Differences between state analyses and productivity analyses:

The **state analysis** only looks at the existing states without a higher-level logic. This means that the percentage of each state in the selected period is evaluated. Independently of whether states are present at the same time.

The **productivity calculation** contains a higher-level logic within which simultaneously present states are placed in order of importance.

- "do not analyse" is generally excluded

- "not productive" beats "productive".

This means: if 2 states are present at the same time, one of which is "non-productive" and the other "productive", the period in which both states are present is evaluated as "non-productive".

Differentiation: The following part of this document explains only those calculations that are relevant in context with jobs.

Job module

Gross runtime (in time unit)

Type of job	Plan	Actual
Waiting	Plan set up time + (plan quantity * cycle time/factor)	<not defined>
Active waiting	Plan quantity * cycle time/factor	<not defined>
Running (still during set up)	Plan net time = plan set up time + (plan quantity * cycle time/factor) If there are breaks between the job start + actual net time, the end is postponed by the duration of the breaks and extends the plan gross runtime.	Actual gross set up time = now – job start Actual net set up time = gross set up time – break times with set up If actual net set up time <= plan set up time: Actual gross runtime = plan gross runtime If actual net set up time > plan set up time: Net production time = plan quantity * cycle time/factor If there are breaks between now + net production time, the end is postponed by the duration of the breaks and extends the actual gross runtime.
Running (set up completed)	Plan net time = plan set up time + (plan quantity * cycle time/factor)	Net remaining runtime = remaining quantity * cycle time/factor

	If there are breaks between the job start + plan net time, the end is postponed by the duration of breaks and extends the plan gross runtime.	Actual gross runtime = now – job start + net remaining runtime If there are breaks between now + net remaining runtime, the end is postponed by the duration of breaks and extends the actual gross runtime.
Completed	Plan net time = plan set up time + (plan quantity * cycle time/factor) If there are breaks between the job start + plan net time, the end is postponed by the duration of breaks and extends plan gross runtime.	Actual gross runtime = job end – job start

Net runtime (in time unit)

The gross run times without breaks.

Job progression (in %)

= Actual quantity/ job plan quantity * 100

Productivity (in %)

= Plan cycle time / actual cycle time * 100

Type of job	Actual cyle time	Plan cycle time
running (still during set up)	<not defined>	Pre-defined
Running (set up completed)	(Actual net production time – set up time) / Number of counter impulses	Pre-defined
Completed	If there are no counter impulses = <not defined> Total actual net runtime – net set up time / number of counter impulses	Pre-defined

Productivity module

Analysation of job productivity

(Option „analyse job productivity“ is activated)

Plan job cycle time

Net production time without cycle time = For each job in the period under consideration, the production times in which no set up was carried out are added together

Analysation of the plan quantity using the net production time without set up time

Job plan cycle time = Sum of net production time without set up time for each job in the period under consideration / sum of analysed plan quantity for each each job in the period under consideration

Actual job cycle time

Analysation of the actual quantity using the net production time without set up time

Job actual cycle time = Sum of net production time without set up time for each job in the period under consideration / total actual quantities for each job in the period under consideration

Job productivity (in %)

= Plan job cycle time / Actual job cycle time * 100

Analysation of job productivity

(Option „analyse job productivity“ is not activated)

Total runtime productivity (in %)

Total plan runtime = Sum of plan runtime (in net production time without set up time) for each job in the period under consideration, that would have been needed for the actual quantity

Total actual runtime = Sum of working hours in the period under consideration – Sum of set up times for each job in period under consideration

Total productivity runtime = Total plan runtime / Total actual runtime * 100

Total plan runtime

= Total actual runtime / total plan quantity

Total actual runtime

= Total actual runtime / total actual quantity

Runtime module

Statuses

Share of description in % = For which percentage of the period under consideration was the condition active. Break times are deducted

Share of description = How often did the condition appear in the period under consideration. Occurrence in break times is included in the calculation (Layer filter is ignored).