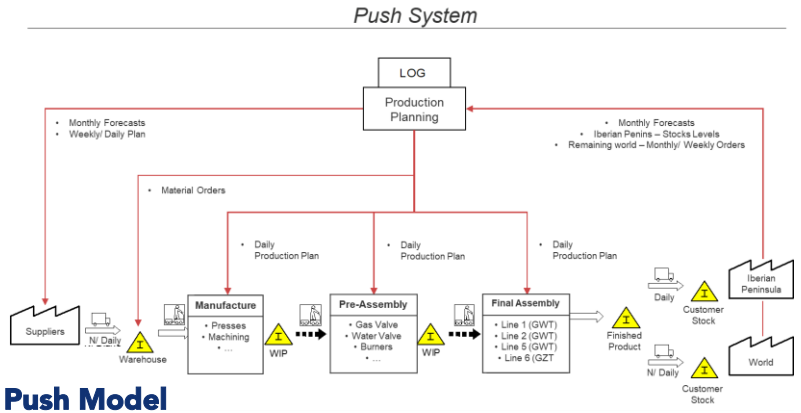
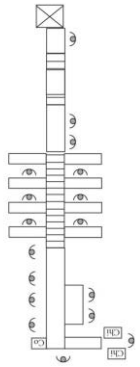
Pull Flow Model in Discrete Assembly

KAIZEN™ INSTITUTE

PICTURES **BEFORE**

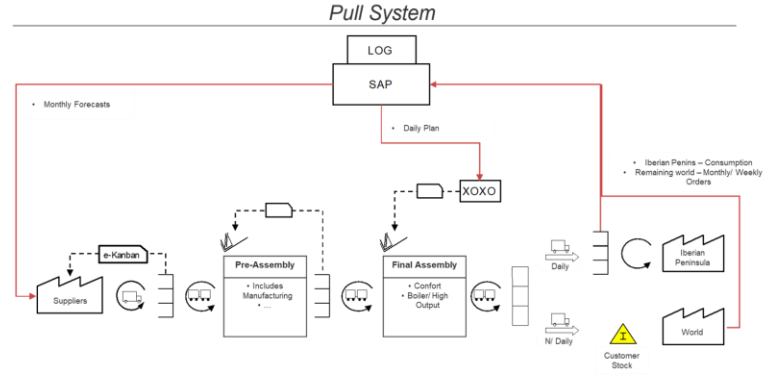


Push Model

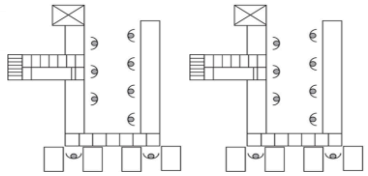


Functional Layout

PICTURES **AFTER**



Pull Model



Flow Cell Production

Problem

- **Finished goods inventory** coverage of **15 days** with a **customer service level** of **93% - dysfunctional inventory**
- **Raw materials and parts stock** coverage of **30 days**
- **Between 1 and 5 days of WIP** in production and assembly lines
- **50% of planned production lost** due to **lack of parts** and **poor line efficiency**

Root causes

- Finished goods **planning based on order forecasts:** forecast errors between **-18%** and **+16%**
- **Functional layout:** preassembly lines separated from final assembly lines
- Operators **isolated** from each other, **parts returned to the warehouse**, supply of large **pallet-sized containers**, **poor operator standard work**, low **line balancing efficiency**
- Delivery to final assembly line by **forklifts**, under the **instruction of operators or supervisors**

Solution approach

- **Pull planning algorithm** used on a daily basis to compare a certain **replenishment level** with the **current stock of finished goods** and create the **production orders** according to deviations
- Transformation of **orders into KANBAN** and planning on a **daily basis** through a **logistics box**
- **Daily schedule** determined by **freezing** one day of production and according to **levelling rules**
- Transformation of **one assembly line into two** with **fewer product references** on each; **zero changeover time**; **balanced operation time** between operators; **small containers** at the border of line
- **Three Mizusumashi circuits** for purchased parts, sub-assemblies and finished goods

Benefits

Payback Period
5 months

Savings
£3m/year