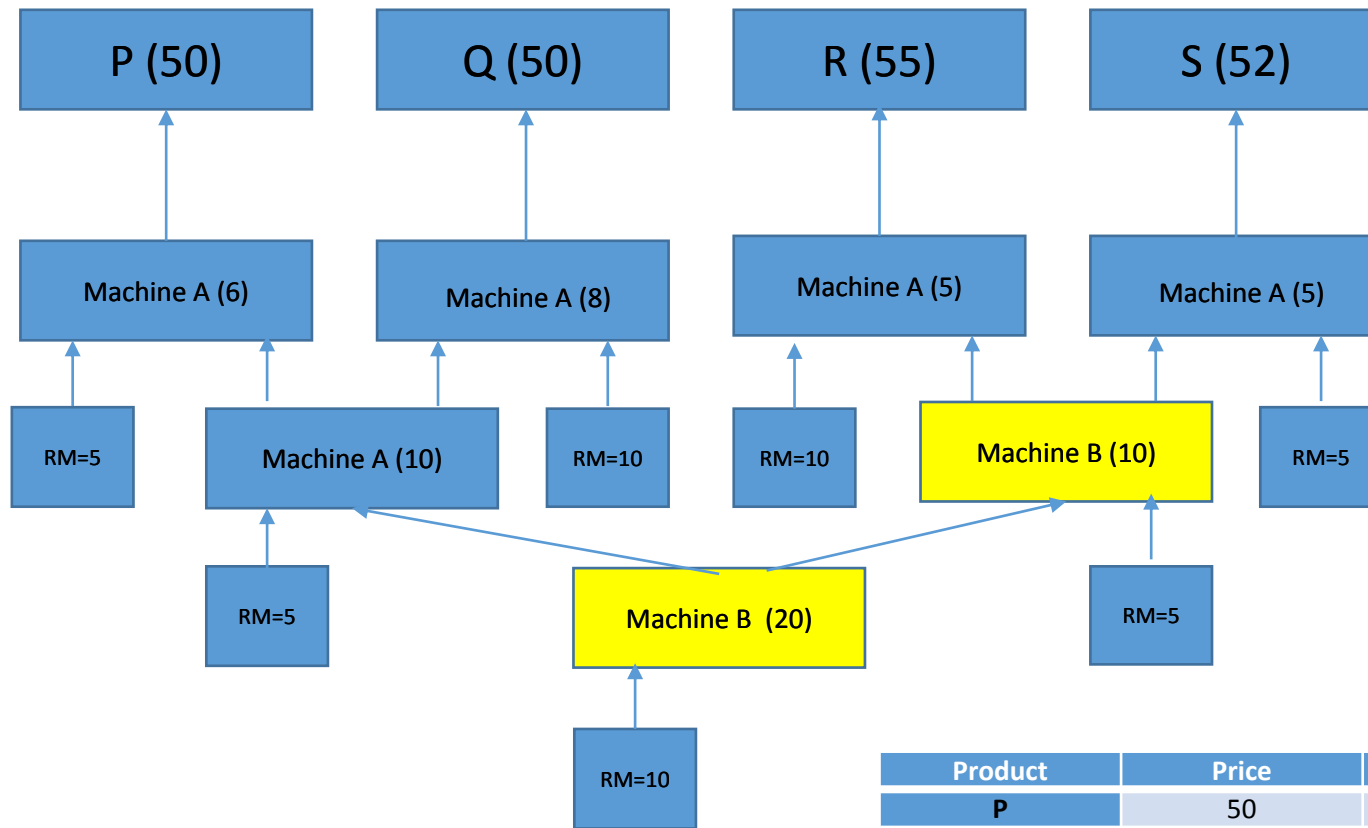


Product mix and TOC

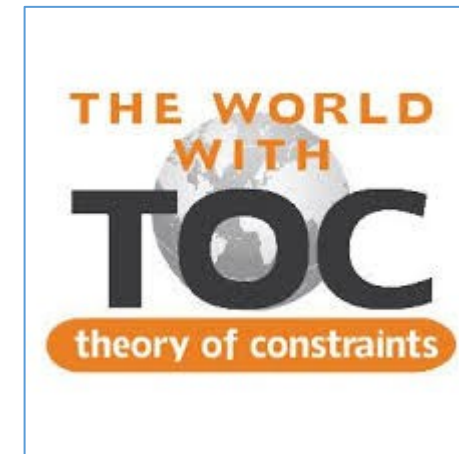


8 hours /day=480 min, cost/hour/resource=10 USD
 To produce P or Q->20 minutes of B (bottleneck)
 To produce R or S->30 minutes of B (bottleneck)

Two workers are always needed
 to produce each of the four products

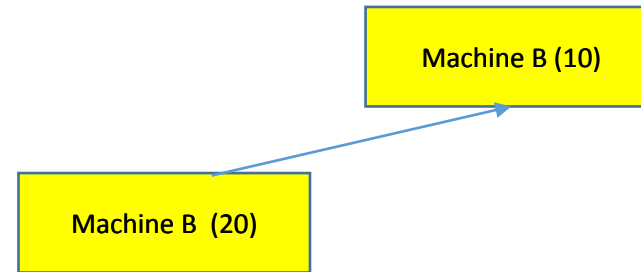
Product	Price	Material	Work (min USD)	Profit
P	50	20	36 min (6 USD)	50-20-6=24
Q	50	25	38 min (6,33 USD)	50-25-6,33=18,67
R	55	25	35 min (5,83 USD)	55-25-5,83=24,17
S	52	20	35 min (5,83 USD)	52-20-5,83=26,17

Four different approaches how to solve the product mix



Classic approach – highest margin (accountant) – **S product**

- $52 * 16 \text{ pcs} - 20 * 16 \text{ pcs} - 2 \text{ workers} * 8 \text{ hours} * 10 \text{ USD/hour} = \underline{352 \text{ USD/day}}$
- Where $16 = 480/30 = 16 = 480/(20+10)$
- $20 + 10$ is capacity of machine B to produce S



Product	Price	Material	Work (min USD)	Profit
P	50	20	36 min (6 USD)	$50 - 20 - 6 = 24$
Q	50	25	38 min (6,33 USD)	$50 - 25 - 6,33 = 18,67$
R	55	25	35 min (5,83 USD)	$55 - 25 - 5,83 = 24,17$
S	52	20	35 min (5,83 USD)	$52 - 20 - 5,83 = 26,17$

Marketing approach – highest selling price **R** product

- $55 * 16 \text{ pcs} - 25 * 16 \text{ pcs} - 2 \text{ workers} * 8 \text{ hours} * 10 \text{ USD/hour} = \underline{320 \text{ USD/day}}$
- Where $16 = 480/30 = 16 = 480/(20+10)$
- $20 + 10$ is capacity of machine B to produce R



Product	Price	Material	Work (min USD)	Profit
P	50	20	36 min (6 USD)	$50 - 20 - 6 = 24$
Q	50	25	38 min (6,33 USD)	$50 - 25 - 6,33 = 18,67$
R	55	25	35 min (5,83 USD)	$55 - 25 - 5,83 = 24,17$
S	52	20	35 min (5,83 USD)	$52 - 20 - 5,83 = 26,17$

Production approach – highest machine efficiency **Q** product

- $50 * 24 \text{ pcs} - 25 * 24 \text{ pcs} - 2 \text{ workers} * 8 \text{ hours} * 10 \text{ USD/hour} = 440 \text{ USD/day}$
- Where $24 = 480 / 20$ (the quantity of the product)
- 20 is capacity of machine B to produce Q

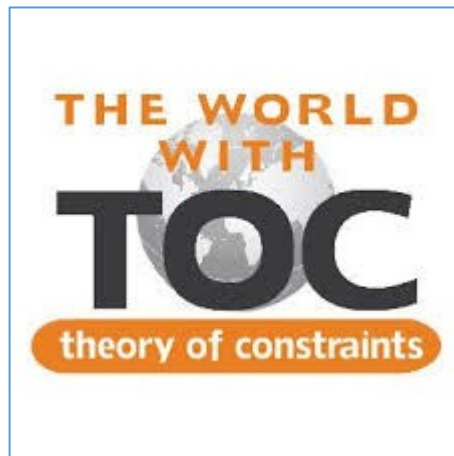
Machine B (20)



Product	Price	Material	Work (min USD)	Profit
P	50	20	36 min (6 USD)	$50 - 20 - 6 = 24$
Q	50	25	38 min (6,33 USD)	$50 - 25 - 6,33 = 18,67$
R	55	25	35 min (5,83 USD)	$55 - 25 - 5,83 = 24,17$
S	52	20	35 min (5,83 USD)	$52 - 20 - 5,83 = 26,17$

TOC approach – highest use of bottleneck **P** product

- $50 * 24$ pcs - $20 * 24$ pcs - 2 workers * 8 hours * 10 USD/hour = 560 USD/day
- Where $24 = 480 / 20$
- 20 is capacity of machine B to produce **P** product



Product	Price	Material	Work (min USD)	Profit
P	50	20	36 min (6 USD)	$50 - 20 - 6 = 24$
Q	50	25	38 min (6,33 USD)	$50 - 25 - 6,33 = 18,67$
R	55	25	35 min (5,83 USD)	$55 - 25 - 5,83 = 24,17$
S	52	20	35 min (5,83 USD)	$52 - 20 - 5,83 = 26,17$

Results

• Accounting approach	S	\$352	100%
• Sales-Higher Sales Price	R	\$320	90%
• Production-Efficiency	Q	\$440	125%
• TOC approach	P	\$560	159%