



Process Observation

? What is It

Improvement tool to **measure** how much time people / machine spend on each part of a process.

🕒 When

- In the **Measure** and **Analyze** phase of **DMAIC**.
- **Optimize** the use of material, machines and manpower.
- To **improve** human effort.

🎯 Goals

- Support the Line Balancing method.
- Support the VA-NVA Analysis.
- Build a solid understanding of processes.

📊 How



Analysis

What is to be measured.
Identify steps (Process map).
Approach to the experts.
Draft standard time.



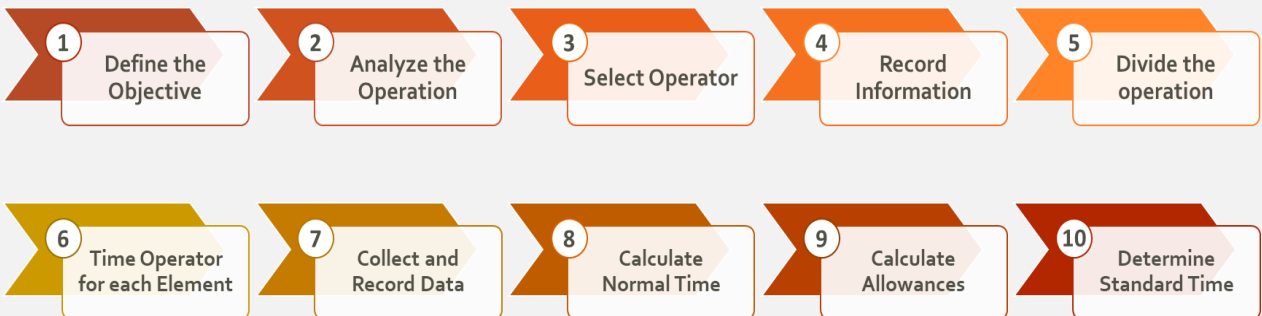
Measurement

Use of timing device.
Consider allowances.
Record several runs.



Synthesis

Use template to enter data.
Get results and validate them.
Determine Standard times.



🧠 Hints

- Use the **largest sample** possible.
- Take **people's skills** into consideration.
- Try **not to record** while observation is executed.
- Beware the **Hawthorne Effect***.
- Do not lose sight of the **goal**.

*Individual change an aspect of their behavior in response to his awareness of being observed

📄 Example

PathStone Group Time Motion Study Worksheet

Operator ID	Task / Operation	Type of Operation	Cycle Time (seconds)					Ave Obs Time (sec)	Ave Obs Time (min)	Normal Time (min)	Standard Time (min)	Target Pouches/hr
			1	2	3	4	5					
1	Open the box with tubes	Manual	2	3	5	5	2	3.40	0.06	0.06	0.063	159,412
2	Fit box inside dispenser	Manual	5	3	5	5	2	3.40	0.06	0.06	0.063	159,412
3	Fill Kanban bin with tubes	Manual	3	3	5	5	2	3.40	0.06	0.06	0.063	159,412
4	Pick up empty kanban bins	Manual	2	3	5	5	2	3.40	0.06	0.06	0.063	159,412
5	Take one tube and label it	Process	3	3	5	5	2	3.40	0.06	0.06	0.063	159,412
6	Place tube on bin	Manual	4	3	5	5	2	3.40	0.06	0.06	0.063	159,412
7	Pass tube to check weigher machine	Machine	3	3	5	5	2	3.40	0.06	0.06	0.063	159,412
8	Place 12 tubes in a case	Manual	4	3	5	5	2	3.40	0.06	0.06	0.063	159,412

Sample Size		Conf Level	t value
Preliminary mean of observation time	34	90.0%	1.65
Standard deviation of observed time	2	95.0%	1.96
Confidence level required (z Value)	1.96	95.5%	2.00
Maximum acceptable error	5%	98.0%	2.33
		99.0%	2.58

	Performance Factor	Allowance Factor	
Manual Operation	100%	5%	Personal Allowance is with Manual Operation
Machine Operation	100%	5%	Machine Allowance is with Machine Operation
Process (Manual+Machine)	85%	8%	Process Allowance is with both Manual & Machine

Working Hours	
Working Hours	8.00

Total Cycle Time	30.6 sec
Total Normal Cycle Time	0.51 min
Total Standard Cycle Time	0.03 min
Expected Target	149,077 Pouches/hr

← Can be the used for Takt Time