WS WORK – TUDY

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WORK-FACTOR

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De Work-Factor Raad wil een platform bieden aan Work-Factor gebruikers, arbeidsanalisten, cost engineers en industrial engineers om problemen, oplossingen, ideeën en tips te bespreken. Daartoe zullen we regelmatig een WS Tip sturen aan “WF-leden” en geïnteresseerden. Mocht dit bericht niet op het juiste adres aankomen stuur het dan door naar geïnteresseerden en laat ons dat weten, svp.

WS WORK – TUDY WS Tip 199 15 juni 2021

Het onderwerp van vorige WS Tips staat op de WF Website onder: WF en Management/Praktisch - Algemeen/WS Tips.

A practical example of the Theory Of Constraints

THE P&Q PROBLEM, Part 5

Step 2: Exploit your constraints, i.e. exploit mach. B

Calculate the <u>profit margin per minute on the capacity constraint.</u>

Product P	Product Q
Margin: $ 45,-/unit Minutes on B: 15 min./unit Margin per min. B = $ 3,-	Margin: $ 60,-/unit Minutes on B: 30 min./unit Margin per min. B = $ 2,-

So, the constraint is best exploited by selling product P first, which has the greatest margin per minute on the constraint: so the schedule (decision) will be: P, Q.

P:	100 x $ 45,- =	$ 4.500,-	(1500 min. mach. B)
Q:	30 x $ 60,- =	$ 1.800,-	(900 min. mach. B)
		$ 6.300,-	
	-/- OE	$ 6.000,-	
		+ $ 300,-	(maximum possible profit per week).

Machine B is the internal capacity constraint,
but .....
there is also a market constraint: demand for P is only 100 units.

Step 3: Subordinate everything to the decision you have taken.

Utilization of the machines

What is the utilisation of e.g. machine A?
P: 100 units: 100 x 15 = 500 min. mach. A
Q: 30 units: 30 x 10 = 300 min. mach. A
1800 min. mach. A
Available: 2400 min.
Efficiency: 1800/2400 x 100% = 75%. That is not too good; old thinking!

The utilization of all machines in this schedule is:

	P	Q	Total	Utilization
A:	1500	+ 300	= 1800	(= 75%)
B:	1500	+ 900	= 2400	(=100%)
C:	1500	+ 150	= 1650	(= 69%)
D:	1000	+ 150	= 1150	(= 48%)
		Total	7000	= 73%

Are these measurements or calculations relevant?

No, don't worry about efficiency measurements of individual non-bottleneck work stations; stop sub-optimalisation.

This is meant by the third step of TOC:

Consider next situation (part of exploiting the constraint)..

Engineering change proposal:
It will take an investment of $ 5000.- to modify machines B and C, just for raw material-2, in such a way that it takes 14 minutes on machine B and 7 minutes on machine C to be processed.

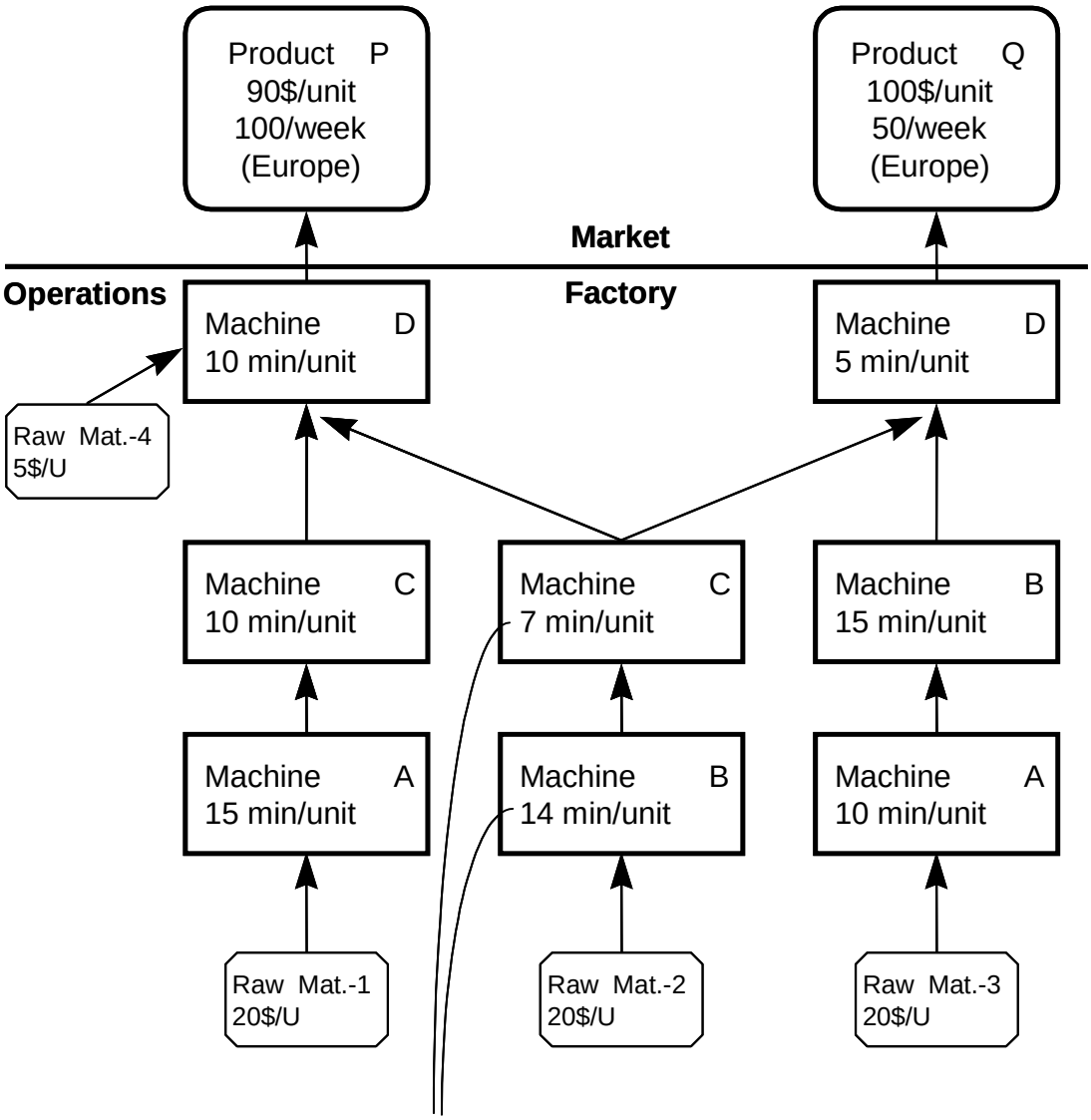
So, we have a new situation.

THEORY OF CONSTRAINTS (example)

Question 4:

a) Is the decision to implement the engineering change right?

b) If so, what is the pay-out time (POT)?



ENGINEERING CHANGE: $ 5000,-

- Day shift, 8 hours per day, 5 days per week
- "Operating expenses": $ 6000,- / week
- Available: 1 machine A
  1 machine B
  1 machine C
  1 machine D.

Stop here and calculate the POT, then continue to find out.

See the next WS Tip

Voor reacties naar

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