

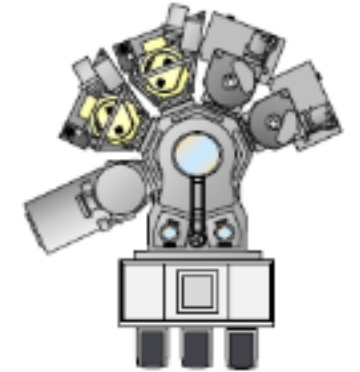
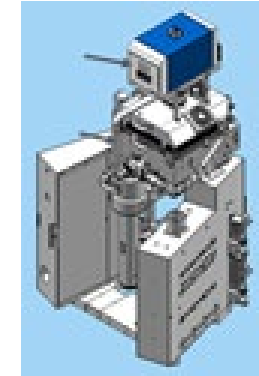


“Leagile” Production at SPTS

Dan Collins
General Manager

SPTS Introduction

- SPTS is a manufacturer of PVD, CVD and Etch equipment
- Based in Newport, South Wales
- ~ 700 employees



Production models – Summary

Lean Manufacturing



*The term “**lean production**” refers to the set of tools and techniques used to streamline and improve a company’s production system. With its roots in the Toyota Production System, **lean production** aims to boost productivity while reducing waste

[*What is Lean Production? - Planet Lean \(planet-lean.com\)](https://planet-lean.com)

Agile manufacturing



While lean manufacturing focuses on removing waste and 'dropping weight', **agile is more focused at using the current resources intelligently** and that the organization has the right data to implement changes in manufacturing

“Leagile” Manufacturing



*the development of a theory of “leagile” manufacturing **applied within a manufacturing system or supply chain**. A leagile system has characteristics of both. lean and agile systems, acting together in order to exploit market opportunities in a cost-efficient manner

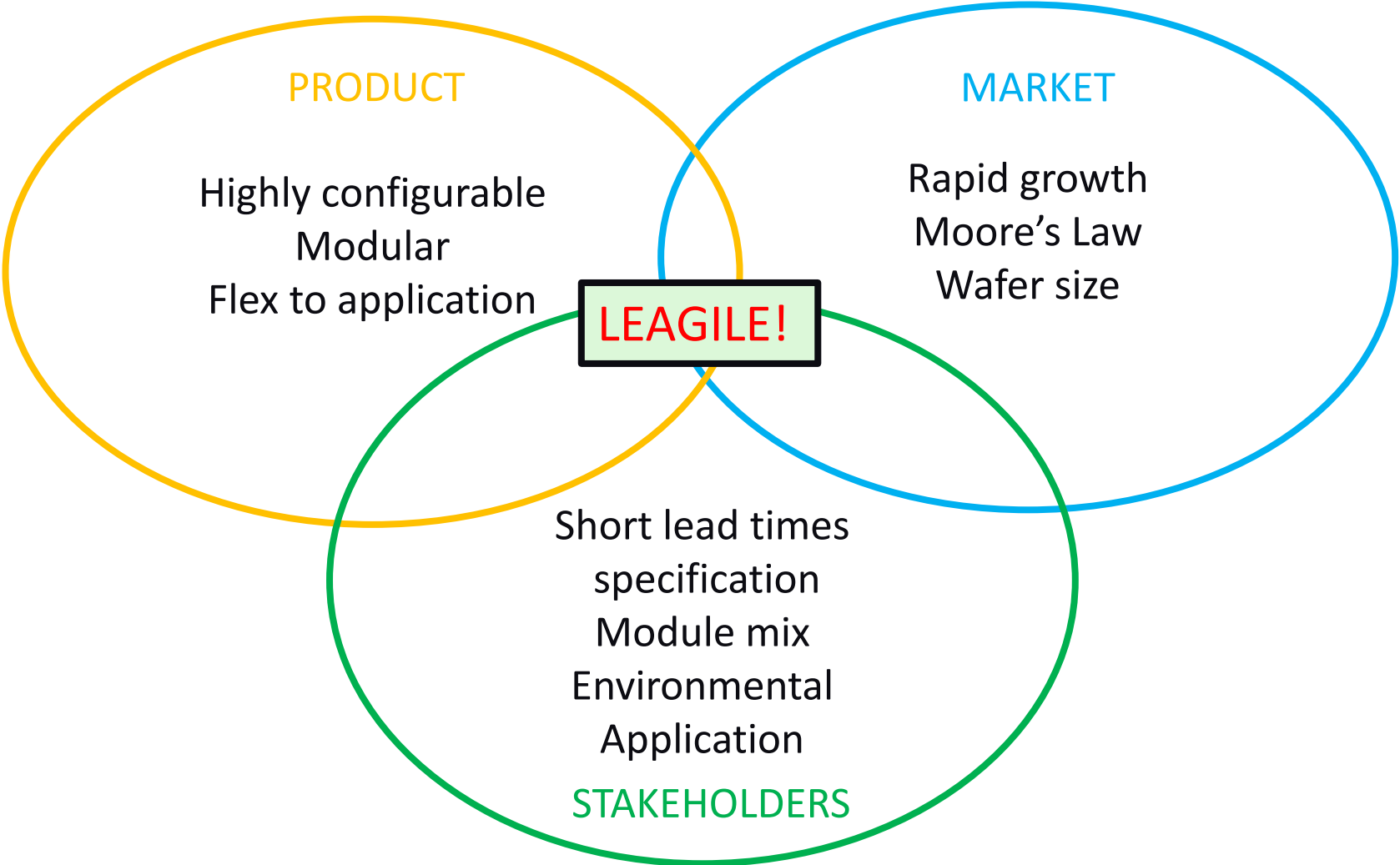
[*https://www.researchgate.net/](https://www.researchgate.net/)

SPTS Production

- There is nothing that we do that on it's own is new!
- Everything is available in text books, papers and on line
- Our advantage is the ability to pull numerous practices together simultaneously and apply them to everything we do:

“Leagile”
Culture

Why does SPTS need to be Leagile?



SPTS Production

Configure to order, discreet job cell production:

Supply



SUPPLY CHAIN



Warehouse



Pick, Kit,
Deliver



Production



Final test



100
modules
per quarter
limit

SPTS Production

Configure to order, discreet job cell production:

100
modules
per quarter
limit

Supply



SUPPLY CHAIN

Runners,
Repeaters
Strangers

Warehouse



Store by system

Pick, Kit,
Deliver



8 hr kitting
Pseudo flow line
Waterspiders

Production



Cycle time
Touch time reduction
Touch time
Go / no go
Andon
Water spiders
QRQC

Final test



Digital
transformation?

6 Sigma
Visual Management

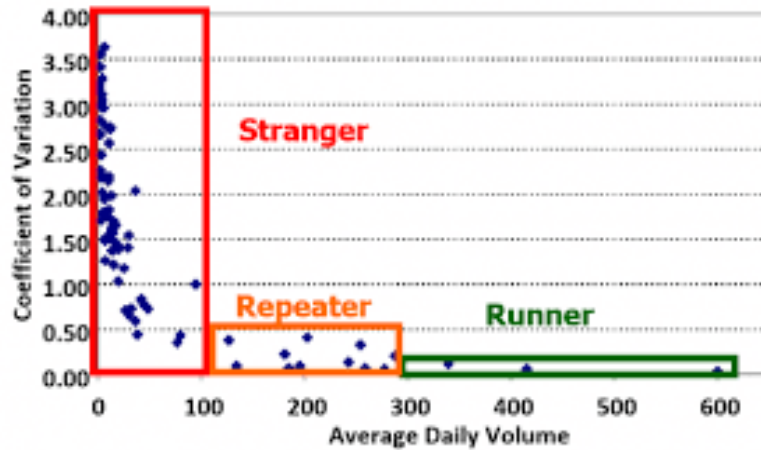
SPTS Production

Configure to order, discreet job cell production:



SPTS Production

Runners, Repeaters & Strangers



Hysteresis

“The dependence of the state of a system on its history”



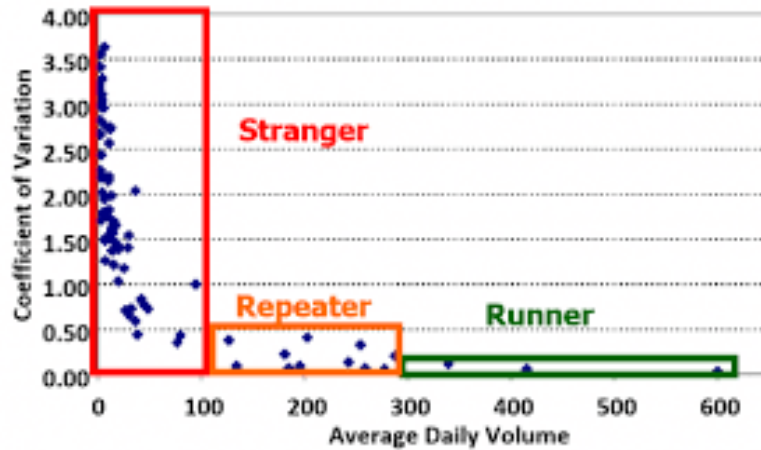
Agility in the supply chain

Forwards / backward view
Constraints management

[*Runner, Repeater, Stranger - Inventory Analysis - The Guthrie Group](#)

SPTS Production

Runners, Repeaters & Strangers



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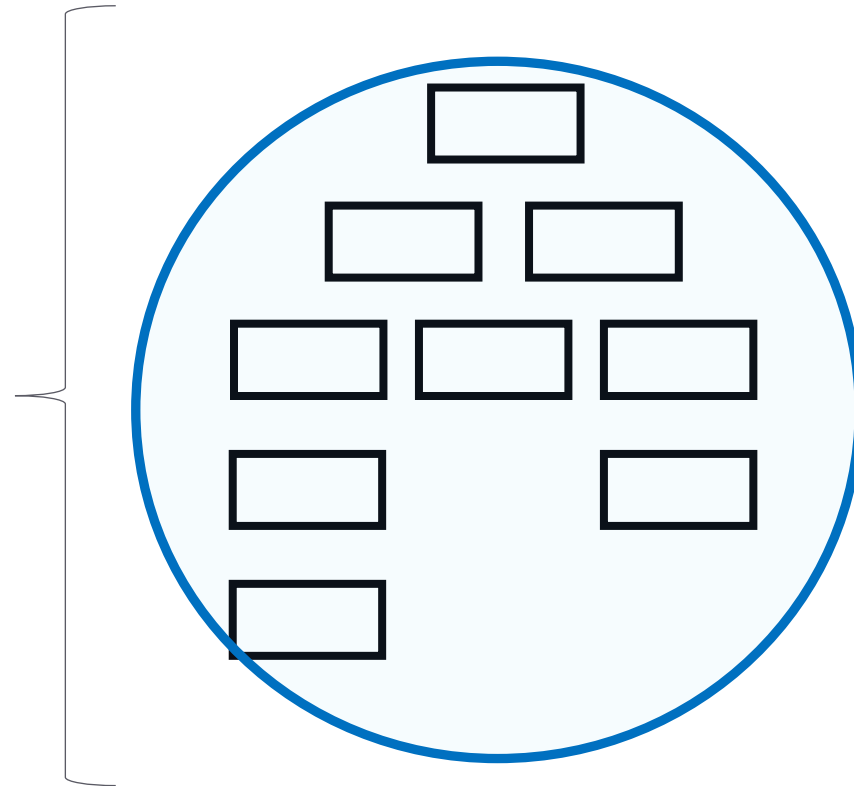
Agility in the supply chain



SPTS Production

8 hr kitting – Pseudo flow line

Previously,
entire BOM
delivered to
cell



Excess inventory

Excess space

Supply chain not JIT

Difficult to visually manage

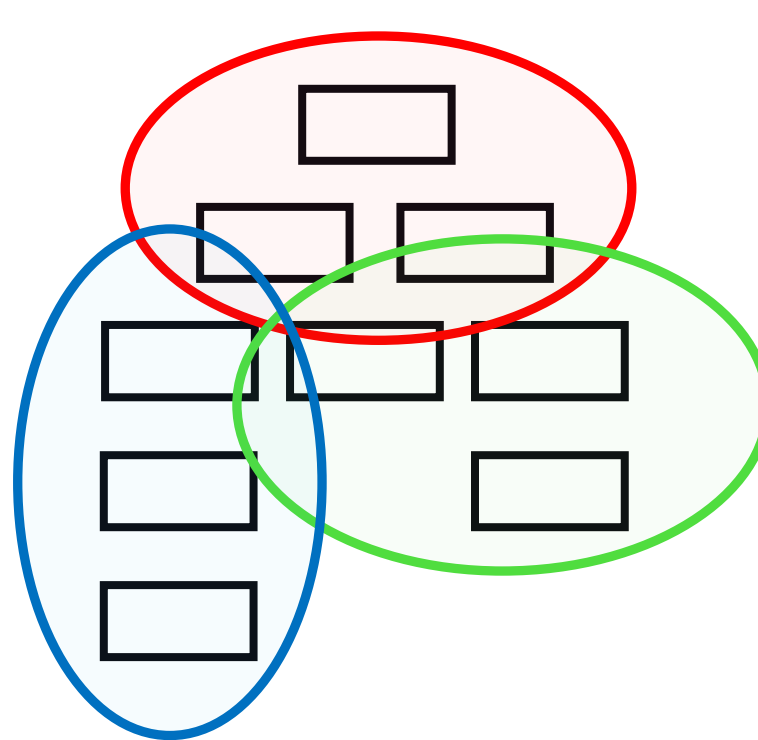
Inefficient production meetings

SPTS Production

8 hr kitting – Pseudo flow line

Production BOM created
in single shift blocks

Picking is for single shifts



Visual management: easy to see build stage, if cycle times slipping, BOMS are wrong

Manage by exception: only focus on slippages

Balanced flow / flexibility allows for pseudo flow lines for repeat build

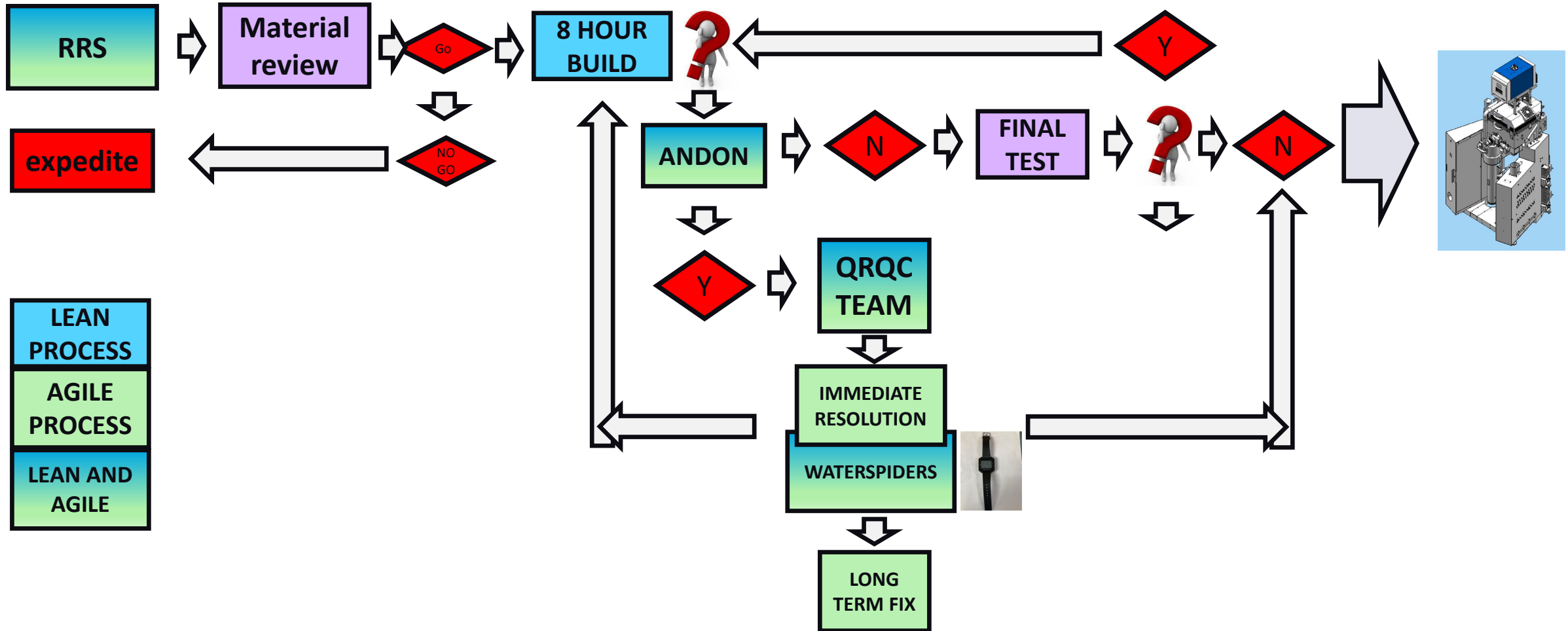
Modules built on **movable pallets**, sliding onto lifts for ease of production

Outsourcing assemblies where necessary allows complex assemblies to balance

SPTS Production

Basic production process

> 200 modules per quarter capability



- LEAN PROCESS
- AGILE PROCESS
- LEAN AND AGILE

SPTS Production Visual Management

All of these activities allow for an instant view of operations progress at any time

Water spiders know immediately where to go

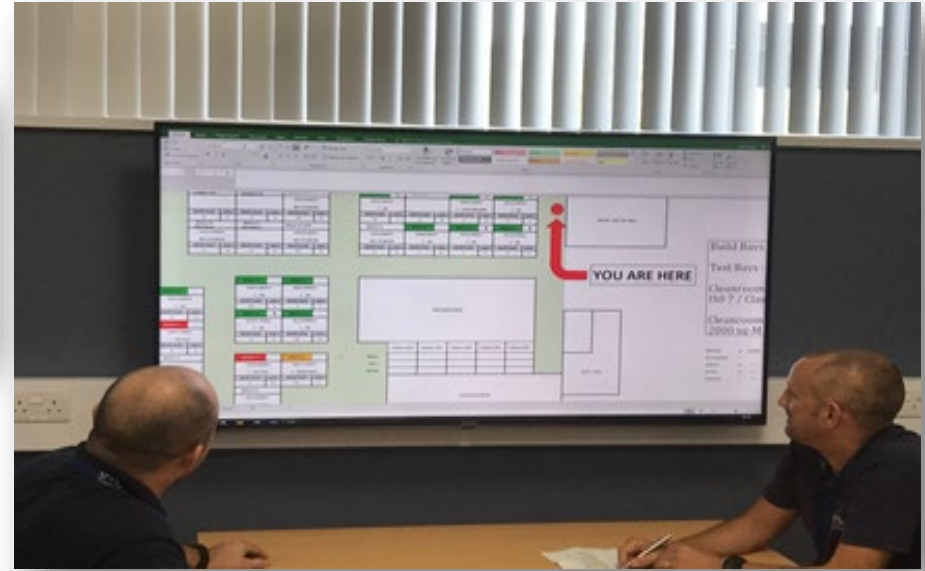
Fast training

Regular, short production meetings

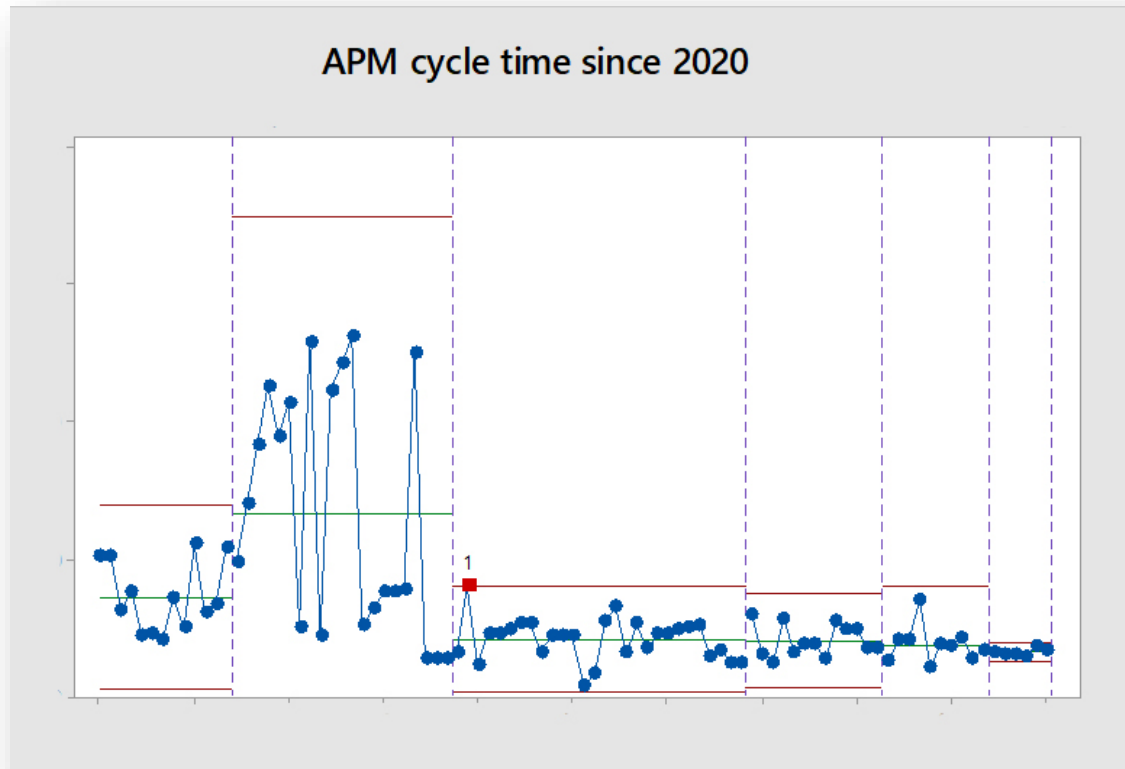


SPTS production

Leagile in action

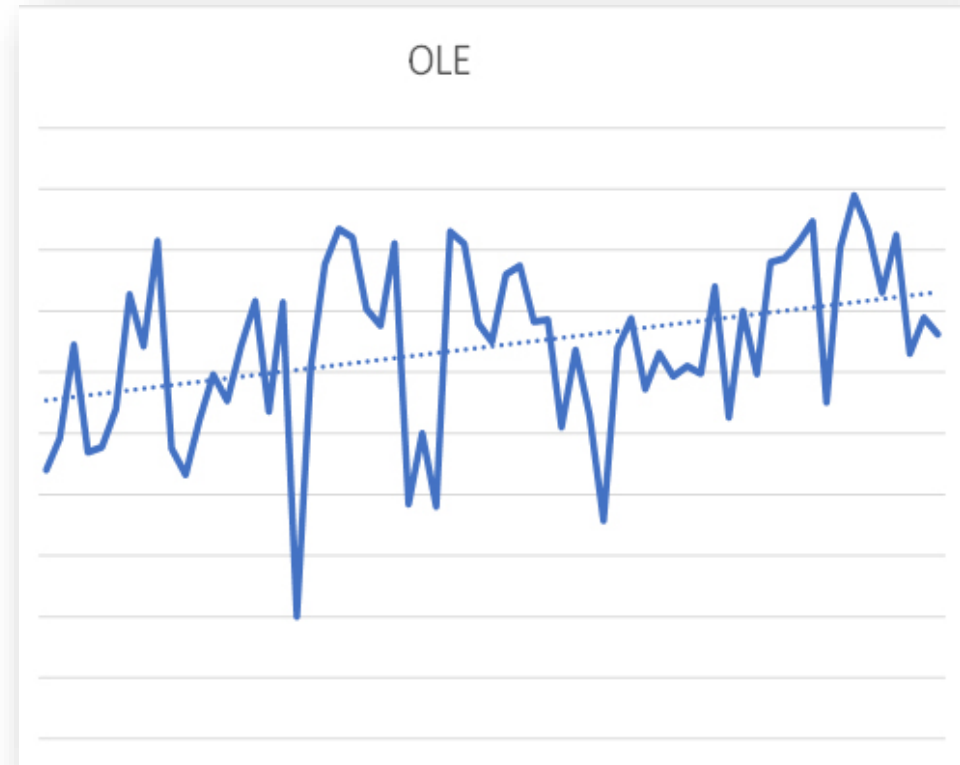


SPTS Production



The accumulation of all previous activities
No stone unturned!

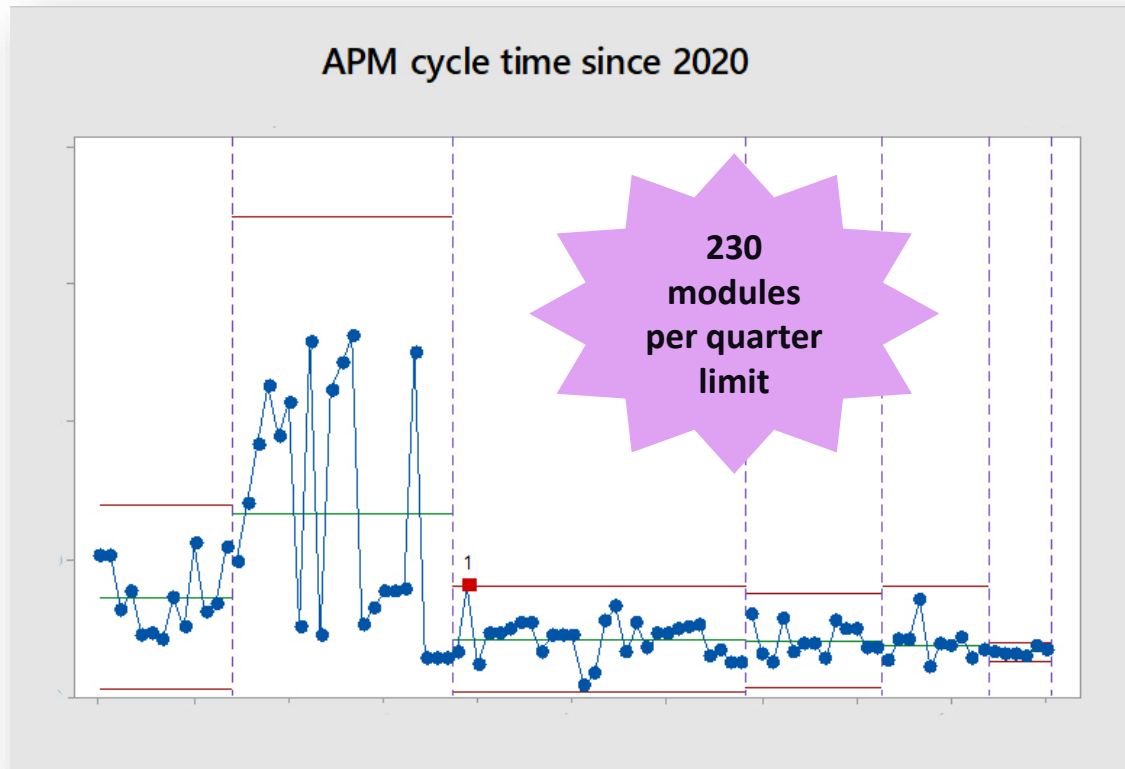
**Target
touch time
= cycle time**



Overall labour effectiveness is the product of:

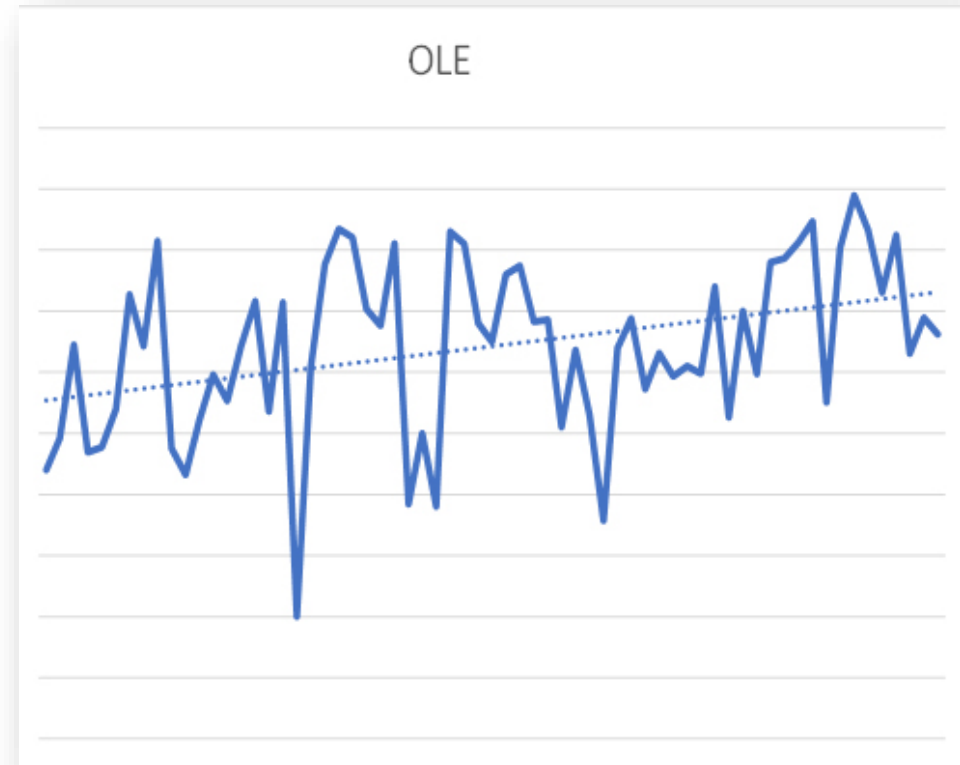
1. Lost hours to quality
2. On time production
3. Available hours

SPTS Production



The accumulation of all previous activities
No stone unturned!

Target
touch time
= cycle time

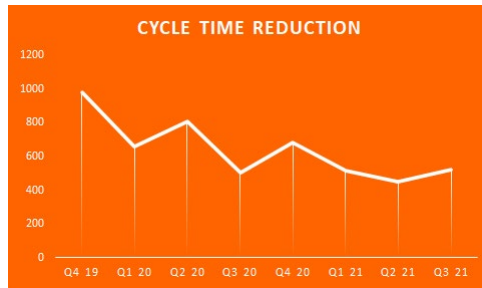


Overall labour effectiveness is the product of:

1. Lost hours to quality
2. On time production
3. Available hours

SPTS Production

So what is the impact?



- More output – same footprint
- Less power / module
- Less inventory days
- Less gas usage
- More employment opportunities



- 30% test bays less
- 110m² of cleanroom not required
- 12% less power needed
- £10K p.a. less greenhouse gas usage

SPTS Production

Next steps?



Digital transformation

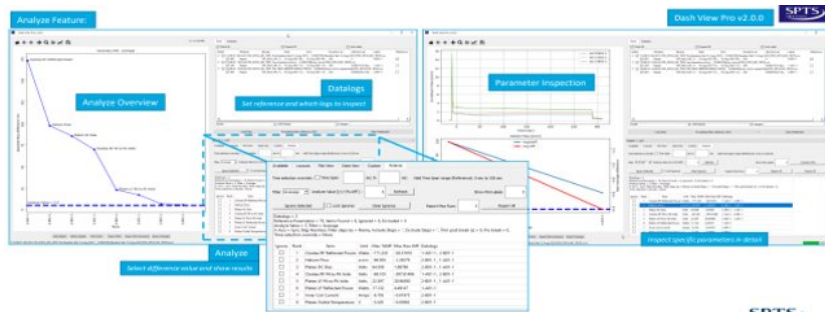
Augmented reality

Remote training, remove “buddy system”

More efficient production ramps

Faster outsourcing

Better service support – higher customer uptime



Chamber analytics

Rapid issue diagnostics

More efficient test times

Field to factory learning



Even more Leagile!

THANK YOU!

