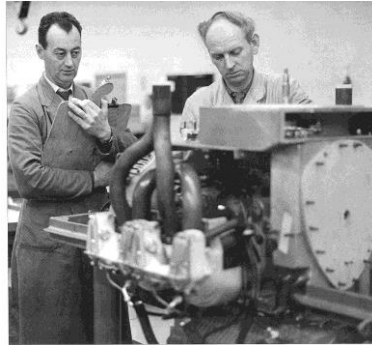


Time study and Performance rating



Volvo Flygmotor

Learning objectives

- After this lecture the student will be able to ...
 - Carry out a proper time study.
 - Motivate why performance rating is necessary.
 - Use a PTS for performance rating.
 - Make a fast performance rating from a visual impression.

Time study

The purpose is to determine ...

Standardized work

and

Improve...

Usable time standard

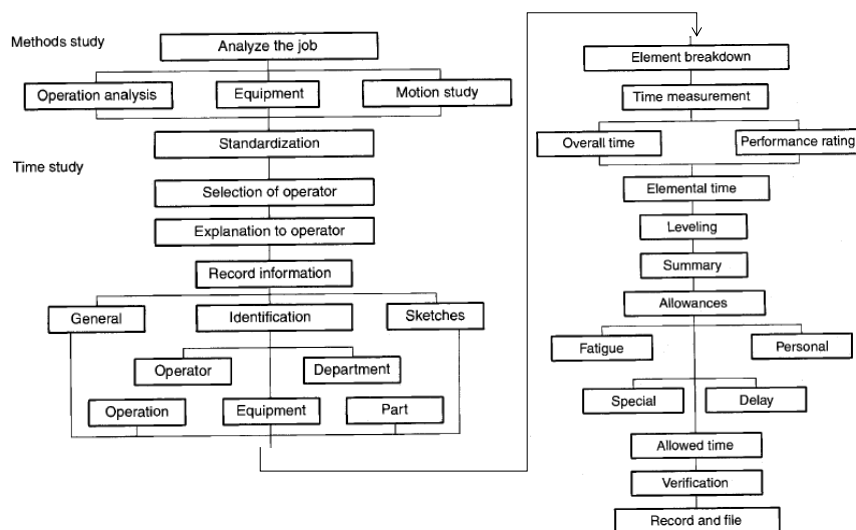
- If the time standard will be used for planning and control, it is not sufficient to only standardize the core activities.
- Supportive activities must be studied and standardized as well:
 - Quality control procedures
 - Materials handling, including package materials
 - Set-up work
 - Planning, reporting, etc.
- On top of that is all the extra time - Allowances
 - Personal time
 - Balance losses, waiting time
 - Disturbances

Determine time standard (for the core method)

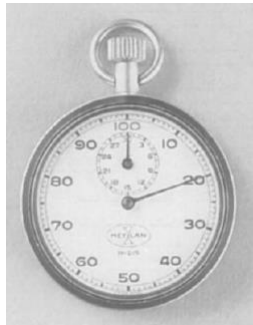
- Estimates
- Historical records
- Work measurement
 - Time study
 - Predetermined time systems
- Must be based on facts – not guesses

$$\text{Productivity} = M \times P \times U$$

Setting standard using Time study (Zandin 17.2)



Equipment



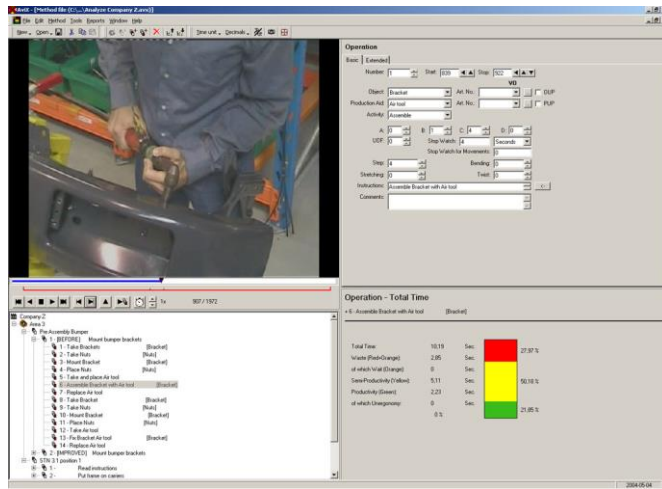
Equipment

ZT 730	ZT 865	PC	Pocket PC
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Projektma.se

AviX Method



Time Study Form

- R - Rating (performance)
- W – Watch time
- OT – Observed time
- NT – Normal time

Time Study Observation Form

Study No.: 2-85
Operation: DIE CA

Element No. and Description	Note	1 REMOVE PART FROM DIE, LU BRIGATE DIE, INSPECT				2 PLACE PART IN FIXTURE, TRIM ASIDE PART				R	W
		R	W	OT	NT	R	W	OT	NT		
	1	90	90	30	270	90	113	23	207		
	2	100	40	27	270	100	61	21	210		
	3	90	92	31	279	90	25	23	207		
	4	85	50	35	298	100	70	20	200		
	5	100	90	28	280	100	38	20	200		
	6	110	43	25	275	110	61	18	198		
	7	90	92	31	279	90	46	24	216		
	8	100	44	28	280	85	68	24	204		
	9	90	500	32	288	80	23	23	207		
	10	110	49	26	286	105	68	19	200		
	11										
	12										
	13										
	14										
	15										
	16										

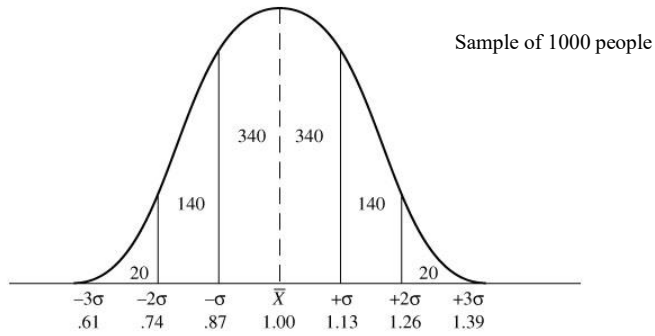
Number of observations

- 10 cycles as rule of thumb.
- Plot times in histogram and determine if normal distributed.
- Use the average or median time.

Performance rating

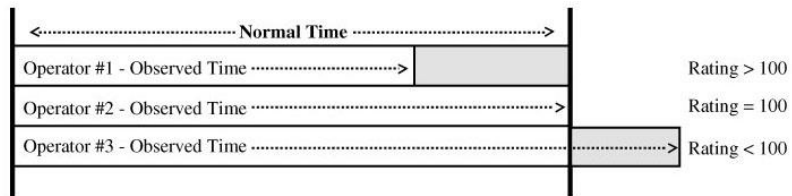
...of people

Standard performance



Rating methods

- Rating of each element or for whole task?
- Analyst need talent to do consistent ratings
- Speed vs. Precision



Performance rate depends on...

- Difficulty of work task
- Precision requirement
- Environment issues (too hot, too cold etc.)
- Skill, training

Rating methods

1. Synthetic rating, i.e. using PTS
2. Speed rating

Synthetic rating

- Use predetermined times
 - Performance = predetermined time / observed time
- The best method!

Speed rating

- Trained to see the speed, use benchmarks
- Need experience
- Prerequisites
 - Experience of the type of work performed.
 - Use of predetermined (synthetic) time for benchmark of at least two elements.
 - Select operator who is close to normal performance.
 - Use mean value of three or more independent studies.

Speed Benchmarks

- 100 performance is equal to:
 - Dealing a deck of cards (52 cards) into 4 piles in 30 seconds.
 - or
 - Walking 3 miles/h = 4.83 km/h = 1.34 m/s

**Performance rating
exercise!**

Learning objectives

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