

善

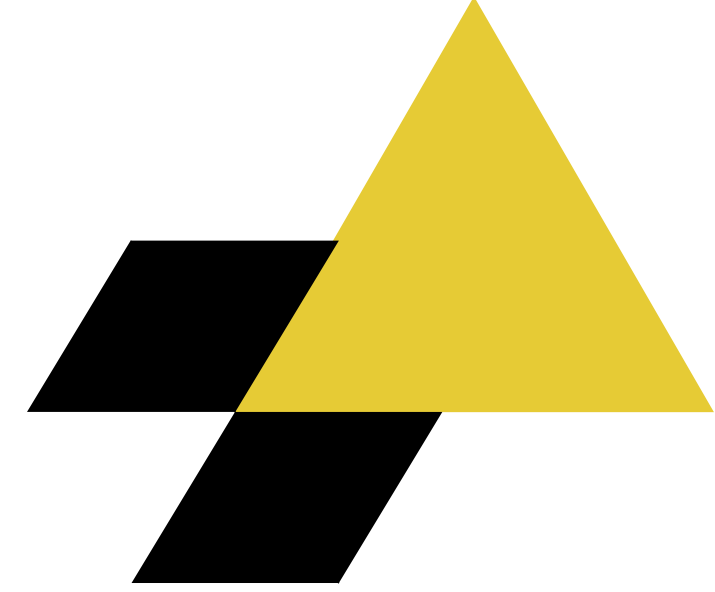
Change for Good



KAIZEN



KAIZEN



What is A3 Problem Solving



A3 Storyboards

Example of completed problem-solving A3 / ONLINE FIGURE 1

1. Clarify and validate the problem.

The U-2 major phase inspection is averaging 13 days, exceeding the 12-day inspection target, and it cannot efficiently sustain worldwide U-2 aircraft operational requirements.

Average: 13, Trend: 13, Goal: 12

DMM - operations and maintenance

2. Break down the problem/Identify performance gaps.

- Lack of communication and schedule between phase and MMU results in personnel availability.
- Auxiliary tasks reduce maintainer availability.
- Current work procedures, attention to detail drive excess MT and inefficiencies.

MMU - maintenance group
MT - maintenance

3. Set improvement target.

Achieve 12-day major phase by July 31, 2010.

DMM - operations and maintenance

4. Determine root cause.

ICD - foreign object damage

5. Develop countermeasures.

Action	POC	Start	End	Status	Remarks	Do-it
Spaghetti diagram and process time for A/C bar down	Mr. Harrington Mr. Rowan	Jan 23	Jan 26			X
Spaghetti diagram and process time for ICD/TCTO process	Mr. Harrington Mr. Rowan	Jan 23	Jan 26			X
Spaghetti diagram and process time for Locks	Mr. Harrington Mr. Rowan	Jan 23	Jan 26			X
Spaghetti diagram and process time for Ops checks	Mr. Harrington Mr. Rowan	Jan 23	Jan 26			X
Spaghetti diagram and process time for assembly	Mr. Harrington Mr. Rowan	Jan 23	Jan 26			X
Spaghetti diagram and process time for post-dock work cards	Mr. Harrington Mr. Rowan	Jan 23	Jan 26			X
Time in motion study	Mr. Harrington Mr. Rowan	Jan 23	Jan 26			X
Quality assurance pass rates	Flig Bernard	Jan 15	Jan 21			X
Phase roll out date	Mr. Rowan	Jan 15	Jan 15			X
Paper doll	Mr. Rowan	Jan 15	Jan 15			X
Consumable usage data for fitting					C/W	

A/C - aircraft
ICD - time change item
TCTO - time compliance technical order
POC - point of contact
Ops - operations
C/W - complied with

6. See countermeasures through.

Action	POC	Start	End	Status	Remarks	Do-it
Spaghetti diagram and process time for A/C bar down	Mr. Harrington Mr. Rowan	Jan 23	Jan 26	C/W		X
Spaghetti diagram and process time for ICD/TCTO process	Mr. Harrington Mr. Rowan	Jan 23	Jan 26	C/W		X
Spaghetti diagram and process time for Locks	Mr. Harrington Mr. Rowan	Jan 23	Jan 26	C/W		X
Spaghetti diagram and process time for Ops checks	Mr. Harrington Mr. Rowan	Jan 23	Jan 26	C/W		X
Spaghetti diagram and process time for assembly	Mr. Harrington Mr. Rowan	Jan 23	Jan 26	C/W		X
Spaghetti diagram and process time for post-dock work cards	Mr. Harrington Mr. Rowan	Jan 23	Jan 26	C/W		X
Time in motion study	Mr. Harrington Mr. Rowan	Jan 23	Jan 26	C/W		X
Quality assurance pass rates	Flig Bernard	Jan 15	Jan 21	C/W		X
Phase roll out date	Mr. Rowan	Jan 15	Jan 15	C/W		X
Paper doll	Mr. Rowan	Jan 15	Jan 15	C/W		X
Consumable usage data for fitting				C/W		

A/C - aircraft
ICD - time change item
TCTO - time compliance technical order
POC - point of contact
Ops - operations
C/W - complied with

7. Confirm results and process.

Average: 13, Trend: Down, Goal: 12 days, Victim: 13 days

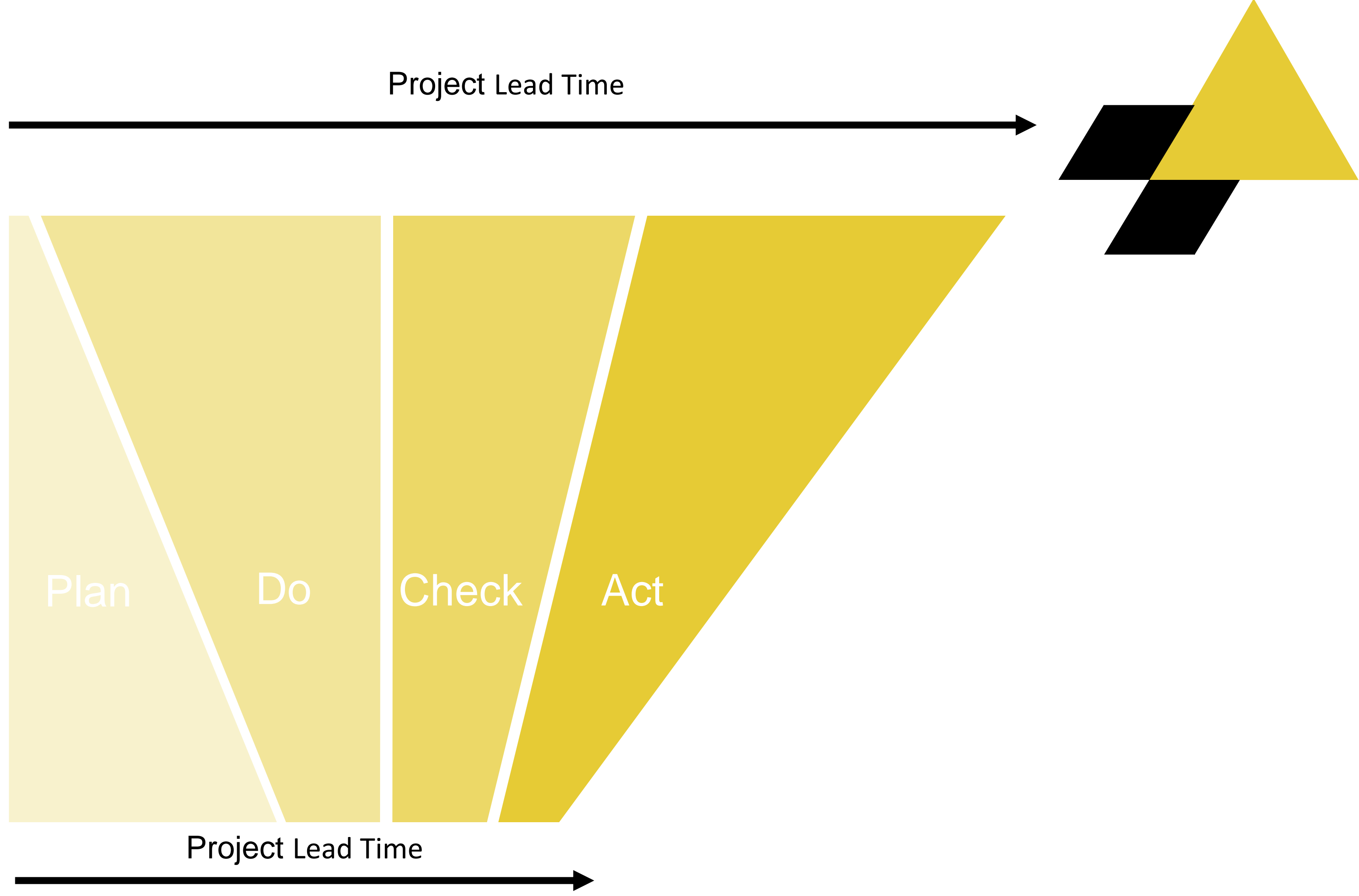
VSA - value stream analysis
A/C - aircraft

8. Standardize successful processes.

- Implemented in-house training manager and plan.
- Created standard inspection task flowchart.
- Established biannual auxiliary block training week.
- Realign initial inspection tasks to proper shift.
- Reassigned aircraft phase prep tasks among AMMS and MEC.
- Act refuel and defuel in hangar.
- Standardized parts kits.
- Item A3 uploaded to CRP MT.

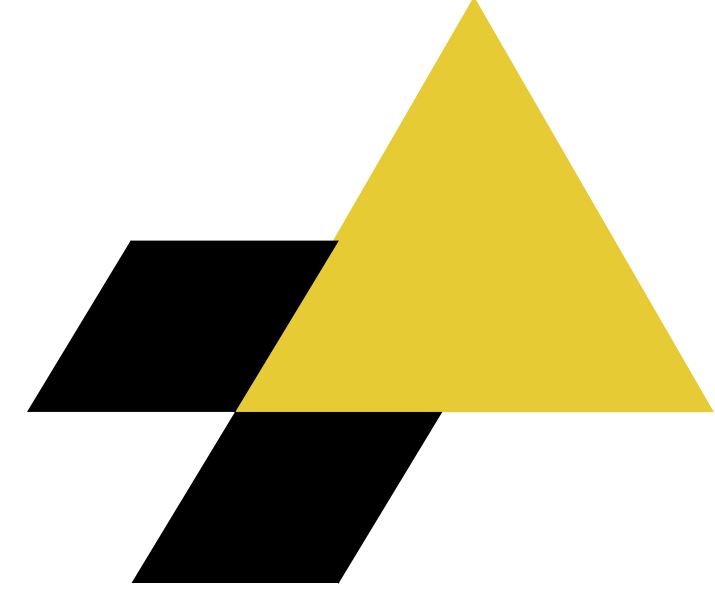
AMMS - aircraft maintenance squadron
MEC - maintenance squadron
CRP MT - continuous process improvement management tool
Act - aircraft
TCTO - time compliance technical order
ICD - time change item

A3



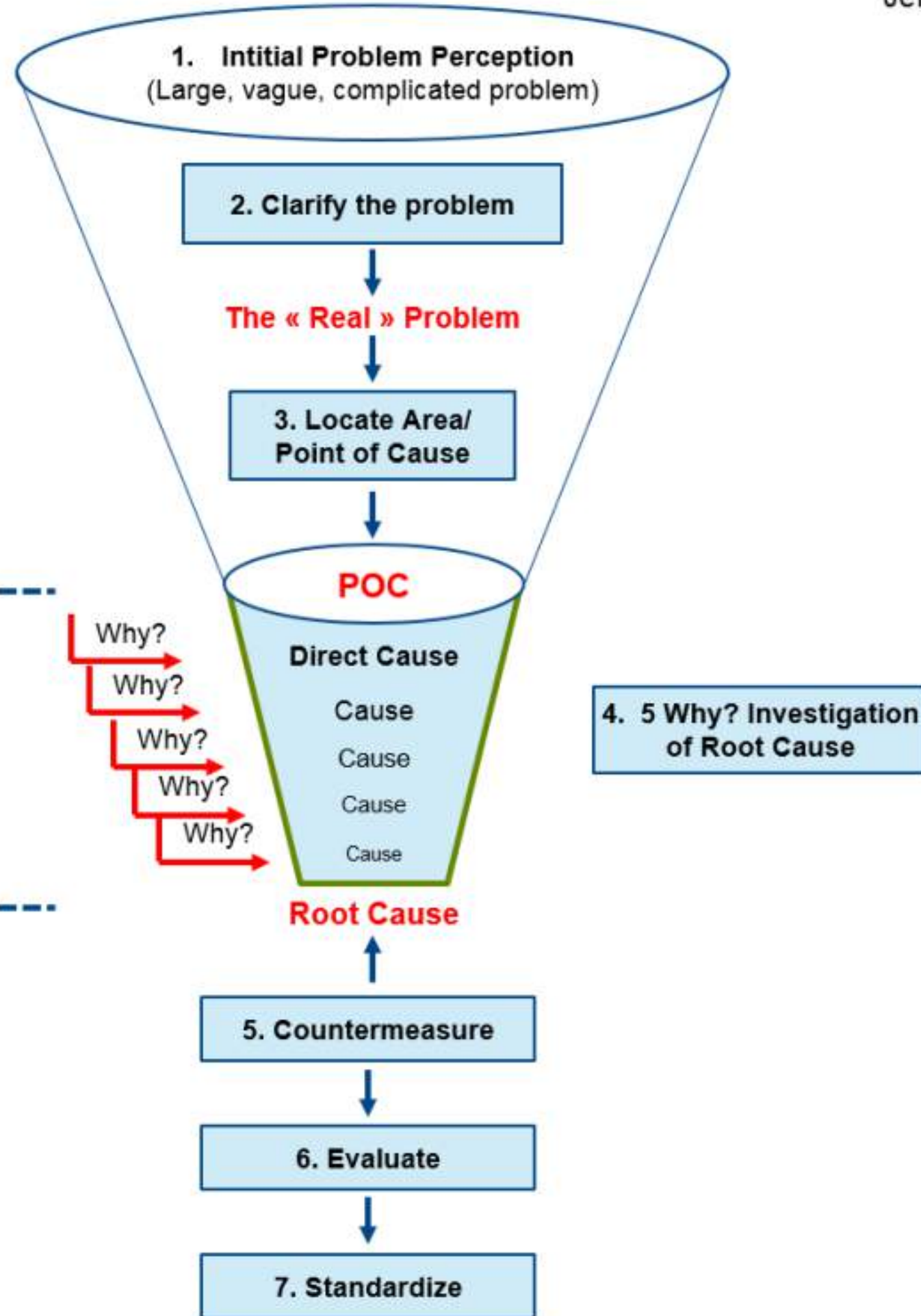
A3

Jeffrey.K.Liker.The Toyota Way



Grasp the situation

Cause Investigation



A3

A3 & PDCA Cycle

Background & Support Data
(PLAN)

Describe the Current state
What are we trying to solve.
(PLAN)

Set Goals and Targets.
Define what success looks like
(PLAN)

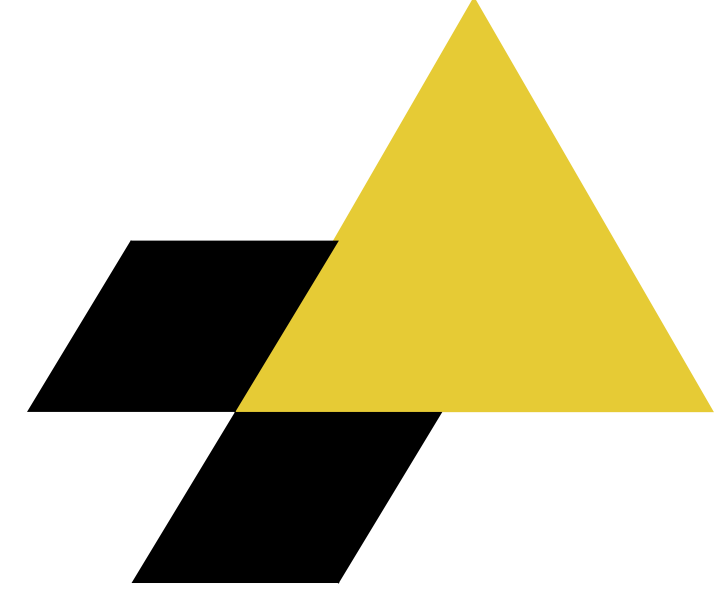
Perform Root Cause Analysis
(PLAN)

Design Counter Measures
(PLAN)

Implement the
Countermeasures
(DO)

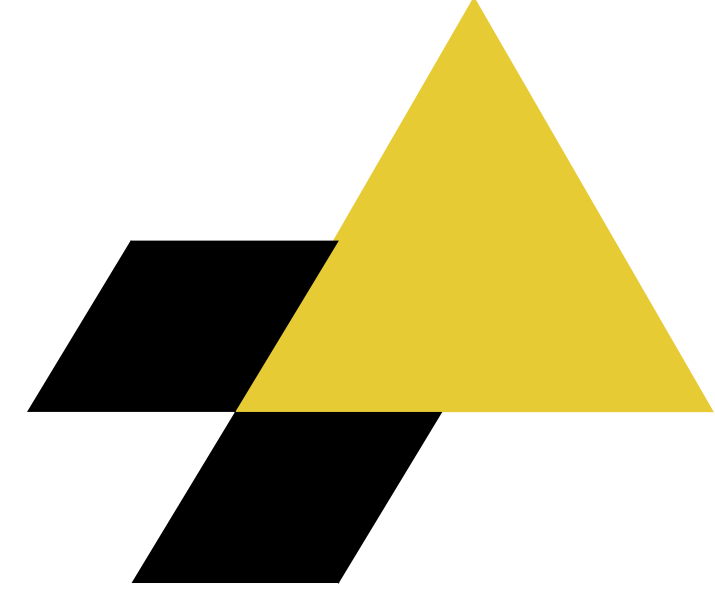
Follow UP (Check)

Follow UP (Act)

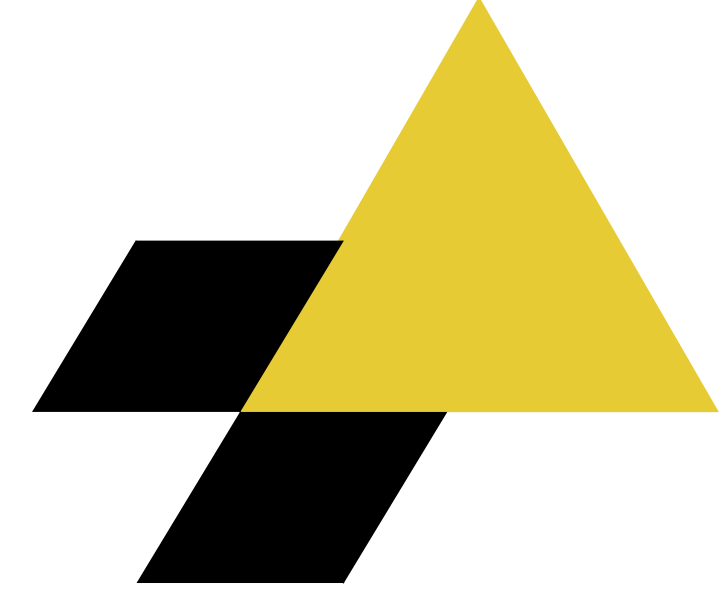


DMAIC

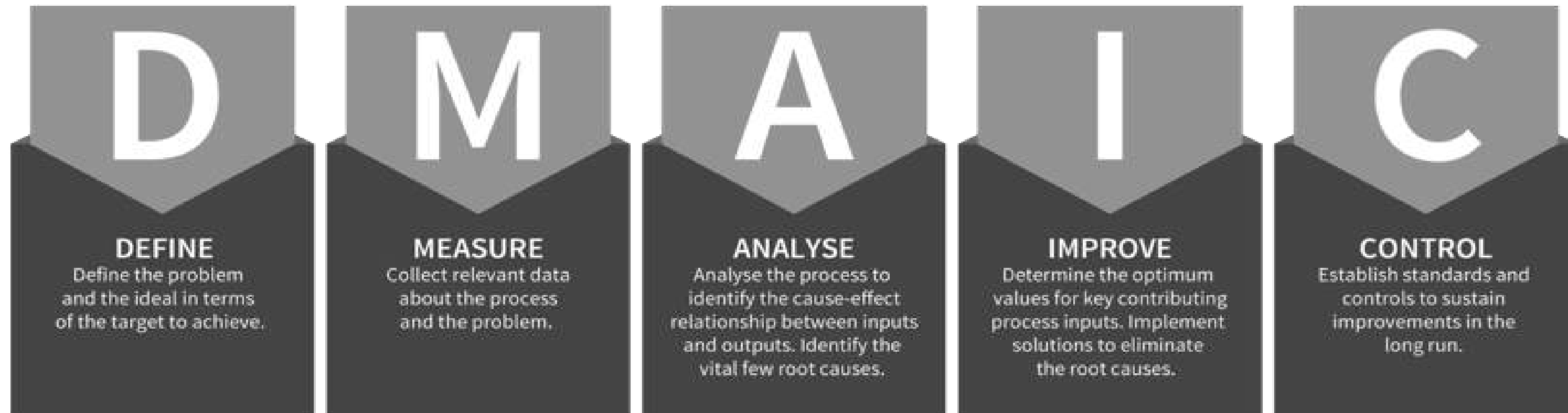
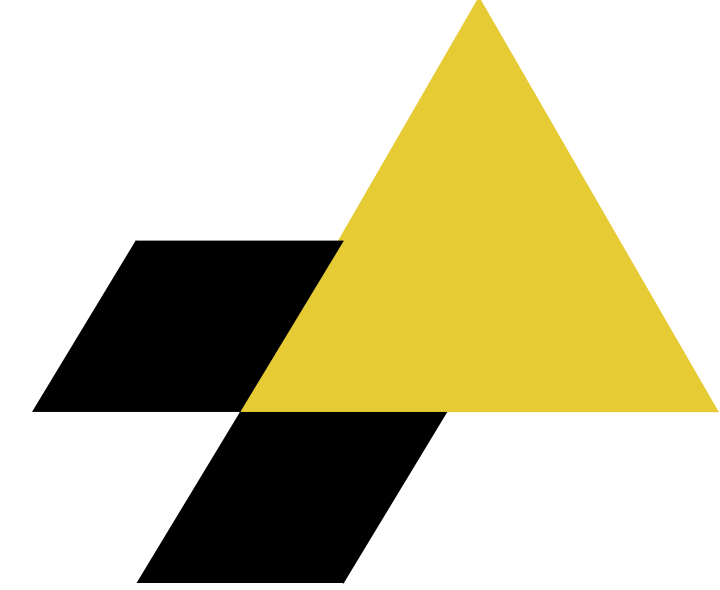
DMAIC



DMAIC v's PDCA



DMAIC

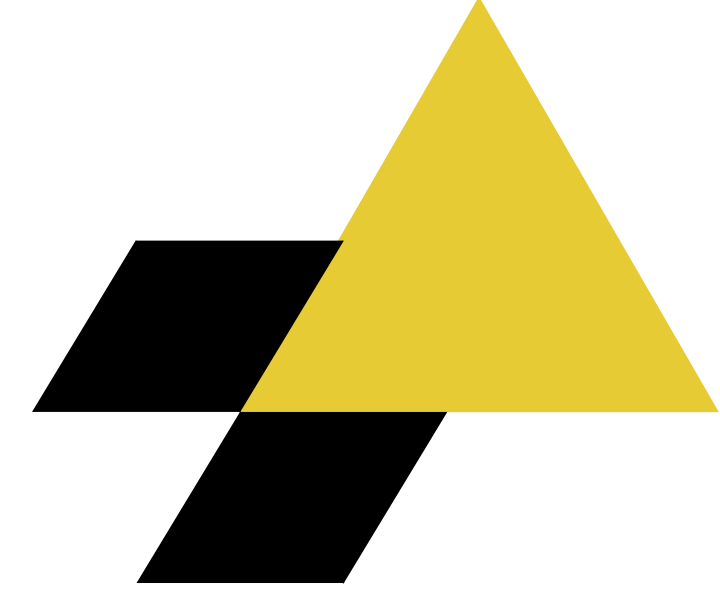


ACTIVITY TIME – READ THE CASE STUDY



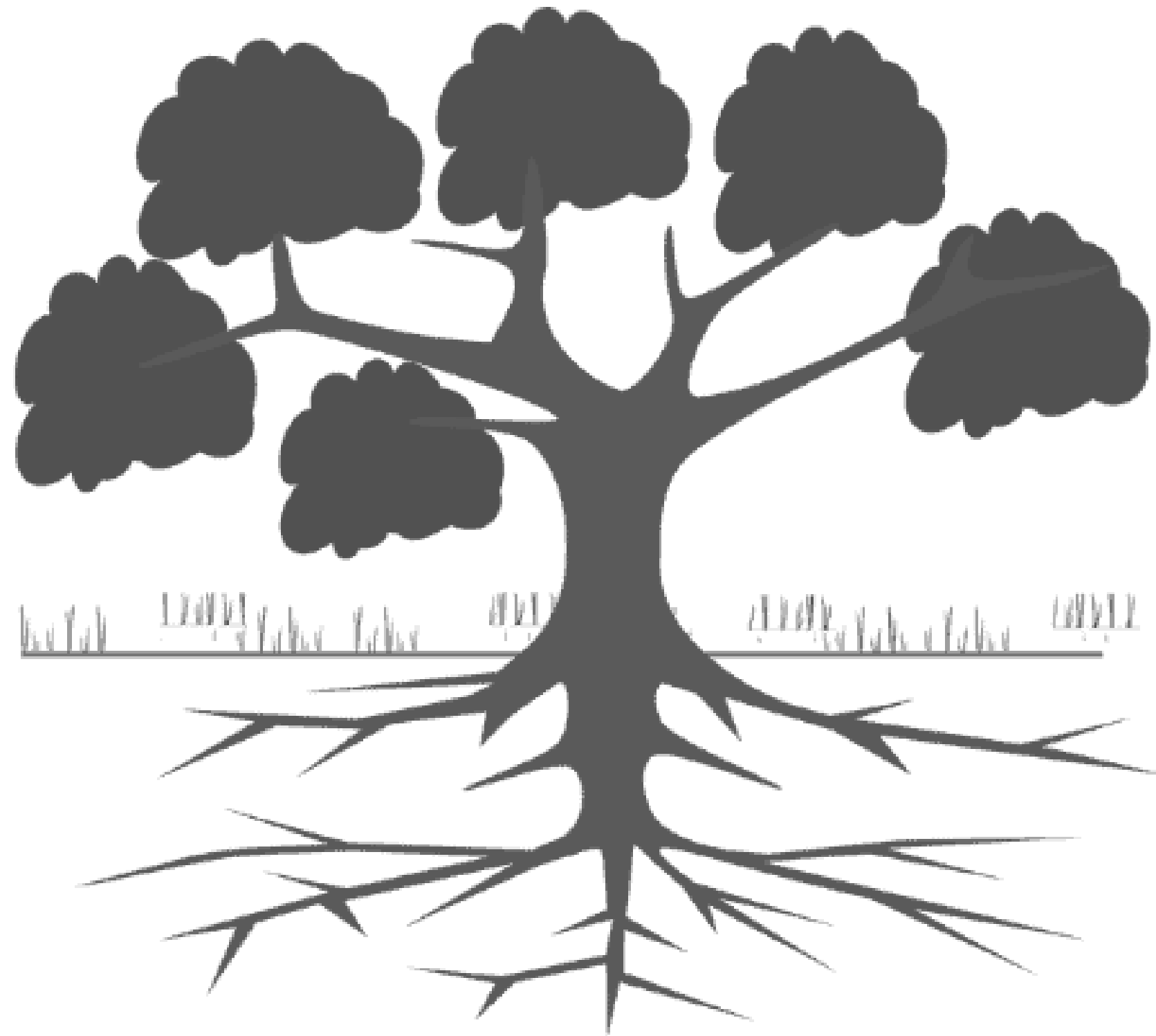
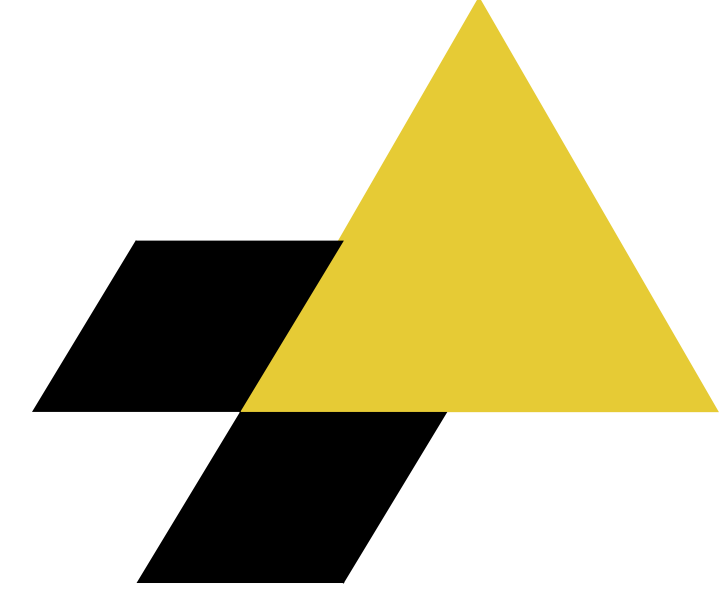
PART 2

What is a Problem



- Undesired situation
- A matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome.

What is a Problem



Above the surface you see the
Symptoms
of the problem

Dig deeper to find the
Root Cause
of the problem

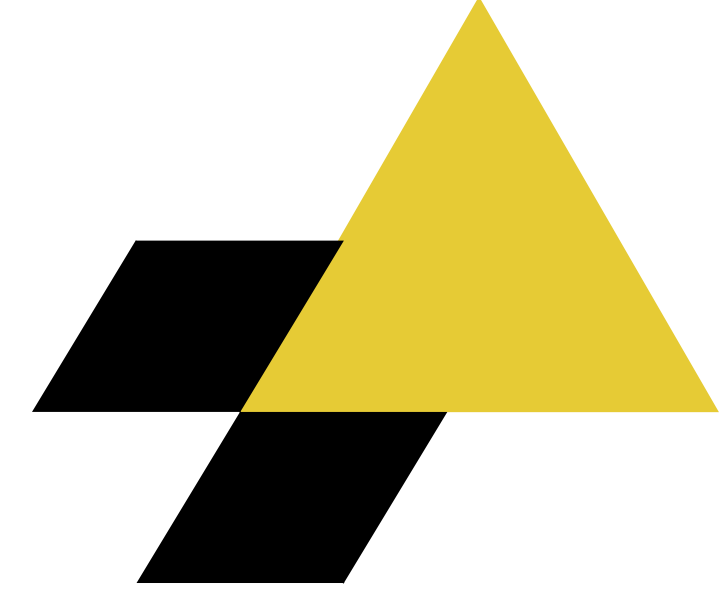
What do we KNOW

What don't we KNOW

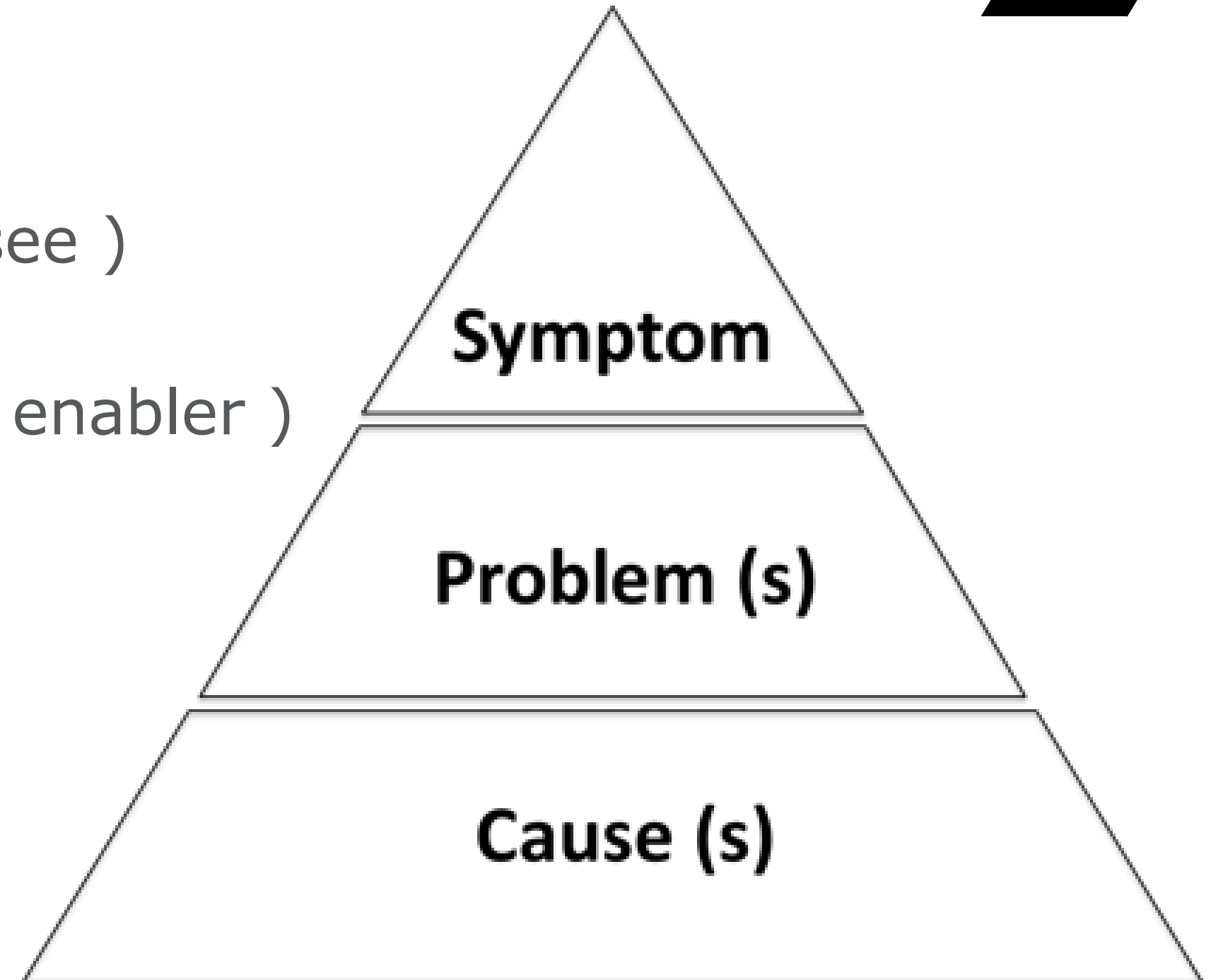
How do we Find Out

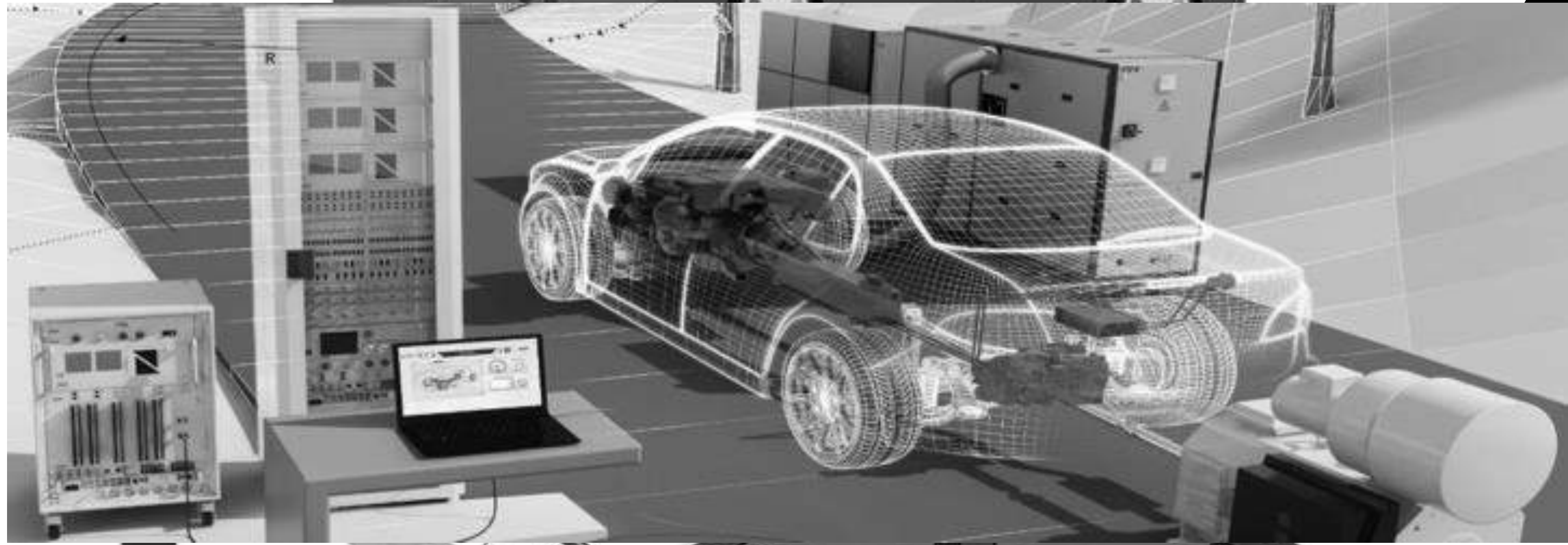
- Observe ?
- Interview ?
- Measure ?
- Test ?
- Experiment ?
- Trial ?
- Exchange ?
- Reproduce ?
- Dis-assemble
- De-construct
- Consult

Symptoms V's Root



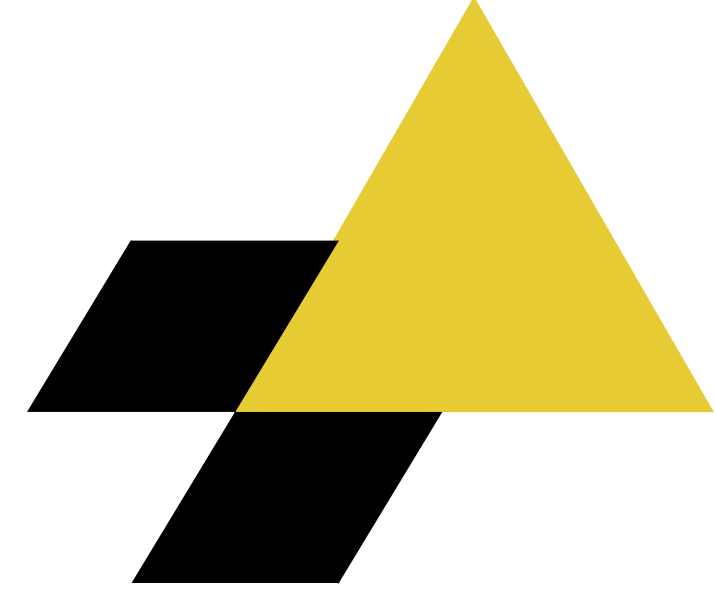
- Symptoms (what we see)
- Root Cause (trigger / enabler)



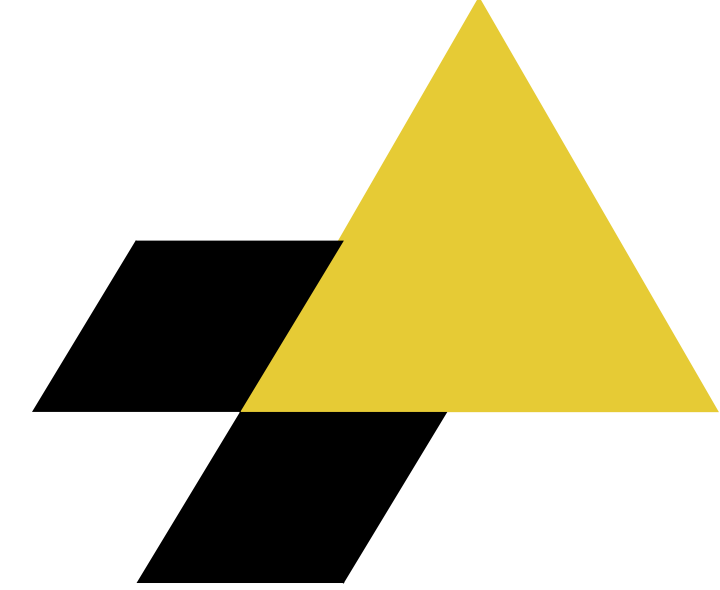


Barriers

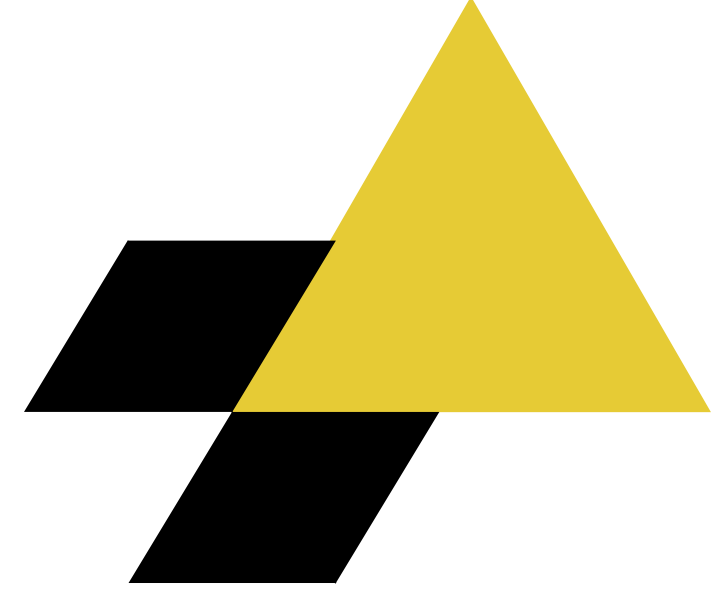
- Confirmation Bias
- Rigid Mentality
- Functional Fixedness
- Unnecessary constraints
- Irrelevant Information



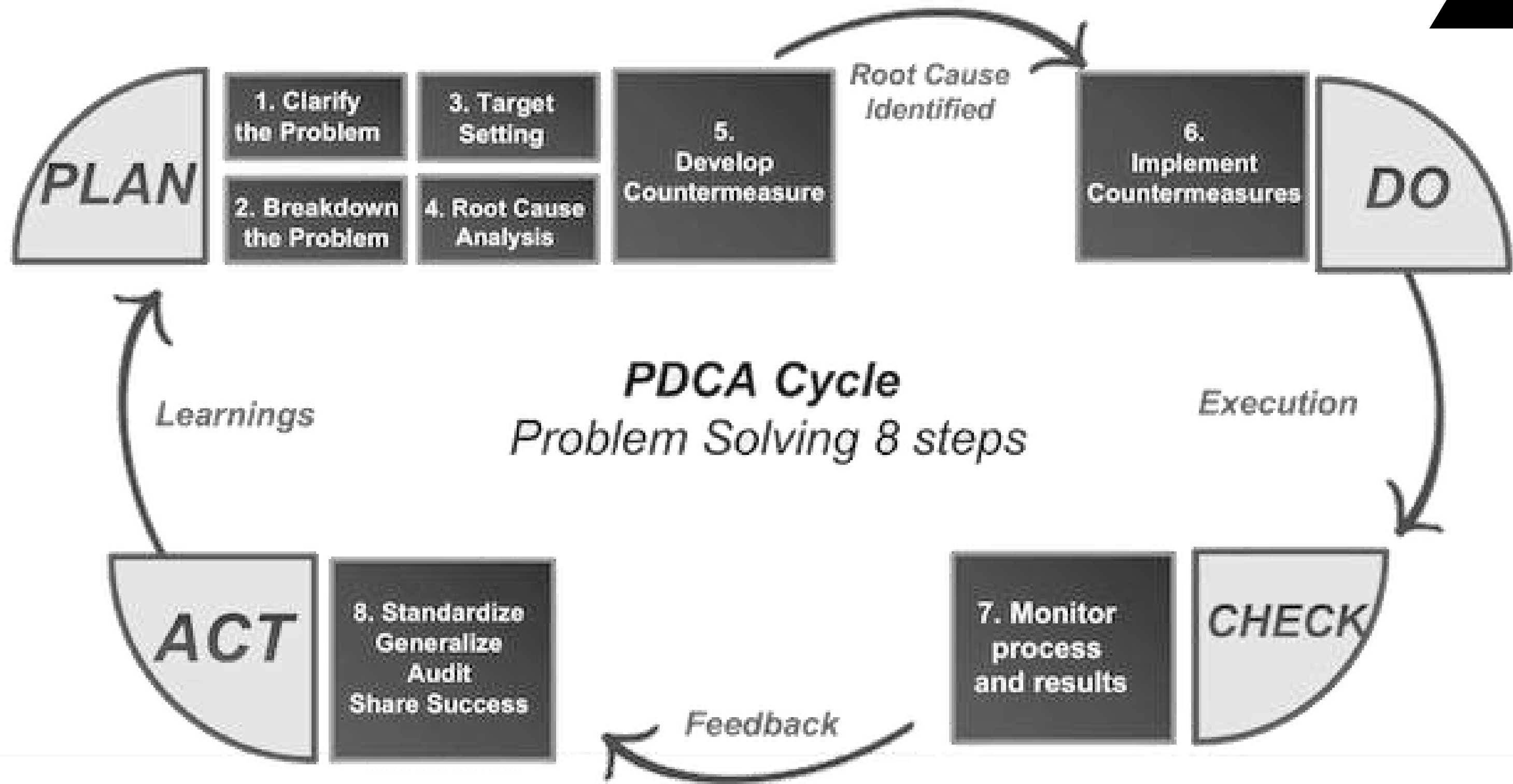
What is a Solution



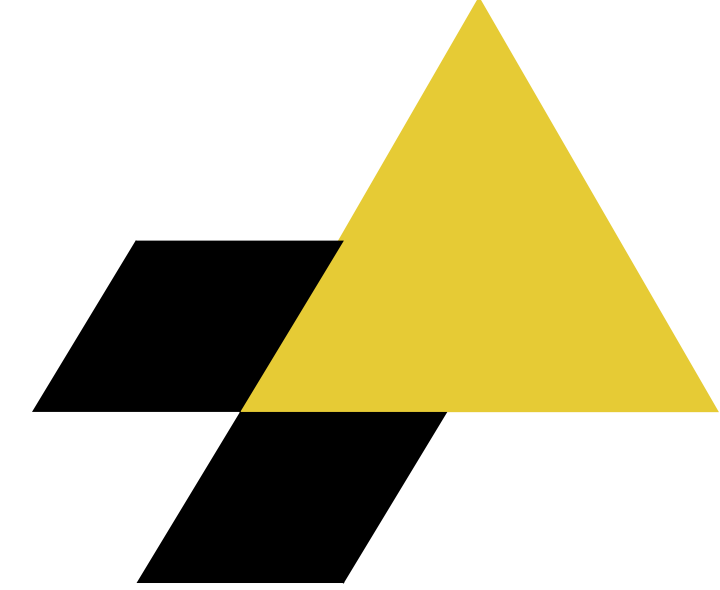
- Counter Measure
- The most effective arrangement of Tasks, Actions and resources to overcome the problem permanently.



Problem Solving

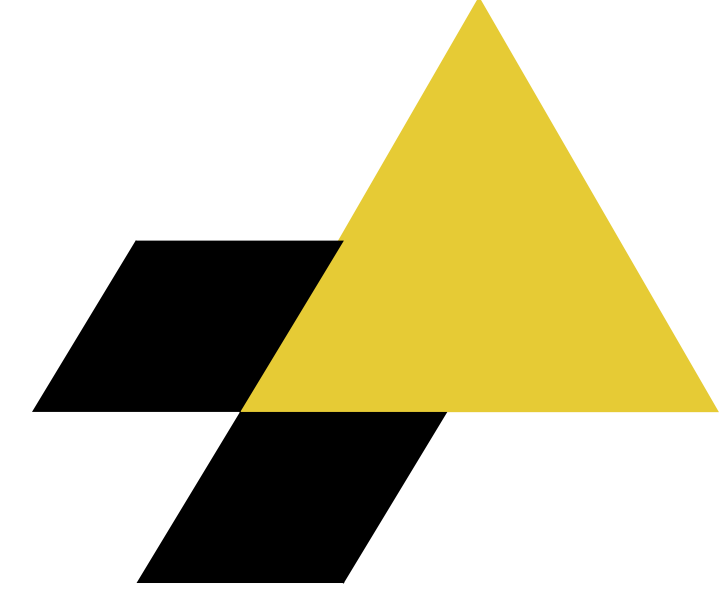


Construct a Statement



- Problem Statement
- A GOOD Problem Statement should
 - State the current undesired situation
 - Quantify the problem
- A GOOD Problem Statement should NOT
 - Assume the cause
 - Assume the solution
 - Assume any blame

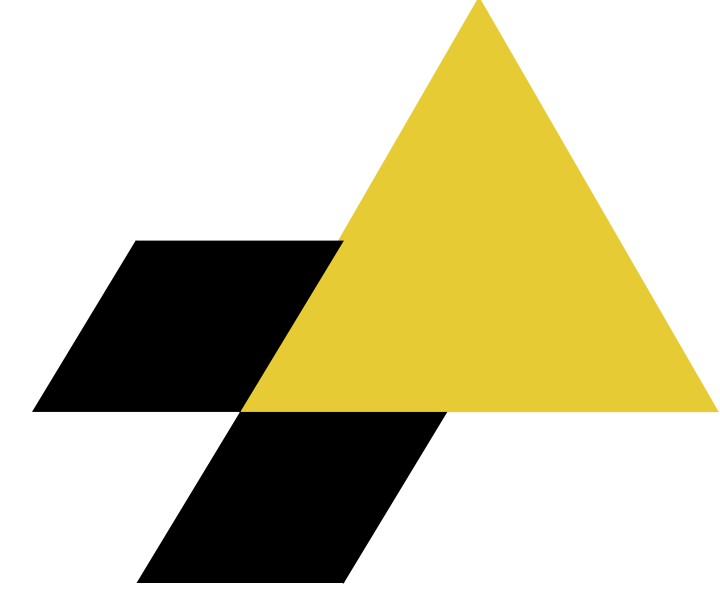
Construct a Statement



- A BAD Problem Statement (examples)
 - “Everyone needs to be retrained on.....”
 - More resources are needed to improve leadtime....
 - Machine always broken.....Process always takes too long.

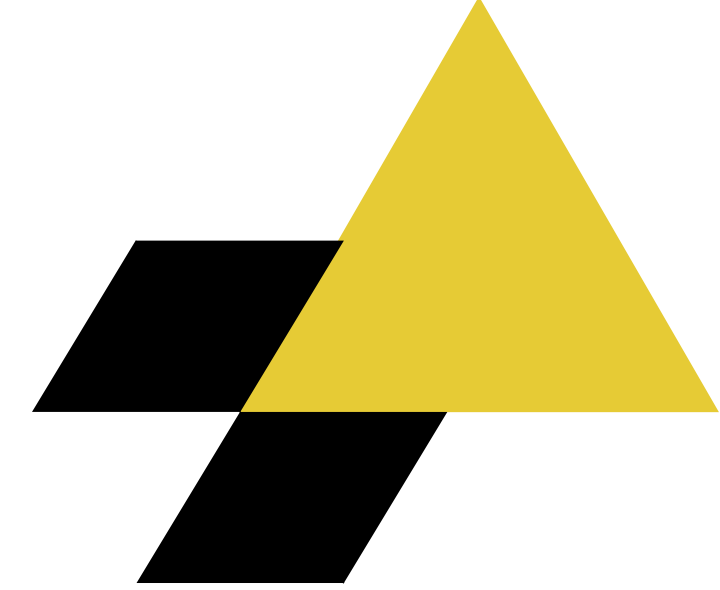
–Jump to conclusions, ambiguous, opinion driven.

Construct a Statement



- A GOOD Problem Statement (example)
 - During the period 1st Jan 2018 until June 30th 2018, >15% of customer queries were not resolved first time leading to 250hours of overtime to handle the escalations costing €12,500
- **Provides the facts**
- **Provides timescales and impact to the business**
- **Clear and concise – non objectionable**

Construct a Statement



- A GOOD Problem Statement - structure
(**Item**) is a problem because it affects (**Case / impact**) and we have established the (**evidence**).
- **Item** : is a condition, procedure, hardware, equipment or process
- **Case / impact** : is quality, cost, service and or frequency
- **Evidence** : is a symptom(s) or data collected

Stakeholders

- Dave M
- Supervisors
- Admin Staff
- PINK Board of Directors
- PINK Ownership
- Brokers
- Clients (end users)
- UK Division
- HR Dept
- Finance Dept
- IT dept
- Insurance Ombudsman

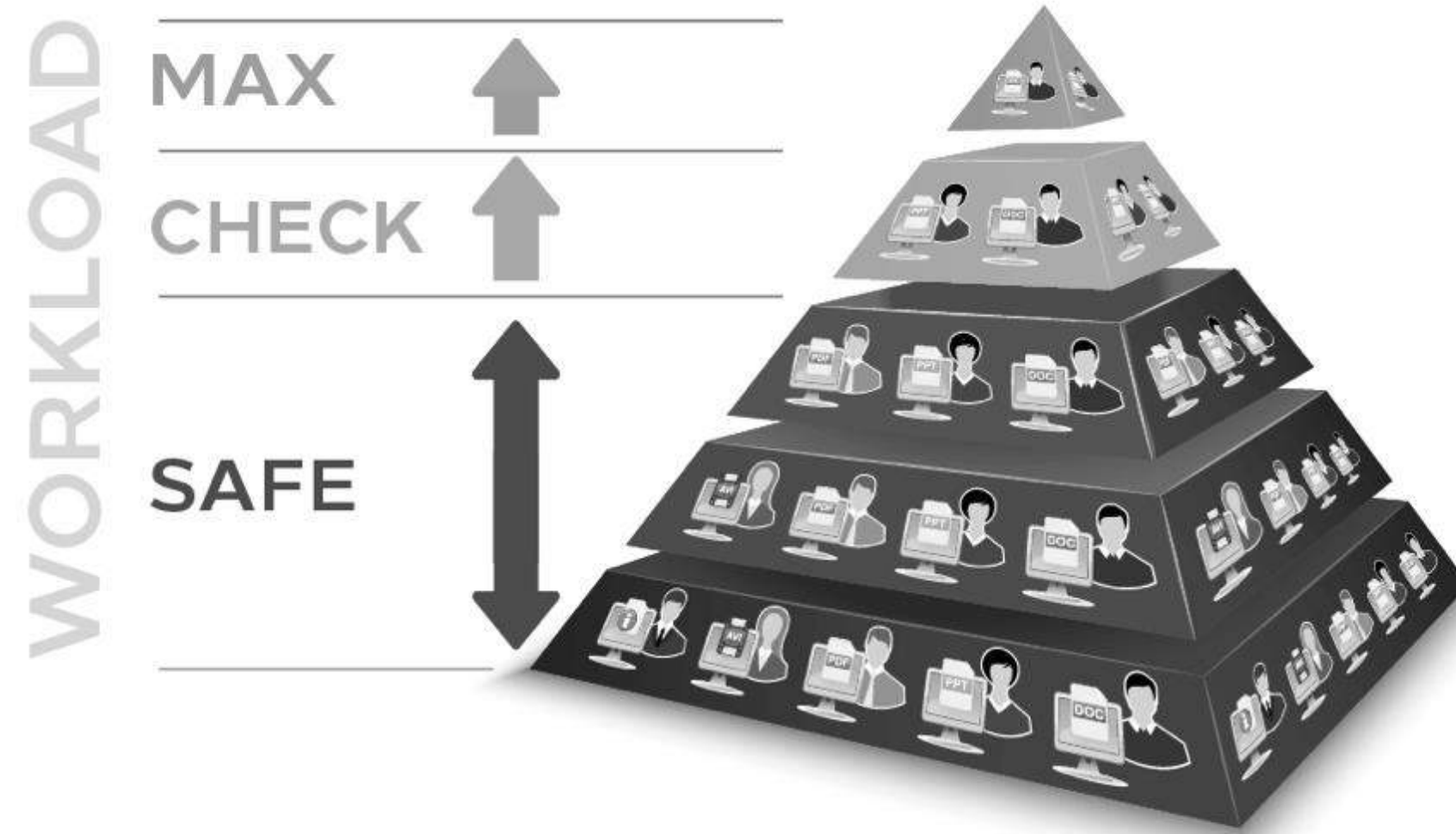
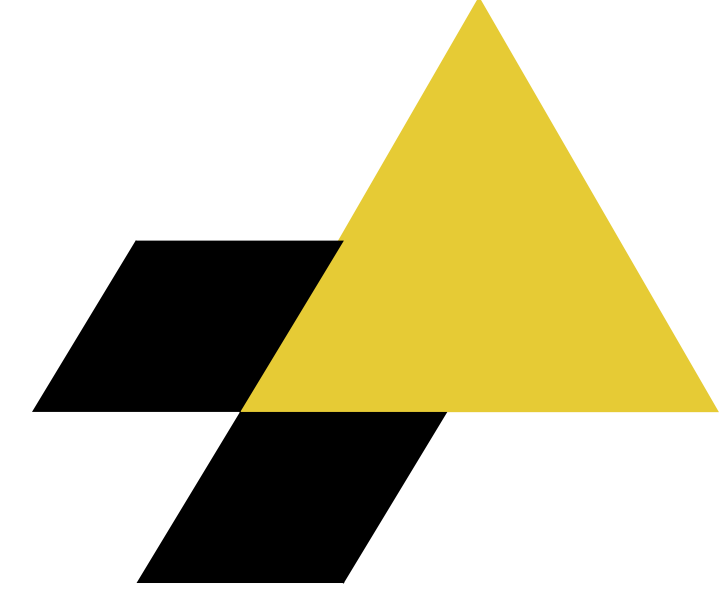


Synptoms

- Emotional
- Stress & Pressure
- Workload issues
- Working through Lunch
- Struggling to get Vacations
- Poor management
- Bad communications
- Rework
- Random corrective actions (10 min calls)
- Salary pressure
- Resourcing issue
- Planning issues
- Capacity issues



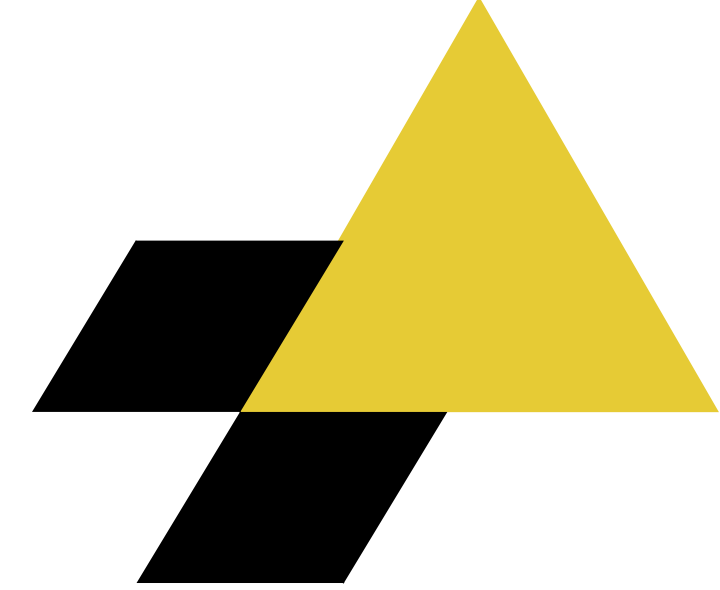
The Facts



Capacity of Team

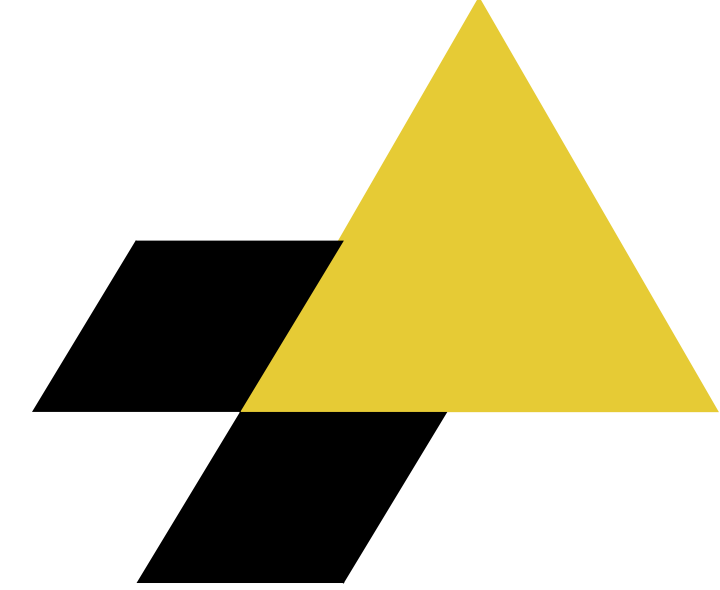
25people x 5days x 10applications x 46 weeks

Construct a Statement



The new business processing dept in PINK Dublin is handling 10% more applications (63,250) than it is designed to handle (57,500) due to a high percentage (15%) of bad applications placing a strain on employees and on broker community loyalty.

Construct a Statement



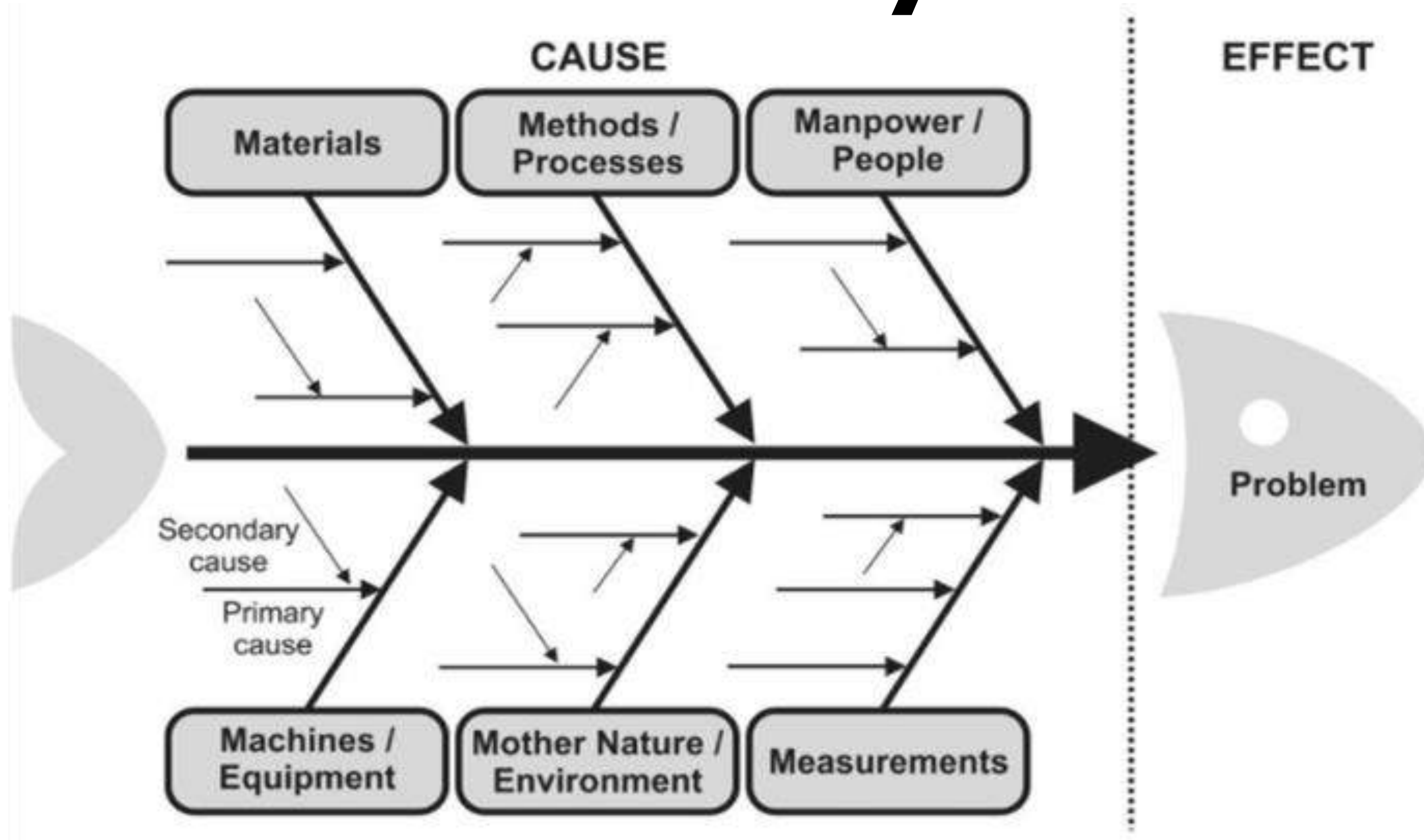
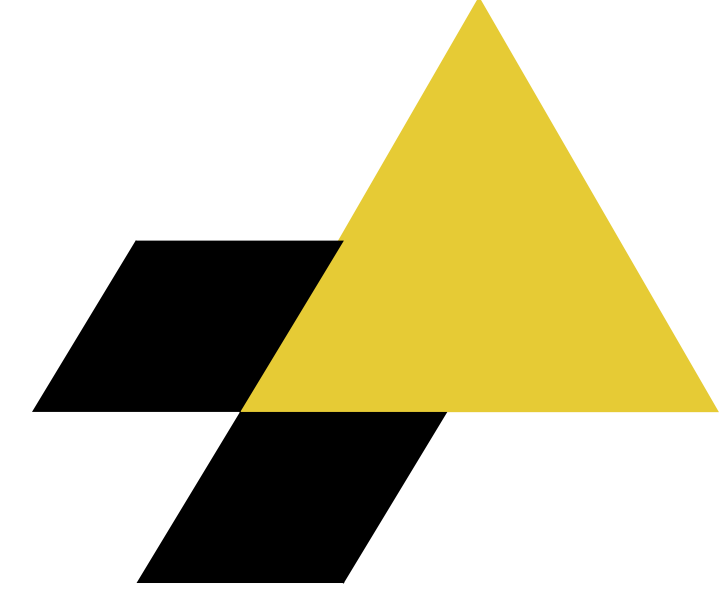
36mins per application reduced to < 30mins = 6mins saving.

16.6% time reduction (36-30) / 36

16.6% of €875K = €145,833
savings in reduced staff salaries

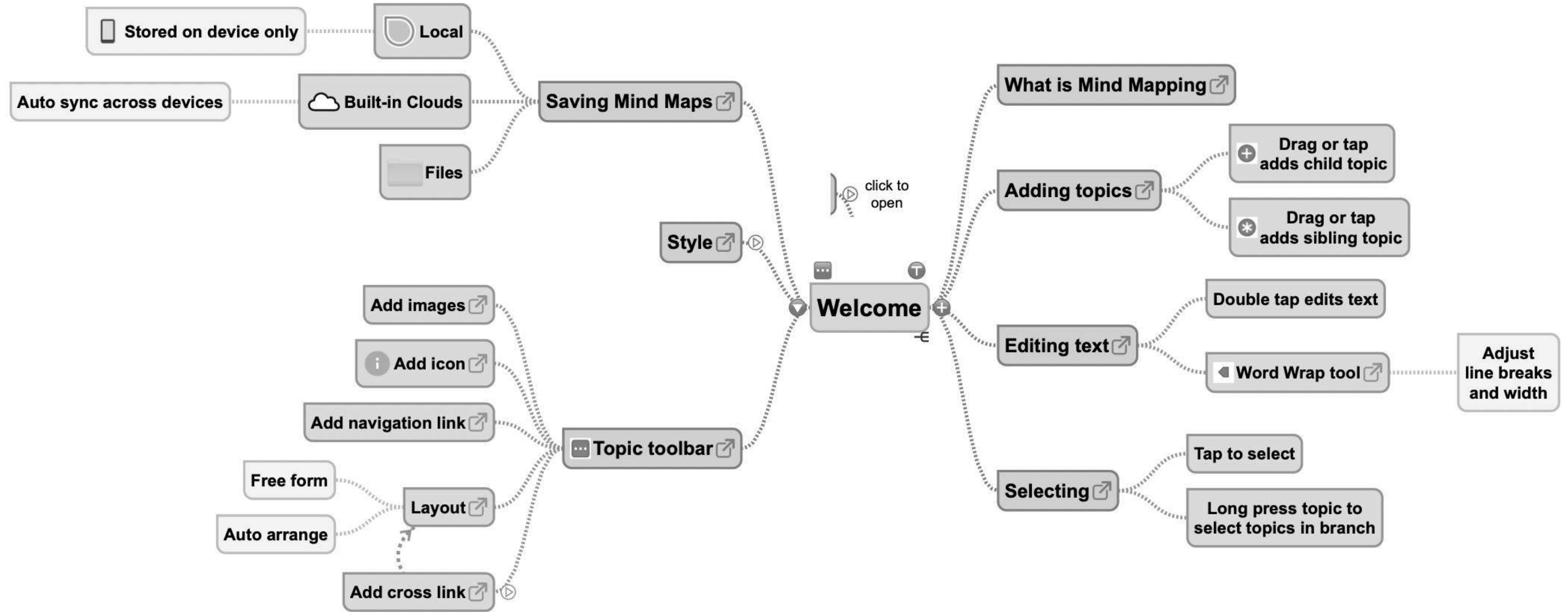
Cost of 1 Team = €175,000 / YEAR.

Fishbone Analysis



MindMaps

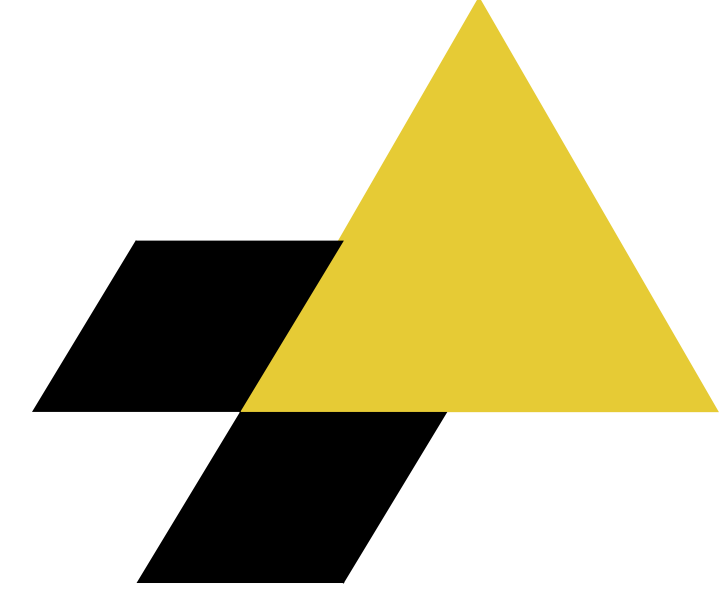
MindMaps



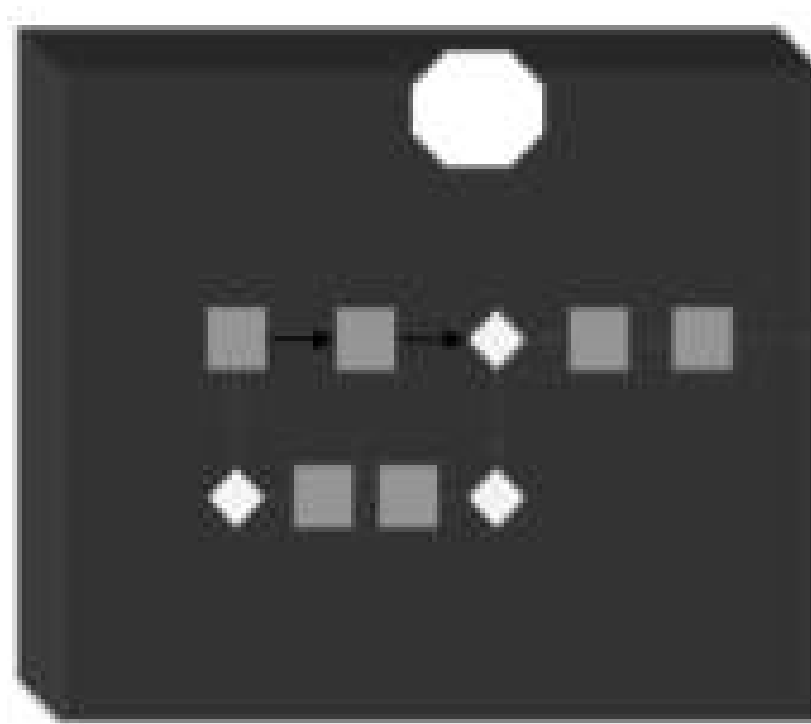
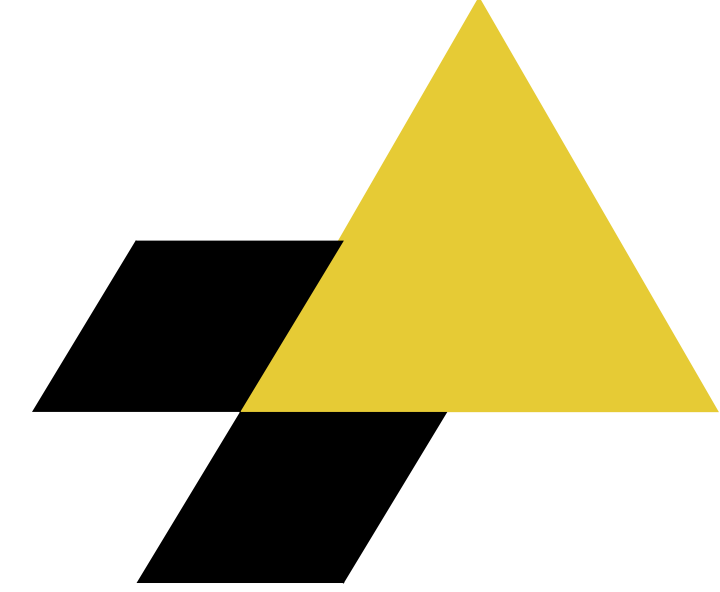
PART 3

Process Mapping

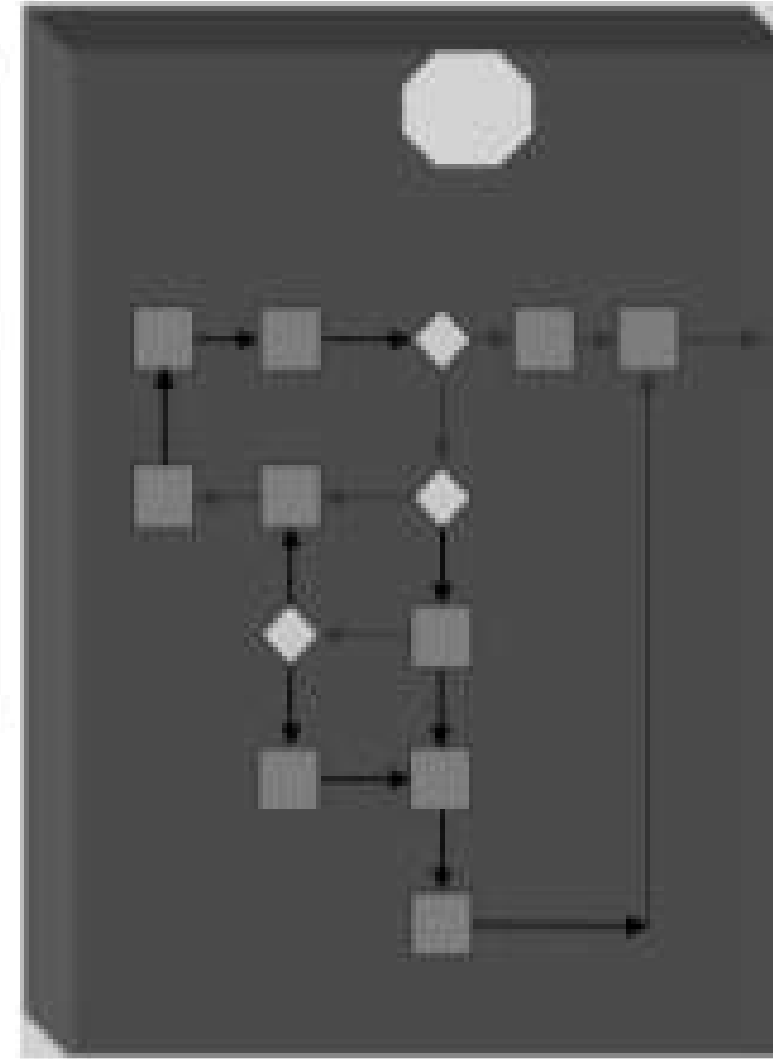
Process mapping



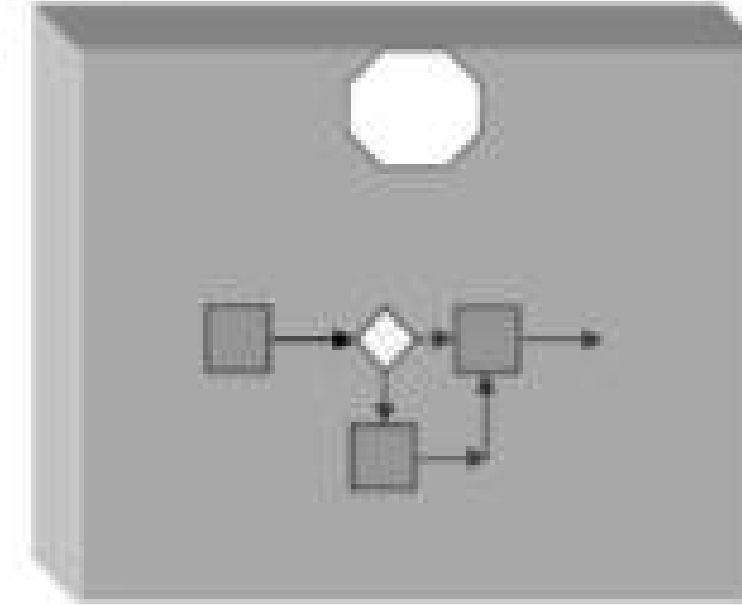
Process mapping



What you
THINK it is..

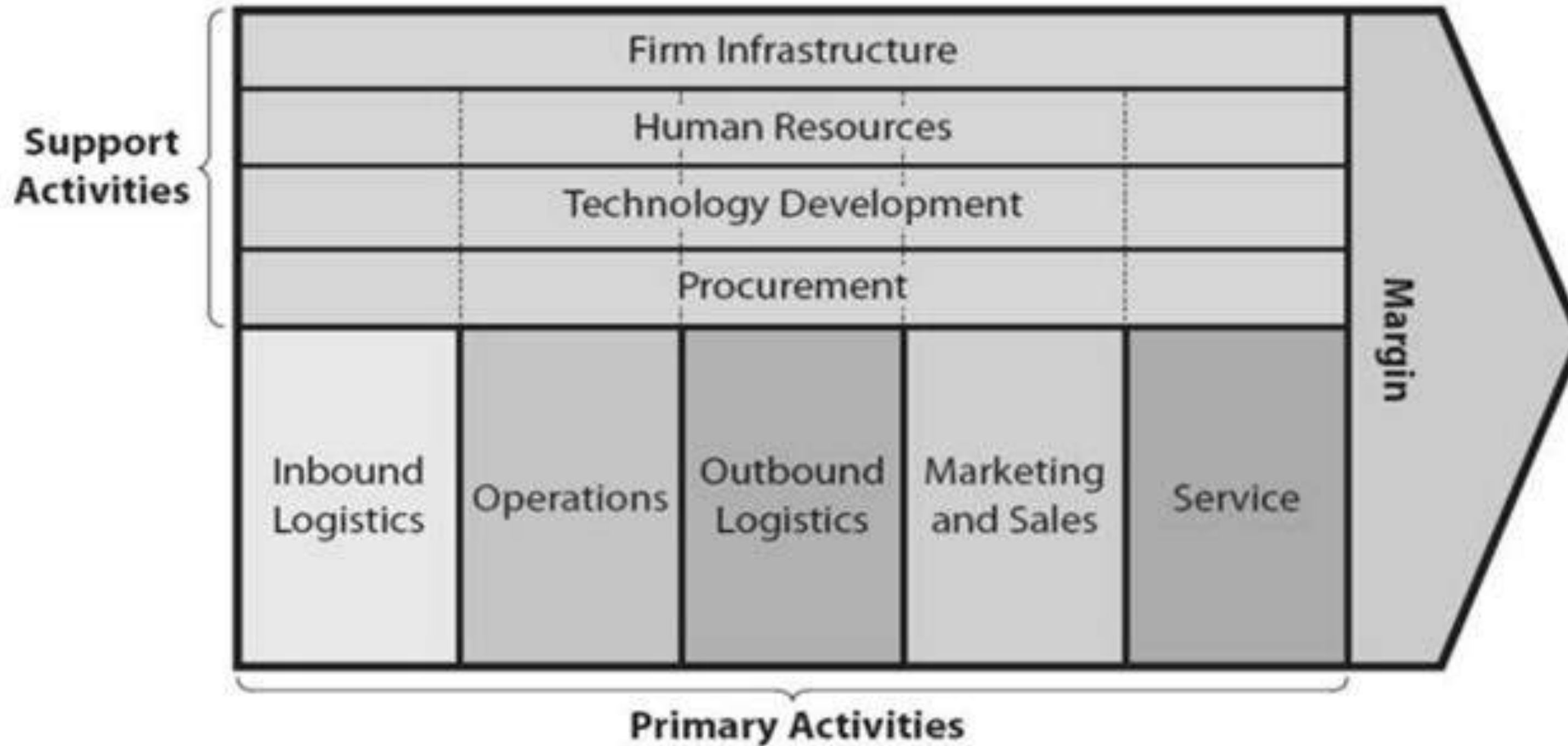
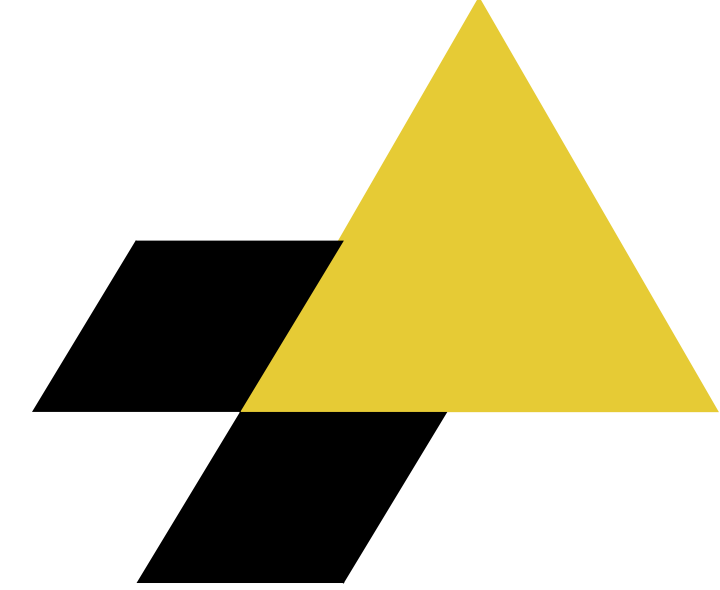


What it **ACTUALLY** is..

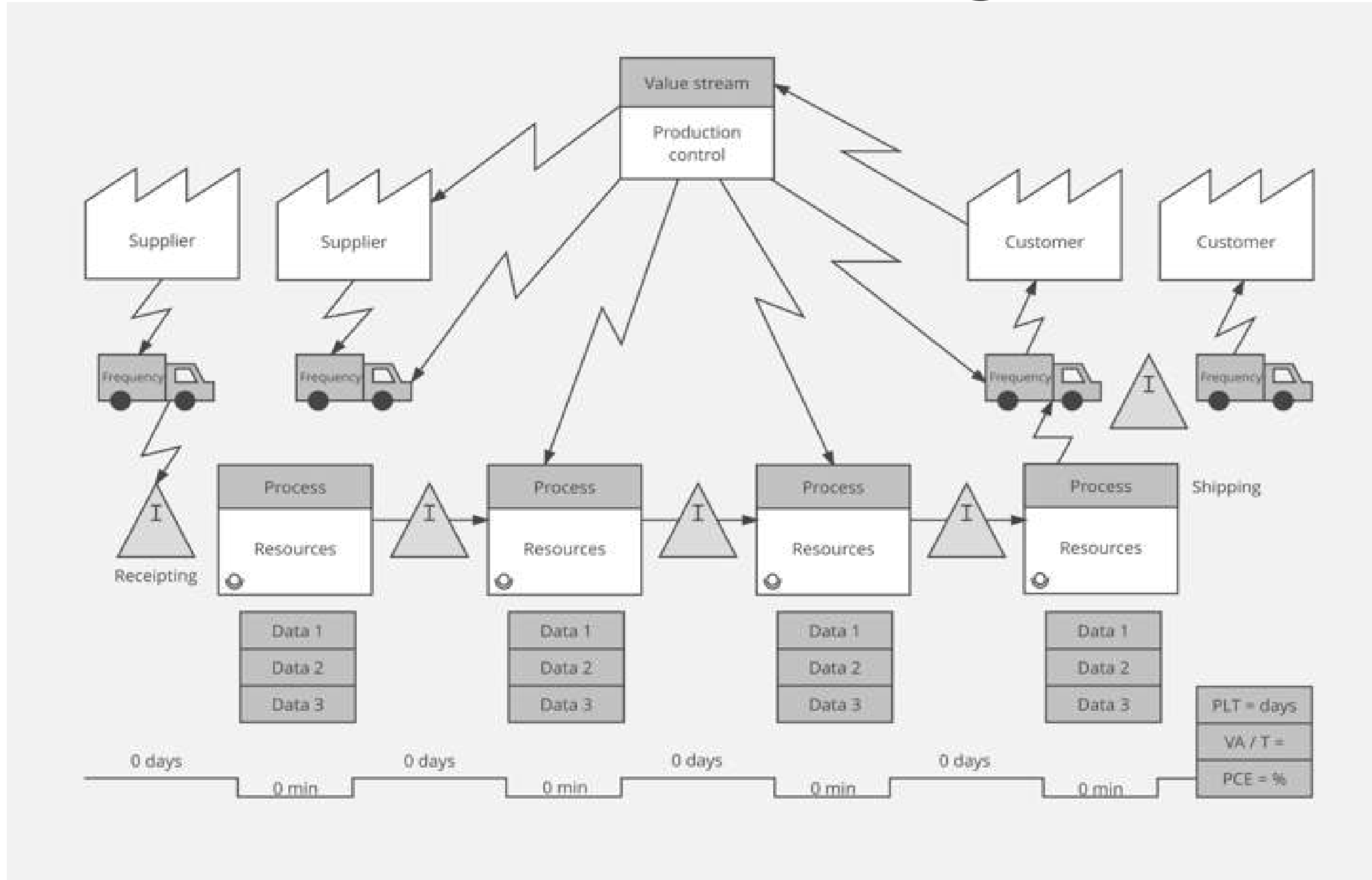
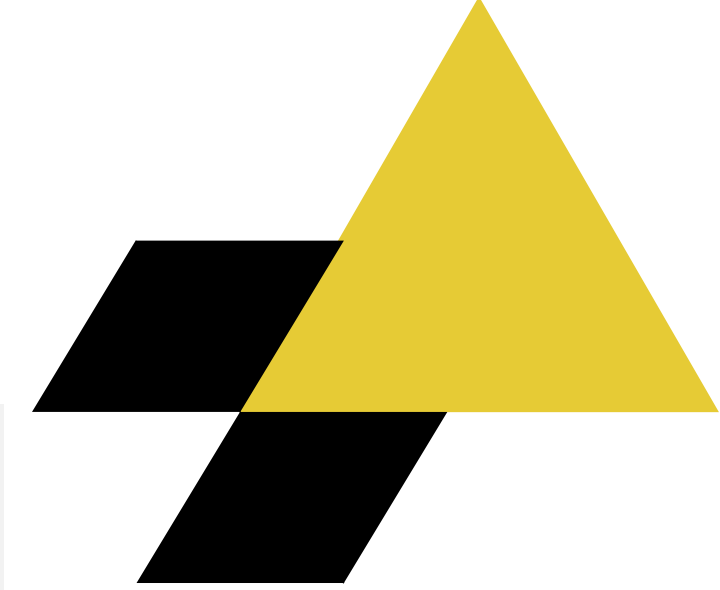


What it
SHOULD be..

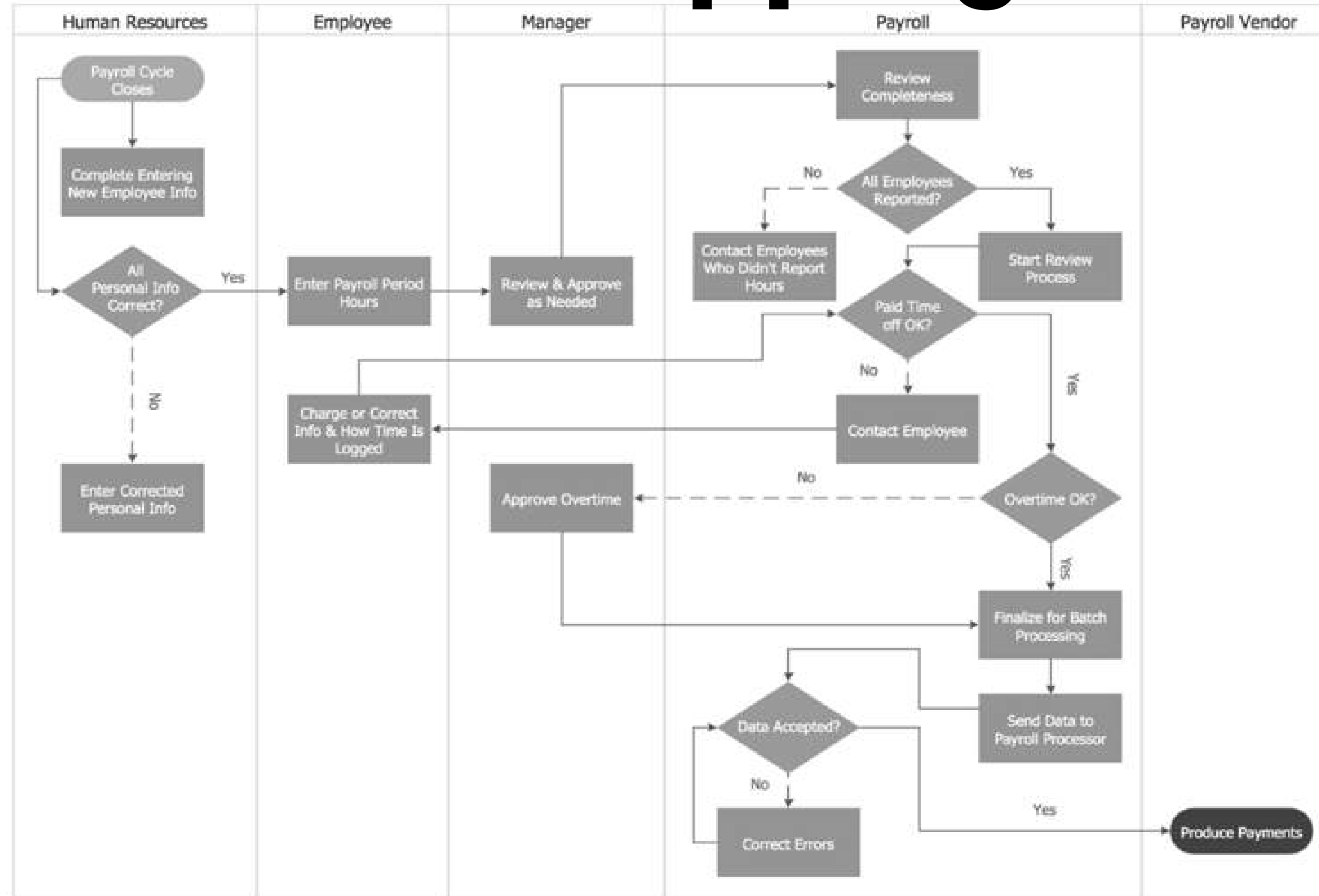
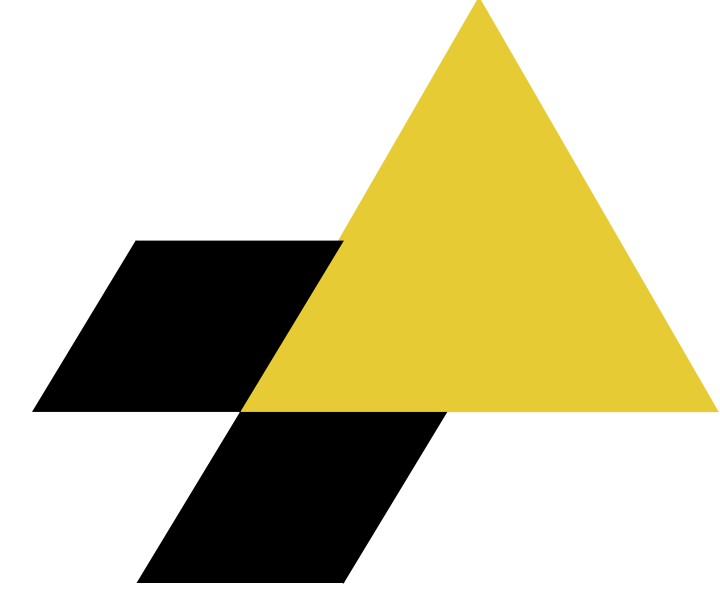
Process mapping



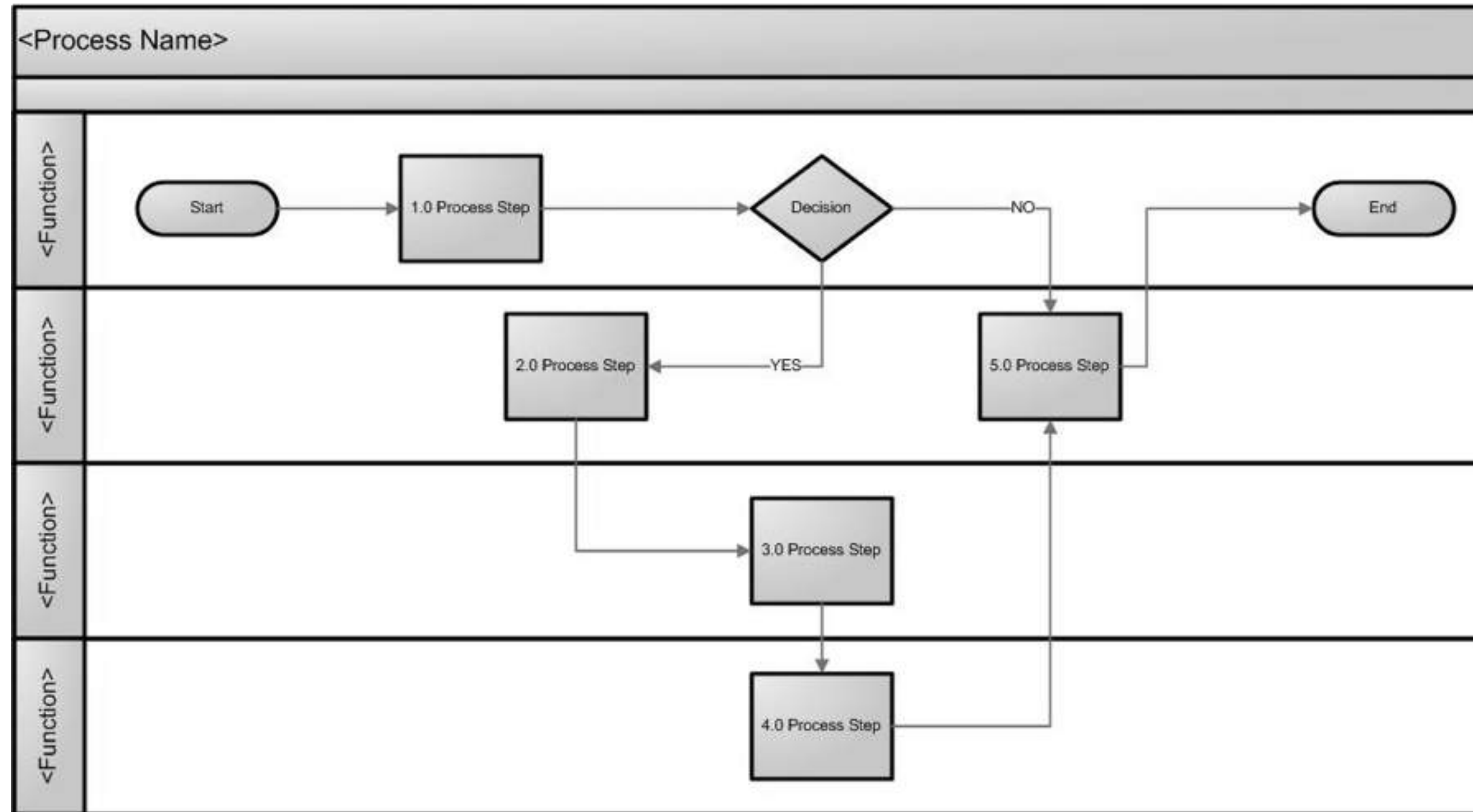
Process mapping



Process mapping



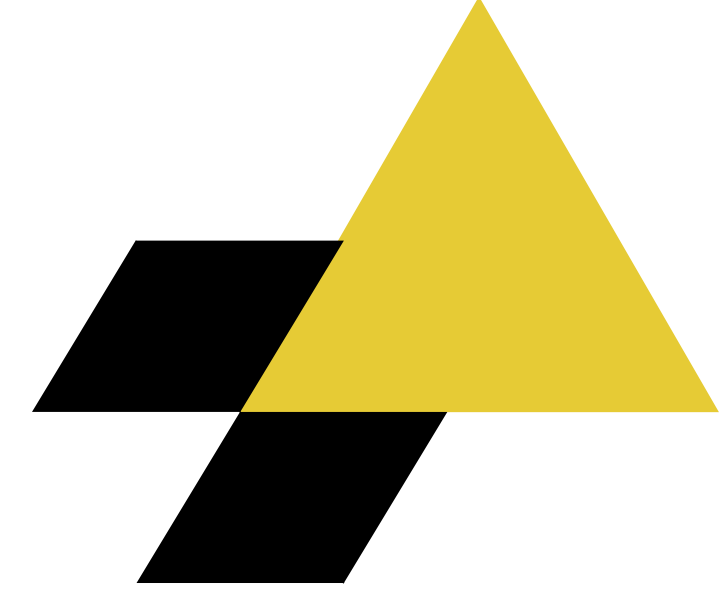
Process mapping



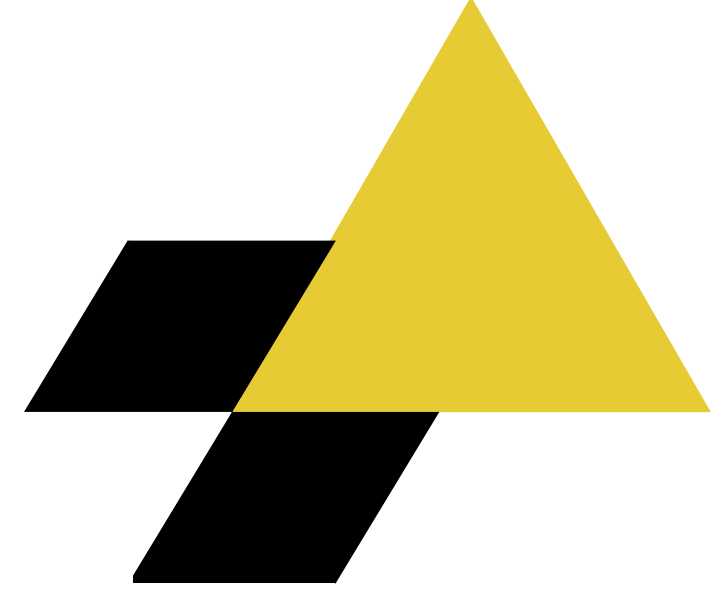
ACTIVITY TIME – MAP THE PROCESS - COFFEE



Error Proofing



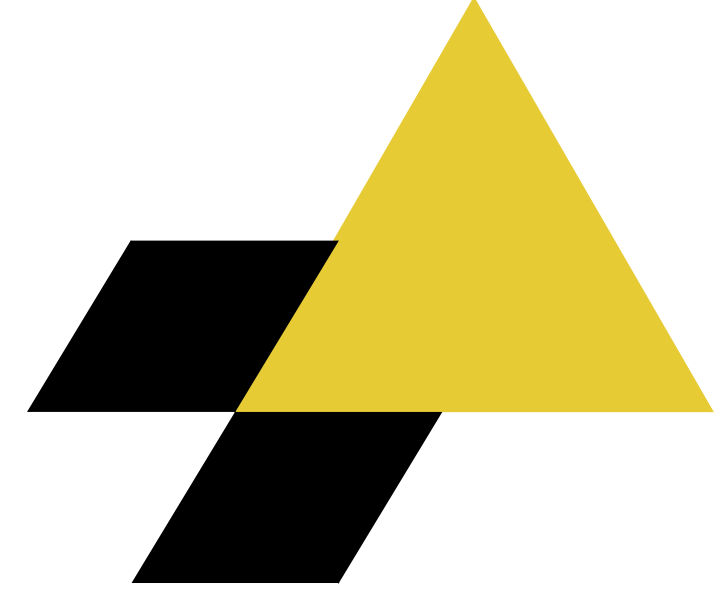
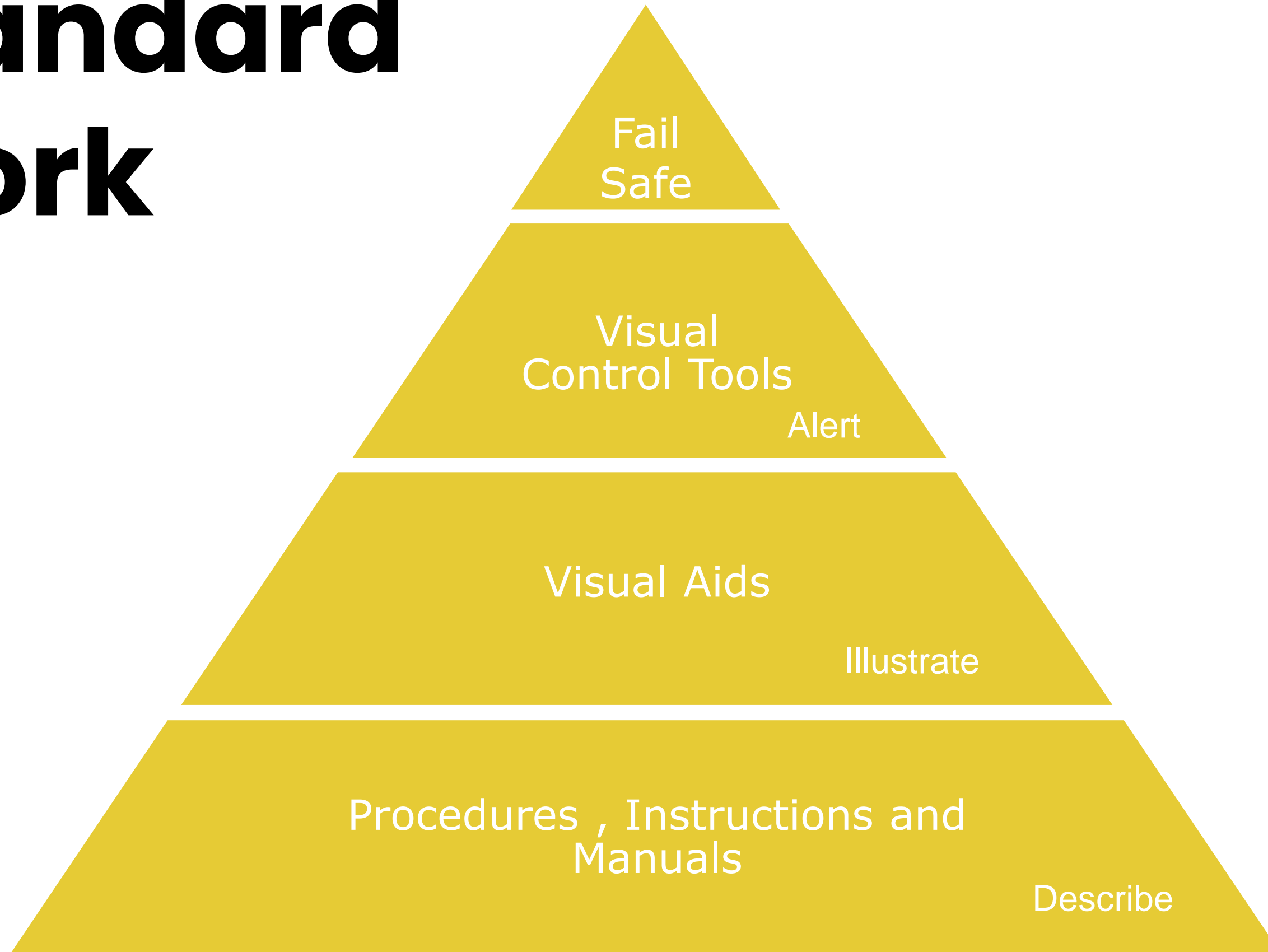
Error Proofing



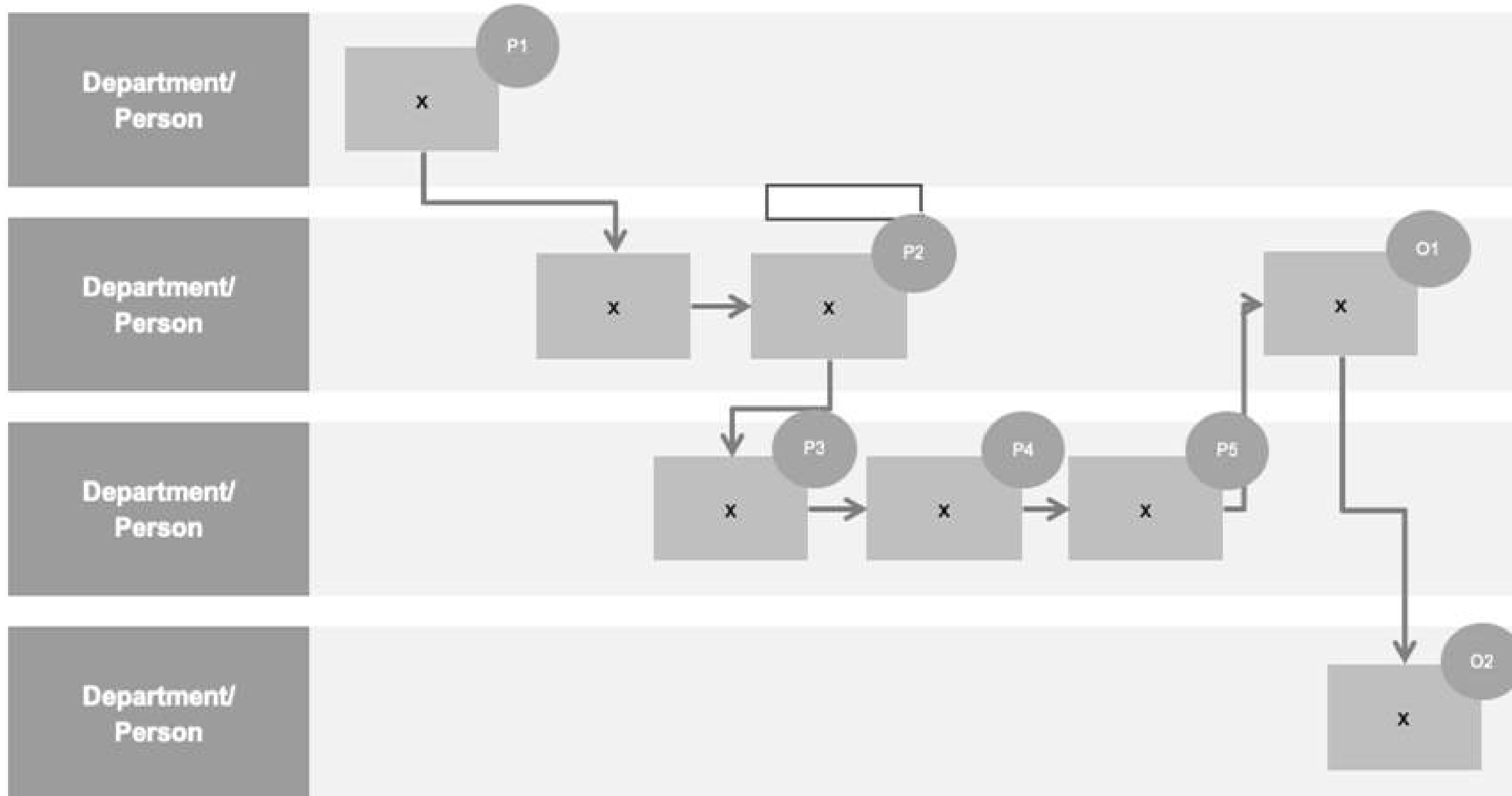
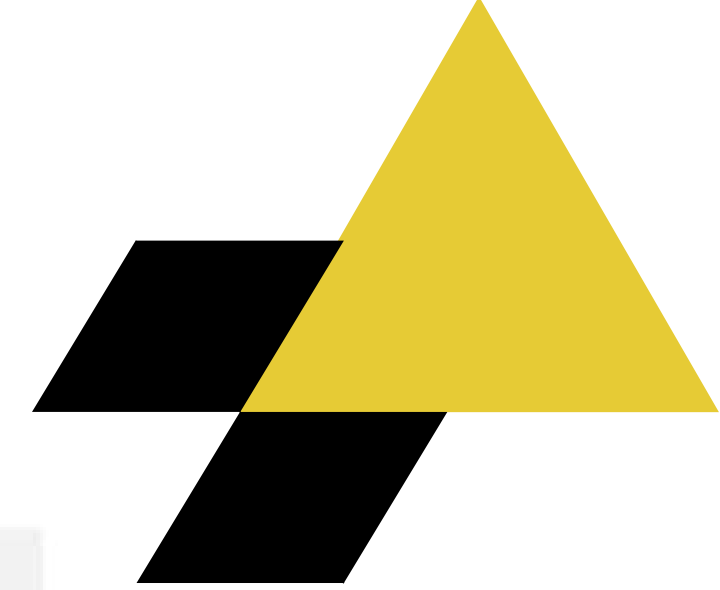
Simple-AutoSave

Standard Work

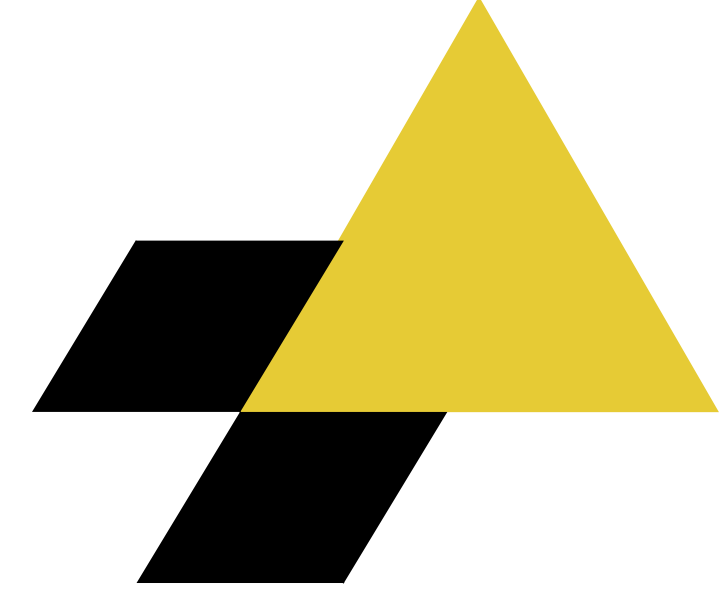
Make it the only way



Quality Planning



Process Audits



A **process audit** is an examination of results to determine whether the activities, resources and behaviours that cause them are being managed efficiently and effectively.

A **process audit** is not simply following a trail through a department from input to output - this is a transaction **audit**

AUDIT

Thank You

Q & A Discussion



Contact Us

padraig.mccabe@dcmlearning.ie

ruth@dcmlearning.ie





info@dcmlearning.ie

01 524 1338