

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.

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 6

SOLUTION QUESTION 4:

It takes an investment of \$ 5.000,-, but it makes it possible that the sub-assy for P and Q is produced on machine B in 14 min./unit instead of 15 min./unit. The next operation however, on machine C, takes more time; so this processing time will be 7 min./unit instead of 5 min./unit.

- a) 130 units of material-2 run over the constraint B. With 1 minute less per product, we will have 130 minutes more time available for making product Q.

So: $\frac{130}{29} \approx 4$ products Q at a margin of \$ 60,-/unit: so \$ 240,- more profit.

b)

Product P	Product Q
Margin: \$ 45,-/unit	Margin: \$ 60,-/unit
Min. B: 14 min./unit	Min. B: 29 min./unit
Margin per min. B = \$ 3,21	Margin per min. B = \$ 2,07

So, schedule P, Q.

P: 100 x \$ 45,- = \$ 4.500,- (1400 min. mach. B)

Q: 34 x \$ 60,- = \$ 2.040,- (986 min. mach. B)

\$ 6.540,-

-/- OE \$ 6.000,-

+ \$ 540,- (profit).

Extra profit: (\$ 540,-) – (\$ 300,-) = \$ 240,-.

Pay-out time: (\$ 5.000,-/\$ 240,-) = 21 weeks.

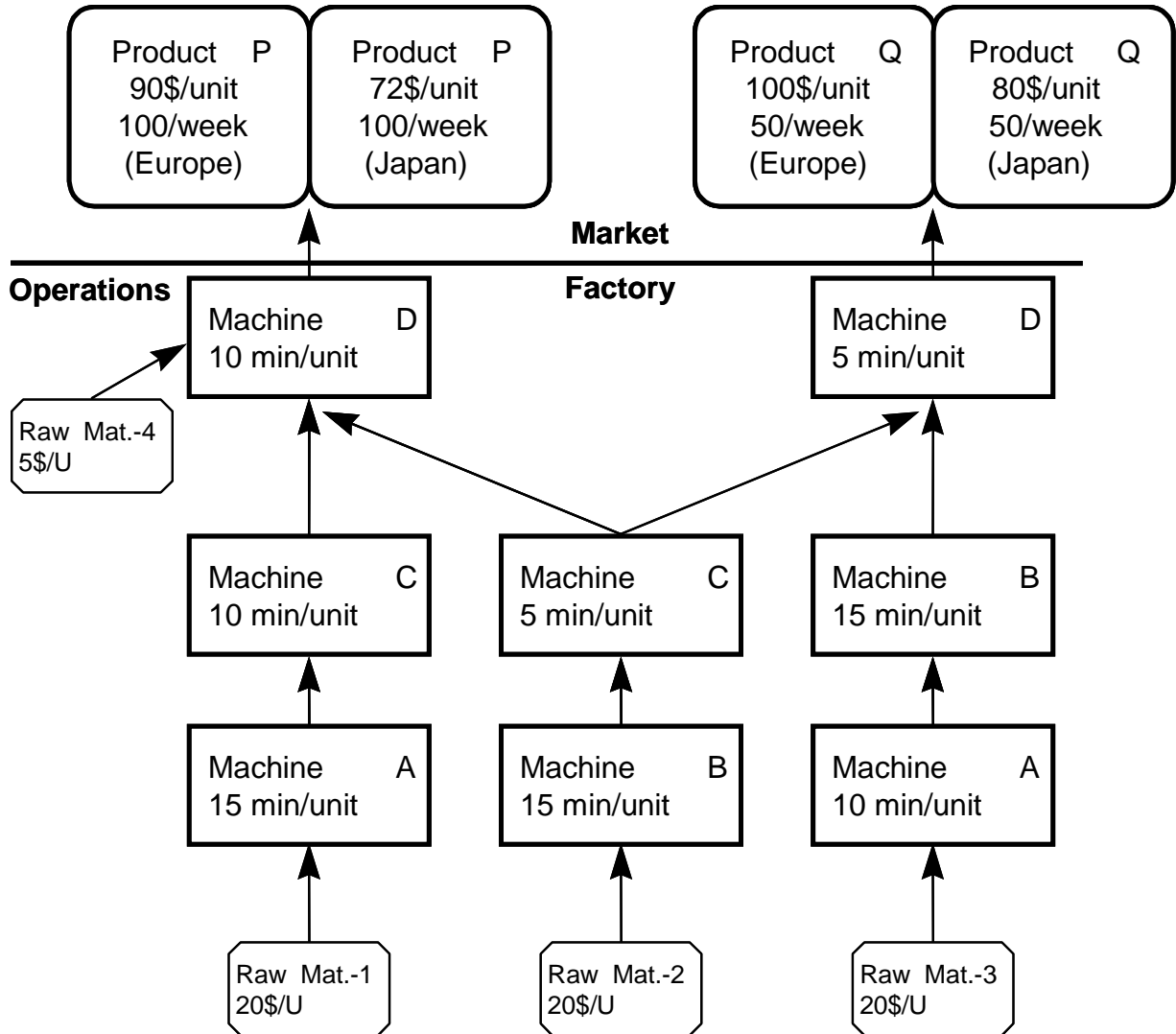
This is an illustration of: **Step 2: Exploit the constraint.**

But in this example the constraints still remain.

1. **Capacity of mach. B**
2. **Market demand for P**

THEORY OF CONSTRAINTS (example)

QUESTION 5: Shall we perhaps go to region “Japan”?
 In Japan market is the same, selling price is 20% less,



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.

Engineering change on machine B is not yet effected..

What is the schedule of the orders on the machines?

Stop here and calculate, then continue to find out.

SOLUTION QUESTION 5:

Also this example is related to step 2 of TOC.

Only by lowering the selling prices of P and Q by 20% we can penetrate the “Japan” region. We could even double the demand for our products.
Will we go to the “Japan” market?

	P-Europe	Q-Europe	P-Japan	Q-Japan
Margin	(\$90,-) – (\$45,-)	(\$100,-) – (\$40,-)	(\$72,-) – (\$45,-)	(\$80,-) – (\$40,-)
Min. B:	= \$ 45,-/unit 15 min./unit	= \$ 60,-/unit 30 min./unit	= \$ 27,-/unit 15 min./unit	= \$ 40,-/unit 30 min./unit
Margin per min. B:	45/15= \$ 3,00	60/30 = \$ 2,00	27/15= \$ 1,80	40/30= \$ 1,33
Schedule	1	2	3	4

So the schedule will be: P_E, Q_E, P_J, Q_J

Conclusion: stay in region Europe.

See the next WS Tip

Voor reacties naar

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