

Project ID:

LEAN Project Template

Created by :

Project background

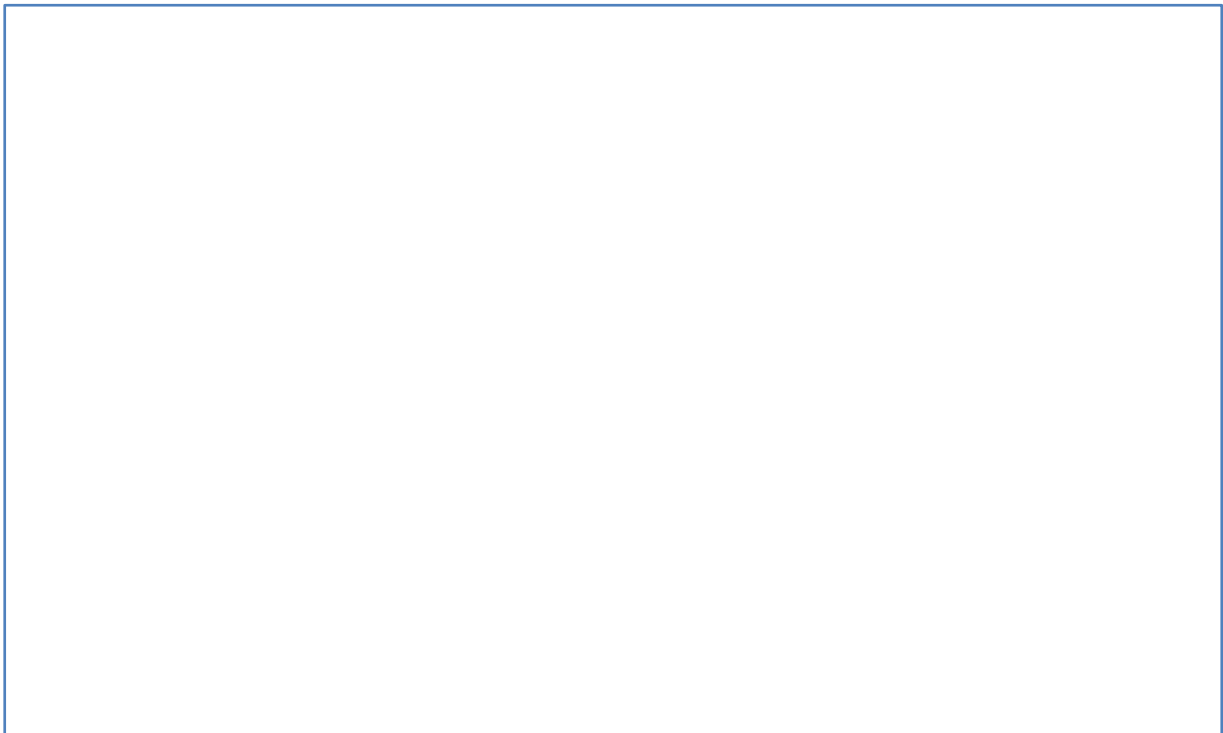
Title:	
Requestor:	
Date:	
Business Owner:	
Sponsor:	

Check and prove inputs

What are the FACTS? – Exact defects in performance (what happens instead of what)

A large, empty rectangular box with a thin blue border, intended for recording the facts of performance defects.

How can I know them, how can I prove them?

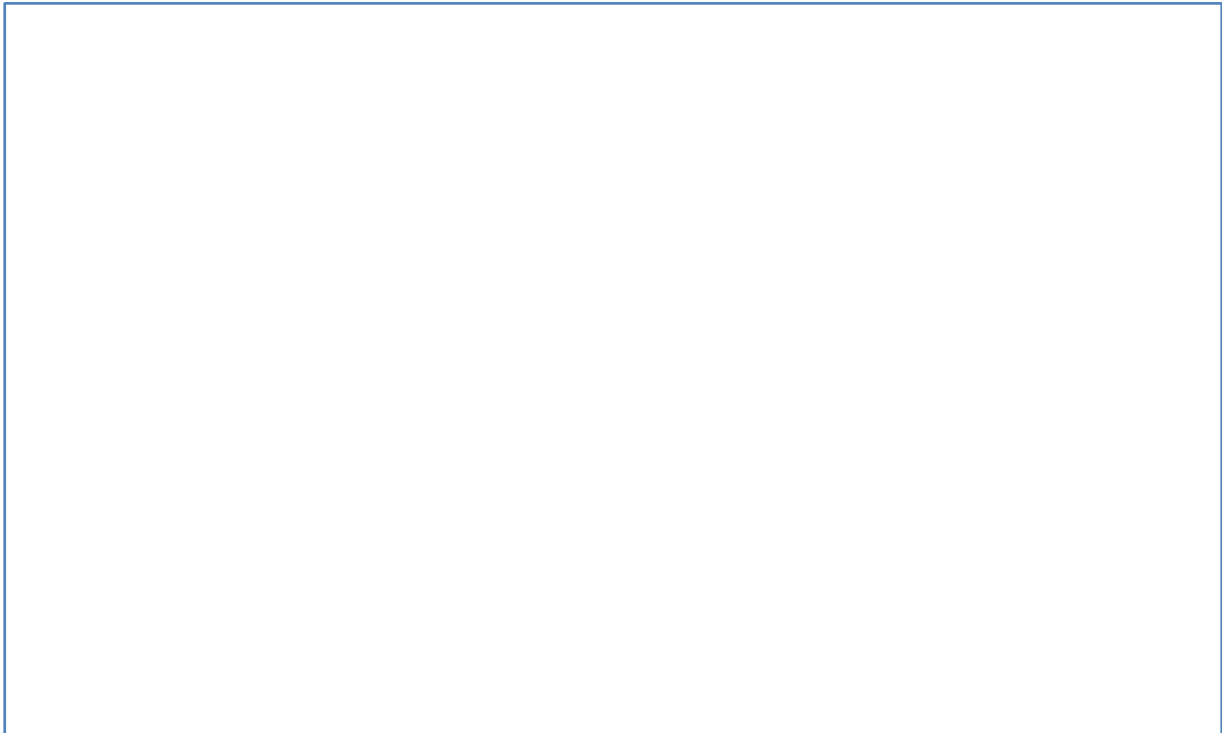
A large, empty rectangular box with a thin blue border, intended for recording the methods used to know and prove the facts.

What kinds of information are needed?

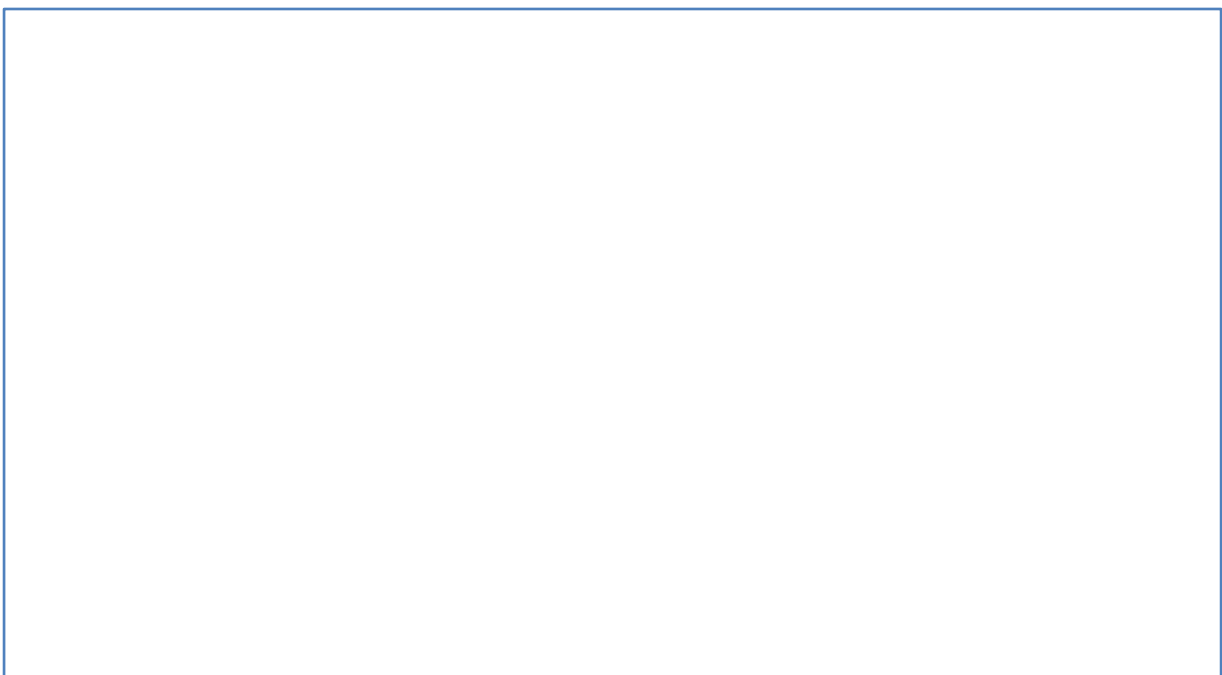
Tips: customer, customer's expectations (quality, timing, volume), value, process, does the process fulfil expectations (if yes then on what price), scope, problem, inputs and outputs, SLAs, flexibility, are the expectations specified?

Tip: Requestor speaks about effects and not root causes. Root causes are the things that if we eliminate the process fulfill the customer expectations.

Tip: first scope defined by department leader (requestor), scope can be changed (customer expectations are not fulfilled, or the price is too high how the process fulfills it).



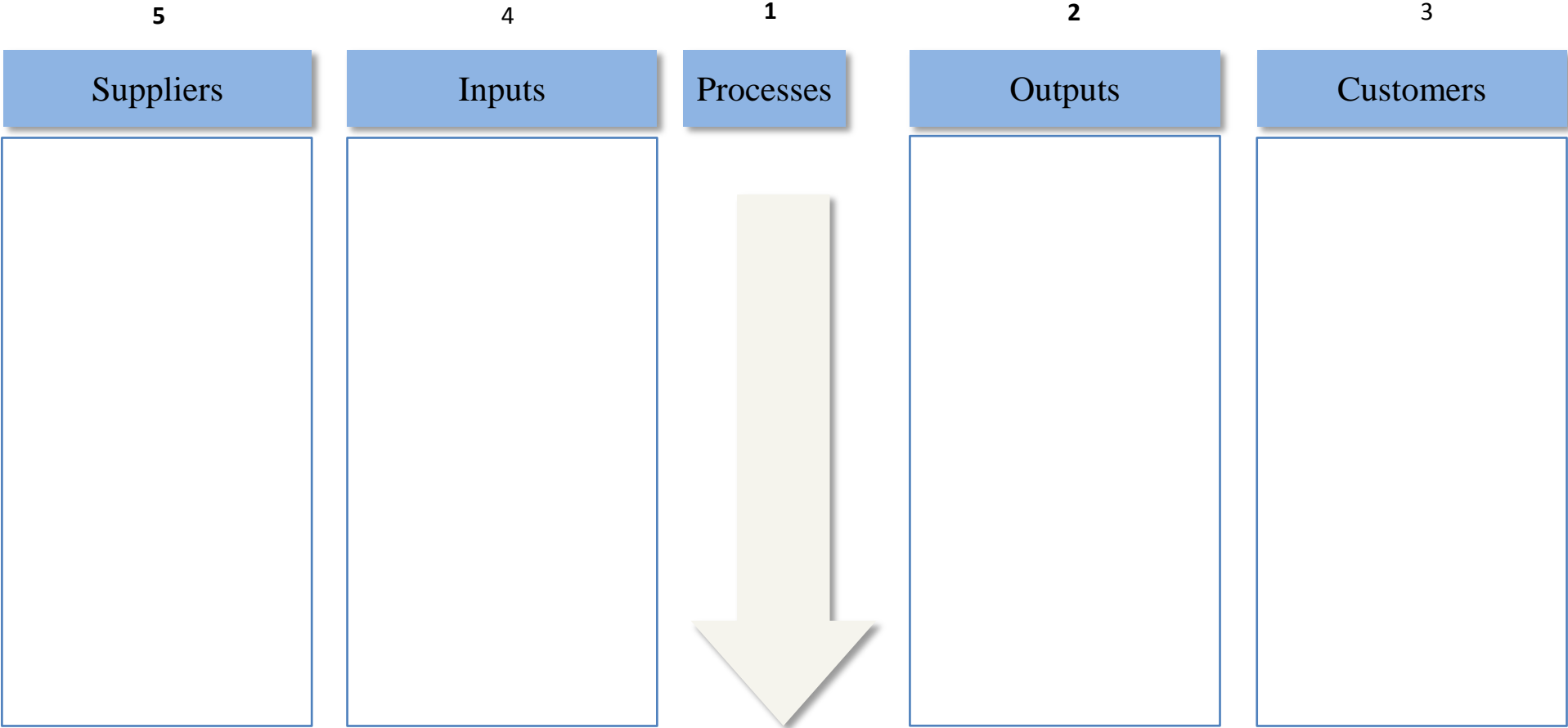
How can I collect them?



Goal statement

Tip: what kind of performance improvement is needed? What, when and with what impact?

Analysis / SIPOC



High Level Process Flow:

Analysis / Value Stream Map: AS-IS* (go to gemba)

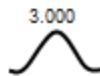
Process		Value(s)	
Owner		Purpose(s)	
Customer(s)		Untouchable	
Supplier(s)		Metric(s)	

Value Stream Mapping Symbols

Process step	
Cycle Time	
CT of transport	
Stock	
Resources	
First Pass Yield	
Note	



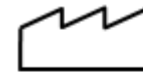
Indicates inventory to be pulled from in next process



Uncontrolled inventory (of 3.000 units)



Indicates electronic storage



Icon represents customer or supplier



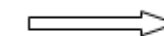
Arrow indicates electronic transmission



Box indicates process; each box represents a process



Arrow indicates direction of flow



Wide arrow indicates finished goods or services to the customer



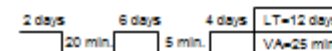
Indicates storage or shelves for documents, data, emails directly following a process or operations (in inventory and will be pulled from in production as needed)



indicates opportunity for improvement



Indicates 'people', usually to show number of people working on a process



Indicates the time in time ladder:

- The time it takes one piece to move all the way through a process or value stream, from start to finish = "Lead Time" (LT)
- Bottom of the ladder indicates "Value added time" only
- Total time product or service is being worked on within one process = Cycle Time (CT): Includes VA (Value added) and NVA (Non Value added) time
- Time between two products released is the tact time

$$VA < CT < LT$$

Value Stream Map – Key Metrics

Cycle time (CT):

- The time it takes to perform work, if one is uninterrupted
- Includes Value added (VA) and Non-Value Added (NVA) time
- 'touch time', 'work time', 'cycle time'

Lead time (LT):

- The elapsed time from the time the work is made available until it's completed
- Includes process time and waiting time
- throughput time, turnaround time, elapsed time

% Complete & Accurate (%C&A):

% of time with no data correction, addition or clarification from supplier

Process Cycle Efficiency (PCE):

$$PCE = \frac{\text{Total Value Added Time}}{\text{Total Lead Time}}$$

Example:
 Process lead time: 1590
 VA time: 55
 Process cycle efficiency (PCE): 0.03

VALUE ADDING (VA):

Does the activity change the final product or service?
Does the activity enable competitive advantage (lower price, shorter time, less defects)?
Is the customer willing to pay for the activity?

Symptoms of Poor Flow

Work in progress accumulation between processes
Employees wait while others are too busy because workloads are not balanced or consistent
Employees process in batches
Problems are not solved promptly or permanently
Work gets frequently reassigned and reprioritised

WASTE 1 - VALUE ENABLING (VE)

The process would fail without this activity (but customer does not care how it is done)?
Is needed for the activity to be accomplished by separate person / in separate location?
Does this step reduce risks within the business?
Is this step required by law or regulation?

WASTE 2 - NON VALUE ADDING (NVA)

Eliminating this activity has no negative impact?
Customer would ask us to eliminate this step to reduce price?
Duplicating activity done elsewhere?
Checking, handling or repairing the defects produced by previous activities?

Times

CT + transfer + waiting (for one piece) /waiting=next stock * next CT/
In case of parallel processing use longer CT!
If input comes in batch, waiting should be calculated! /average * first CT/
Bottleneck = Minimum (CT/Resources)

Process CT= bottleneck CT = Maximum (CT/Resources)

CheckPoint: Process CT vs Takt Time

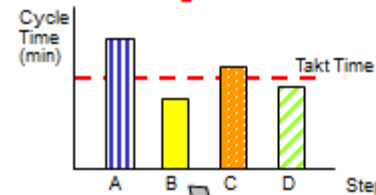
Cell balancing:

1. Is any Non Value Adding?
2. Resource balancing
3. Overtime, plus shift
4. More resources

Note: In case of FTE reducing first talk to department leader to identify opportunities!

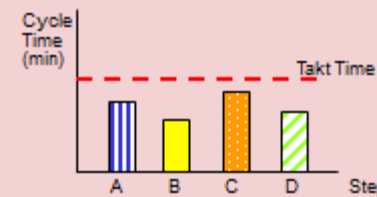
$$\text{Takt time} = \frac{\text{Net available time}}{\text{Number of transactions to complete}}$$

Balancing The Flow

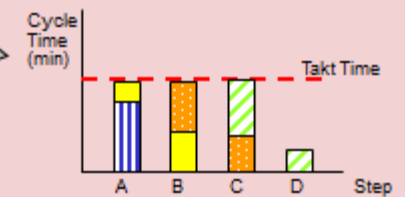


What to do with free capacity in step D?
• Can be allocated to other tasks
• Can be fully eliminated by further process improvement!

1. Reduce Waste to Comply with Takt Time



2. Fully utilize resources



Analysis / Value Stream Map: Ideal State

Purpose: Clarify aims; regular overview to judge is it still unattainable, thinking “out of the box”

Analysis / Root cause analysis

When: if we cannot immediately answer why do the defects exist.

Tip: Fishbone is a visual representation of 5Why. Head of fish=effect, 4M: man, machine, material, method. Stop on bone when eliminating the problem, the original effect disappears.

Proposal / Define decision making points

Tip: Lead time, error rate (%), cost-return, FTE, implementation time, risks

Tip: Agree with stakeholders, before proposing anything!

	Weight	IDEA					
		A		B		C	
		point	weighted	point	weighted	point	weighted
1. Factor	3	2	6	1	3	4	12
2. Factor	6	1	6	5	30	2	60
3. Factor	9	5	45	2	90	0	0
4. Factor	3	2	6	0	0	6	0
	Σ		63		123		72

Proposal / Value Stream Map: Future State

Plan – Do – Measure – Follow Up
