

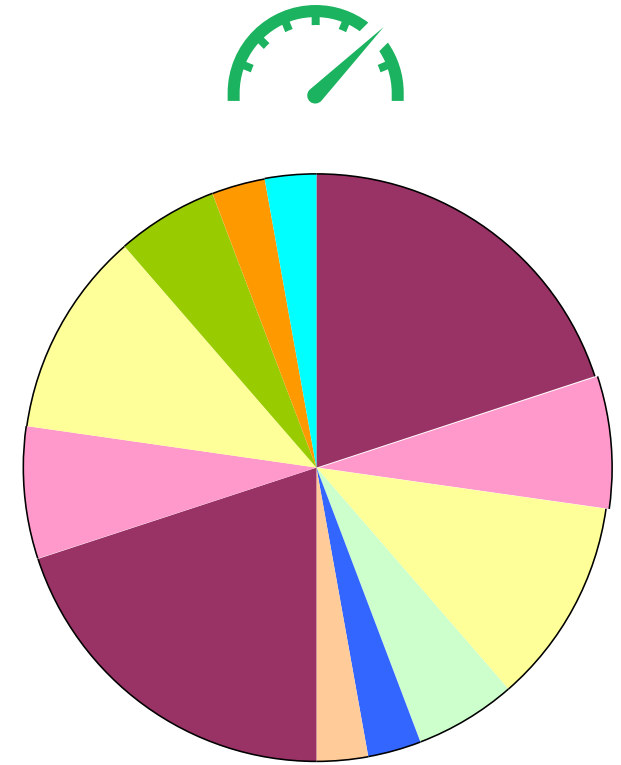
Product Wheel Approach
A means to reduce the impact
of changeover or setup time

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Product Wheels

A useful tool to visualize product sequences

- ✓ Where several types are made on an asset
- ✓ Where changeovers are costly (material, labour, capacity)
- ✓ Where change-over costs vary by type sequence is important



Improving sequencing can significantly reduce unit cost of manufacture and increase revenue.

Product Wheels



TIME

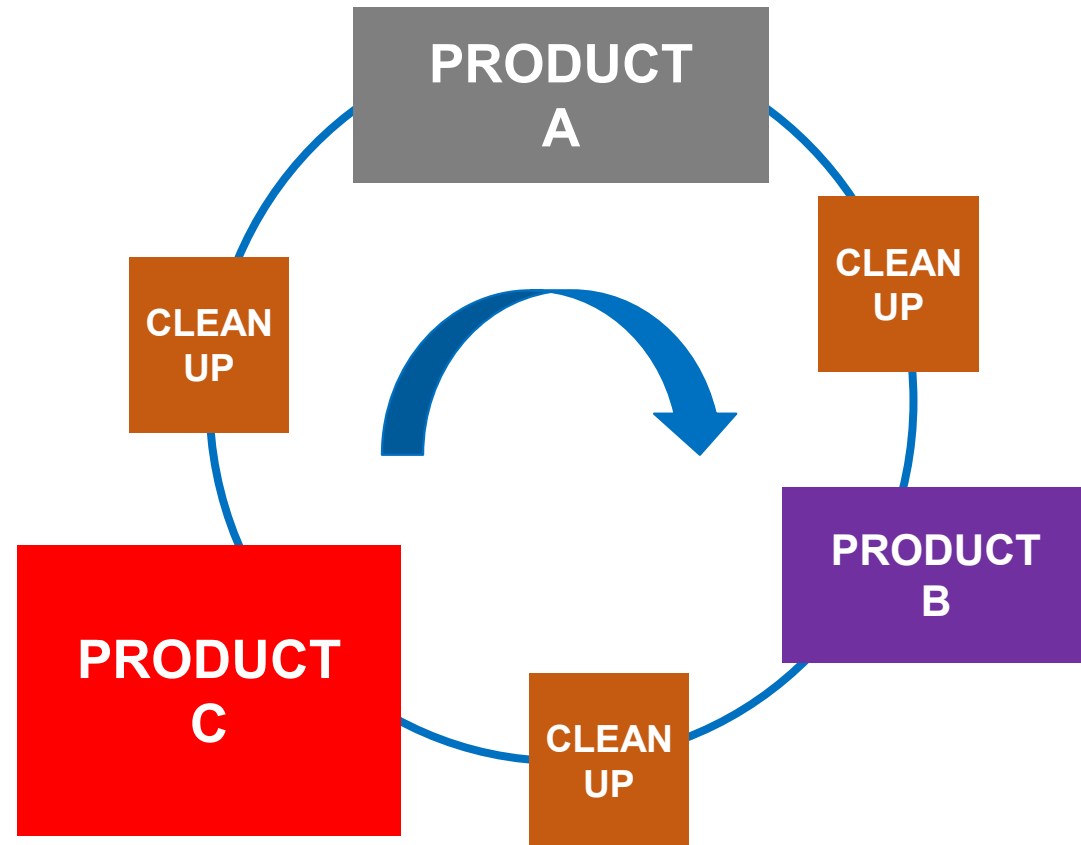


“Clean up” = “Campaign Changeover” = “Transition” = “Set up time”

Product Wheels

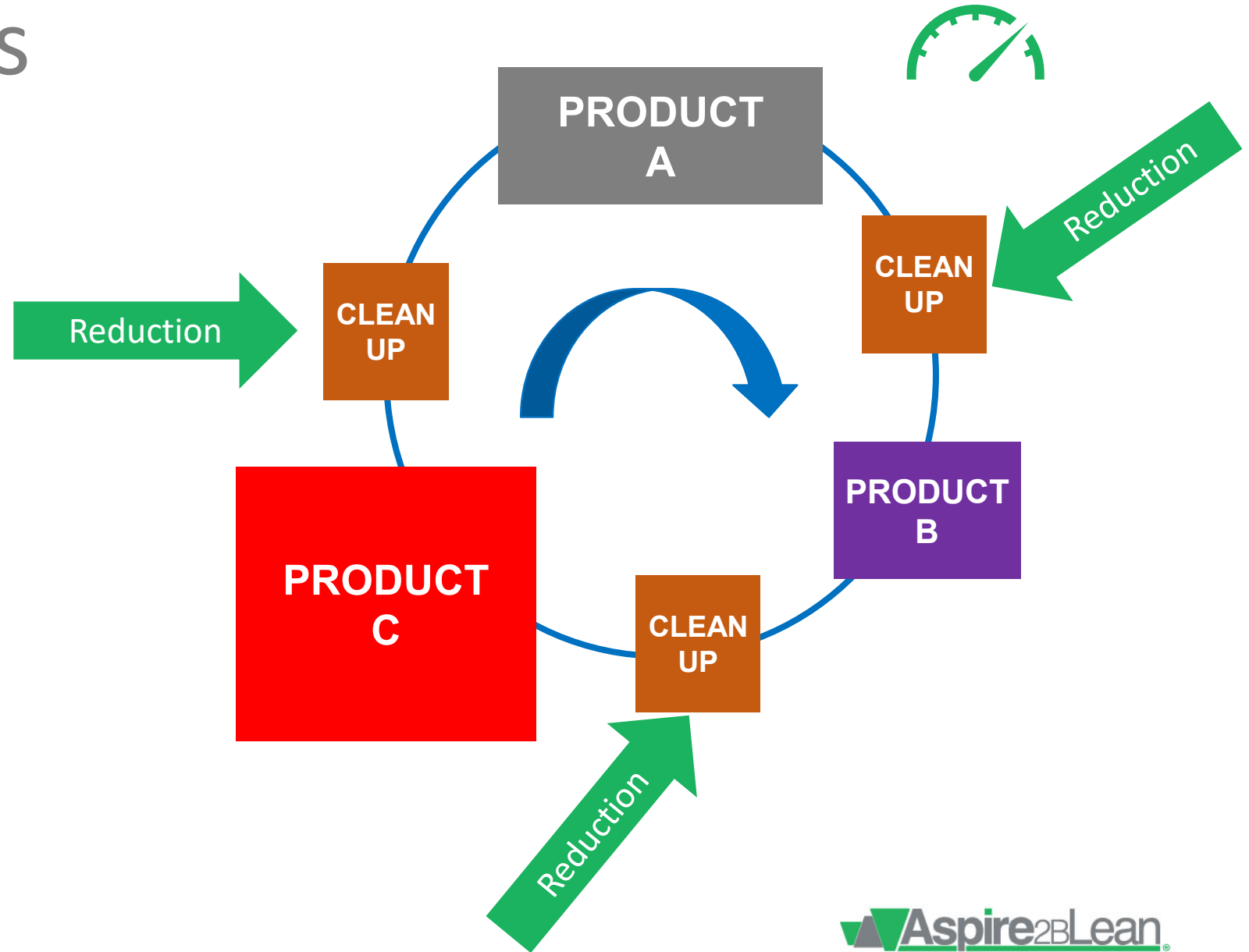


Imagine the sequence to the right is spinning like a wheel clockwise. We need to reduce the clean-up time or the frequency of clean-up if possible.



Product Wheels

Reducing the clean-up time, can allow for more batches in a given time.

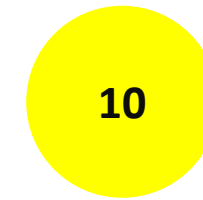
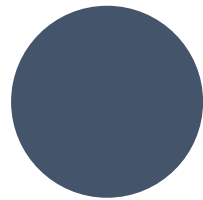


Product Wheel – Simple Paint Manufacturing Example

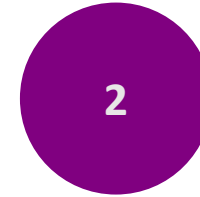
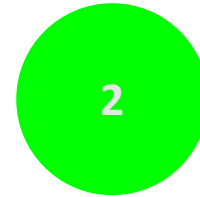
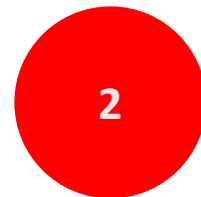
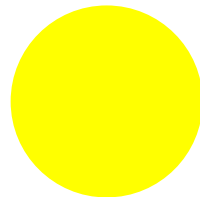


- Clean-down is from Light to Dark – Why ???
- Time to clean (hours) or “Loss of OEE” – Overall Equipment Effectiveness.

Before.....



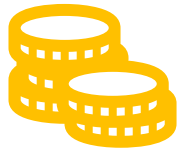
After.....





Example Continued

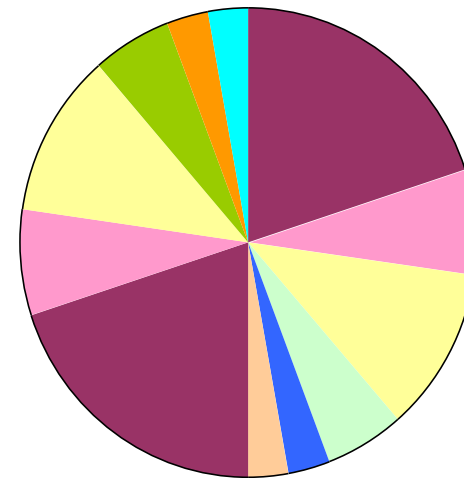
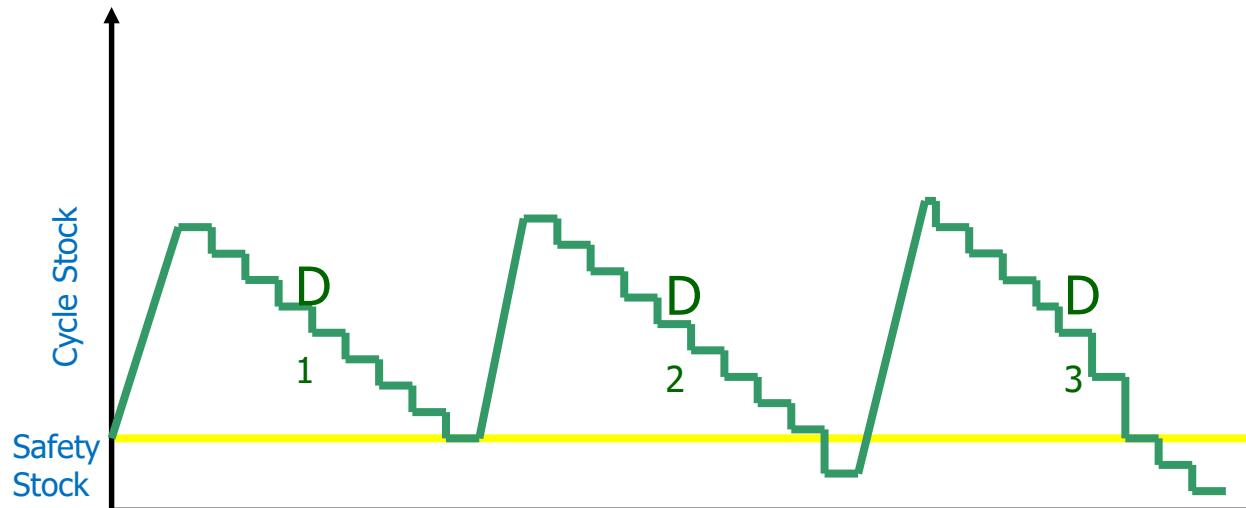
- Imagine that the paint plant is sold out and you are making to order
- Assuming you can balance the colours to meet customer demand
- You have done 6 batches in the time it would take to do 2 as the clean-up time between colours is shorter.
- Each batch is 1000 kgs at a selling price of £10/kg
- Therefore 4 extra batches at an improved revenue of £40,000 in the same time period



Product Wheels



- ✓ Brings structure & discipline to sequencing
- ✓ Allows required stock levels to be calculated (Cycle Stock & Safety Stock)
- ✓ We effectively spin the wheel faster to do more in a given time and minimize inventory
- ✓ We can spin the wheel slower in periods of lower demand or for Product types that have changeovers where doing things faster is prohibitively expensive





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