

# LOGISTICS AUTOMATION AND BUILDINGS

Logistics Seminar @Lindab

2018-08-29

## Traditional "Multipurpose" logistics building





## Clad-rack / Silo – The building as an integral part of the automation



## Taylormade building for complex automation solutions





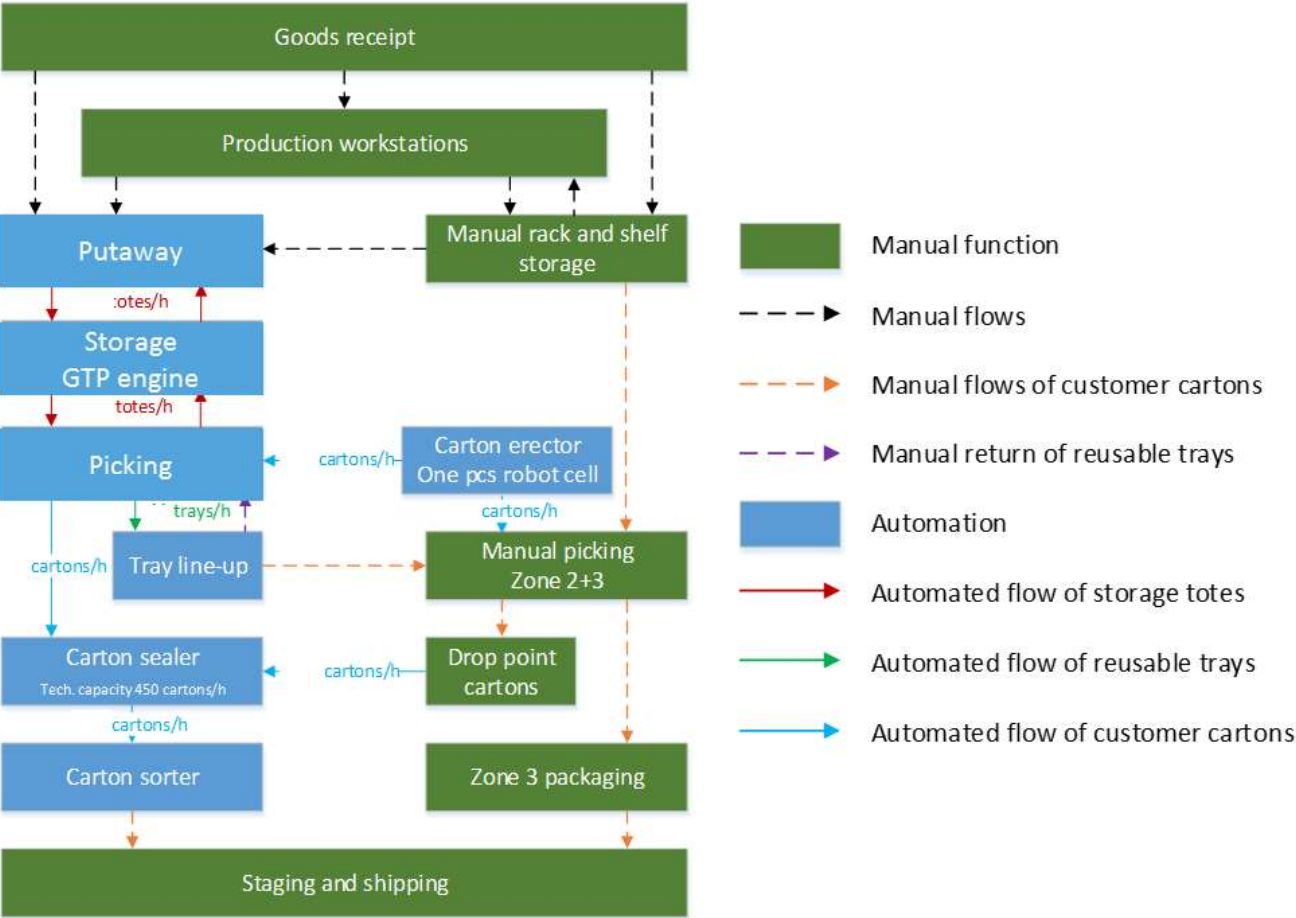
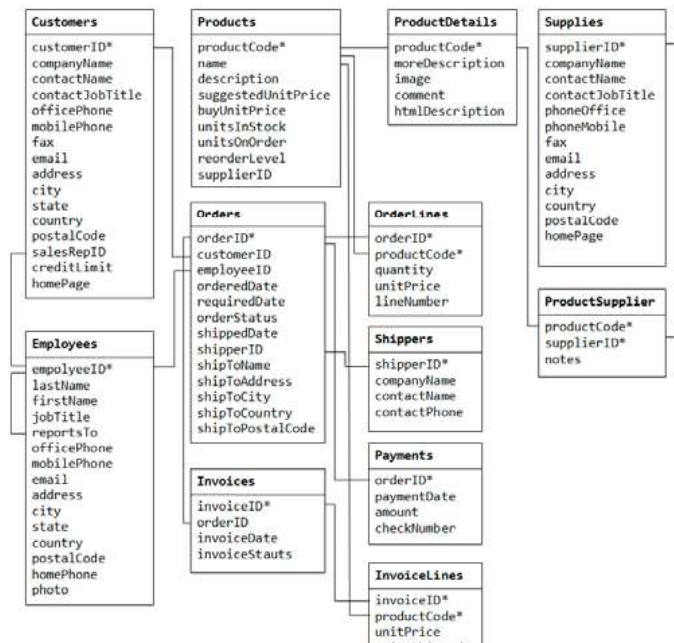
## Square peg, round hole



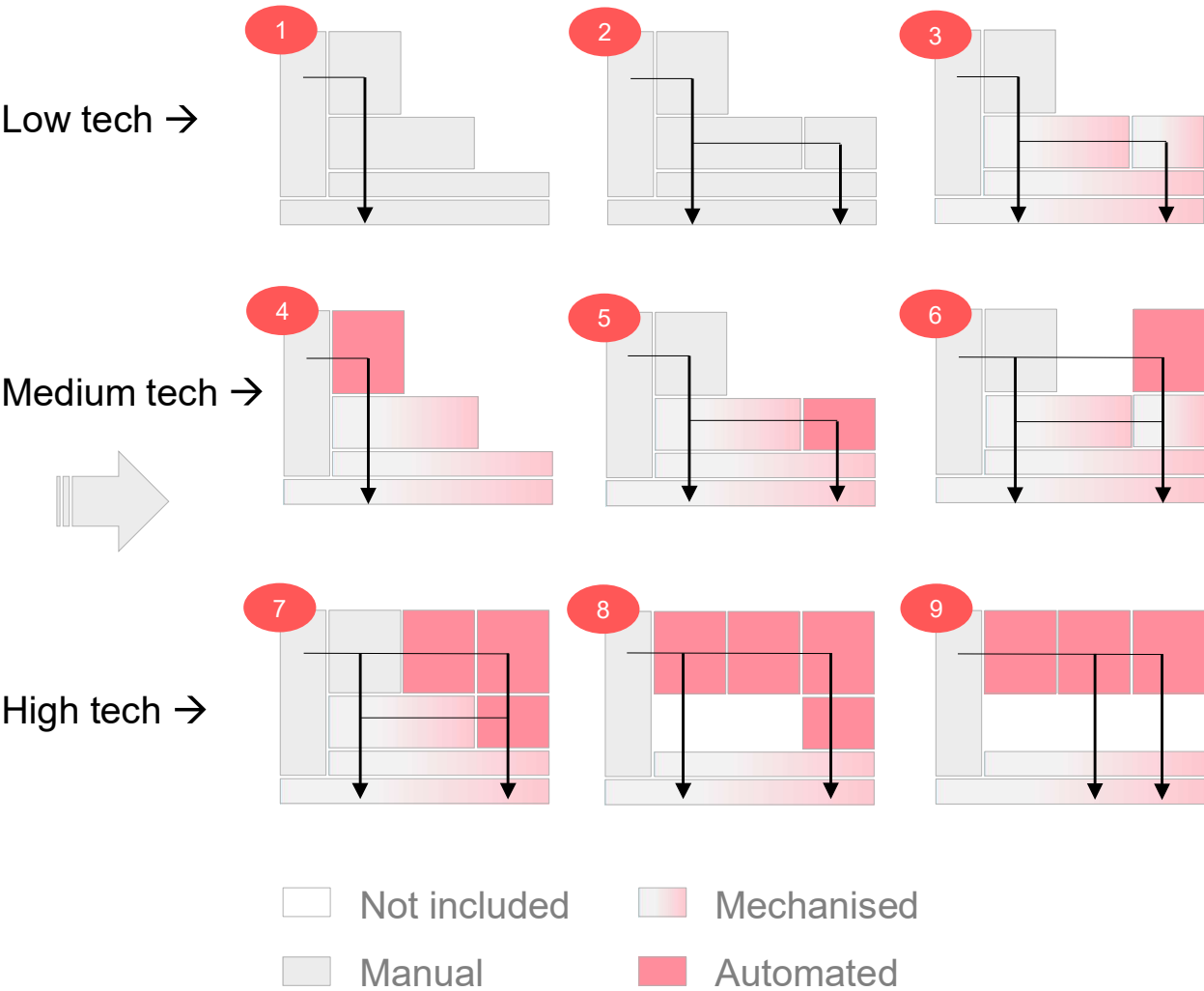
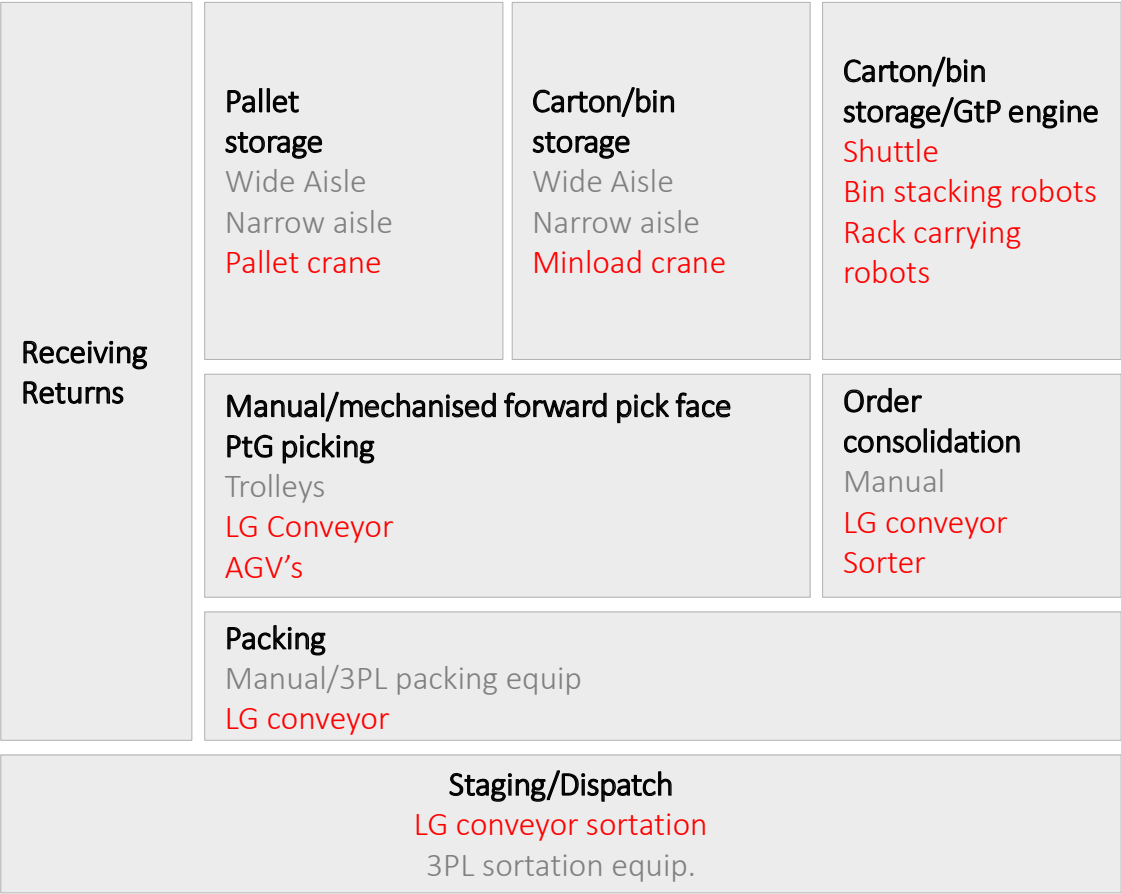




# Material Flow Diagram, "Design Hour"

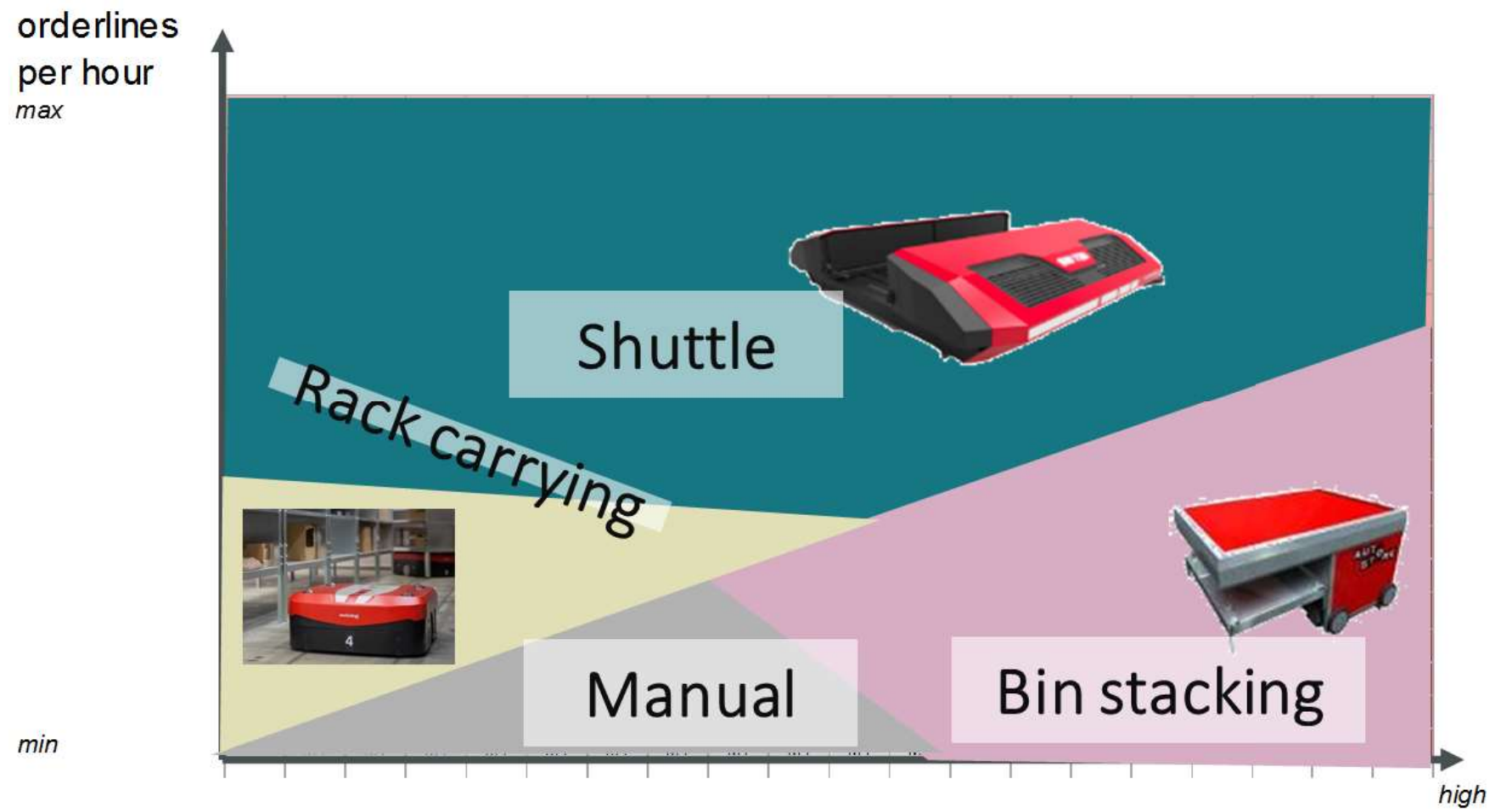


# General design and degree of automation



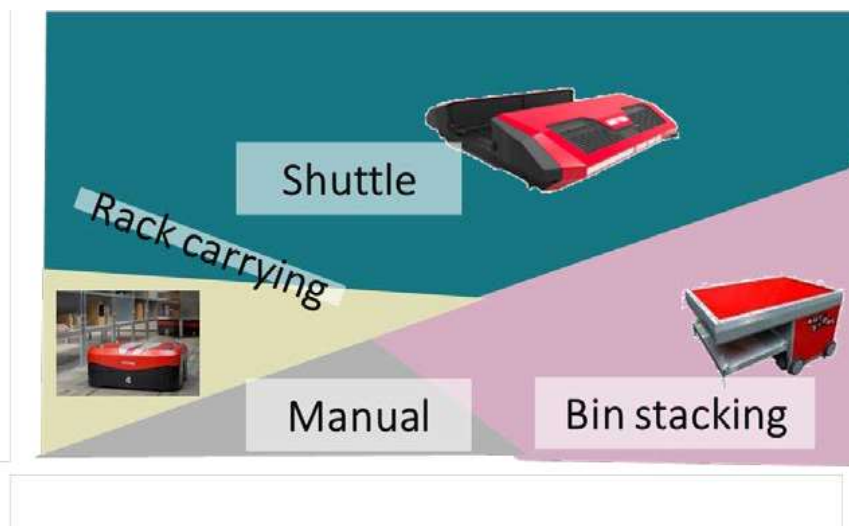


## Technology comparison model

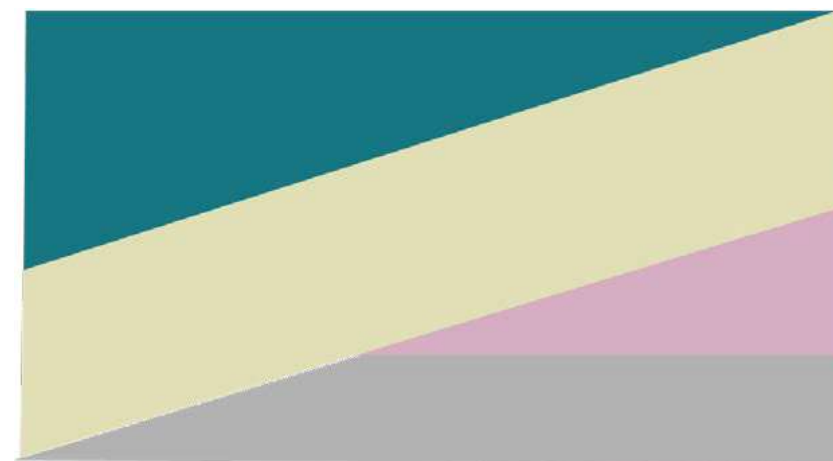


storage capacity (bin eq. 400x600x300mm)

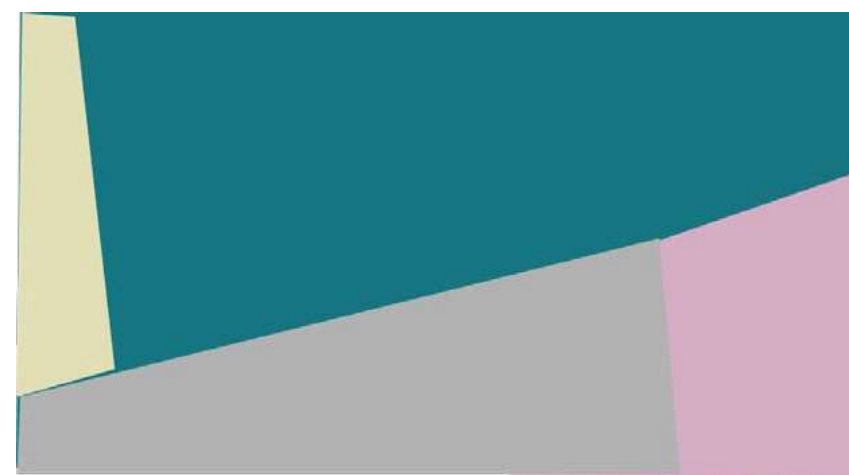
## Scenario analysis



Low  
building

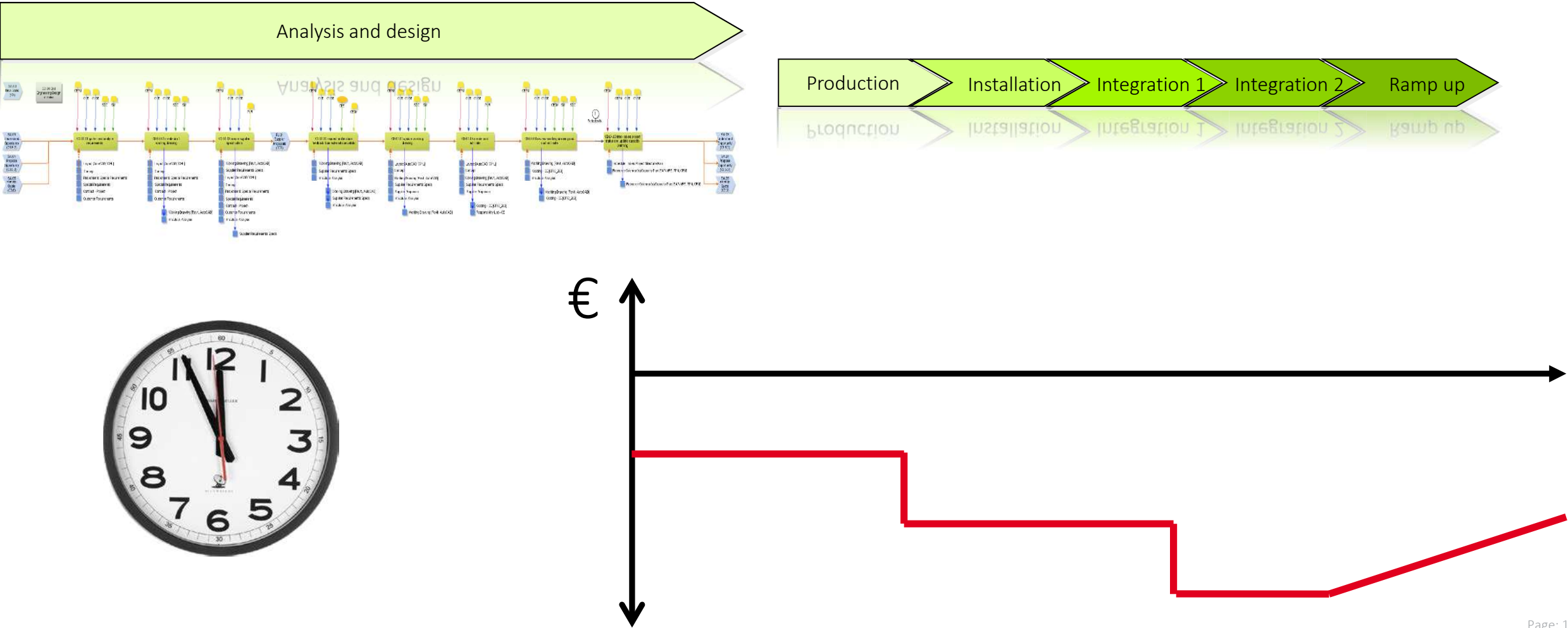


Less  
shifts

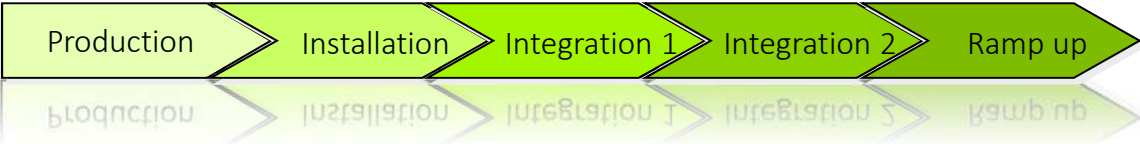
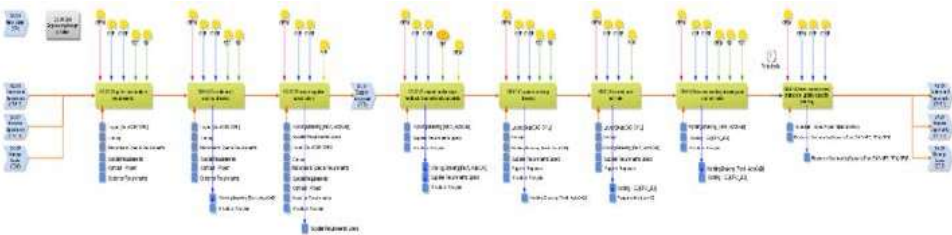




# Negative cash flow is a challenge in large projects

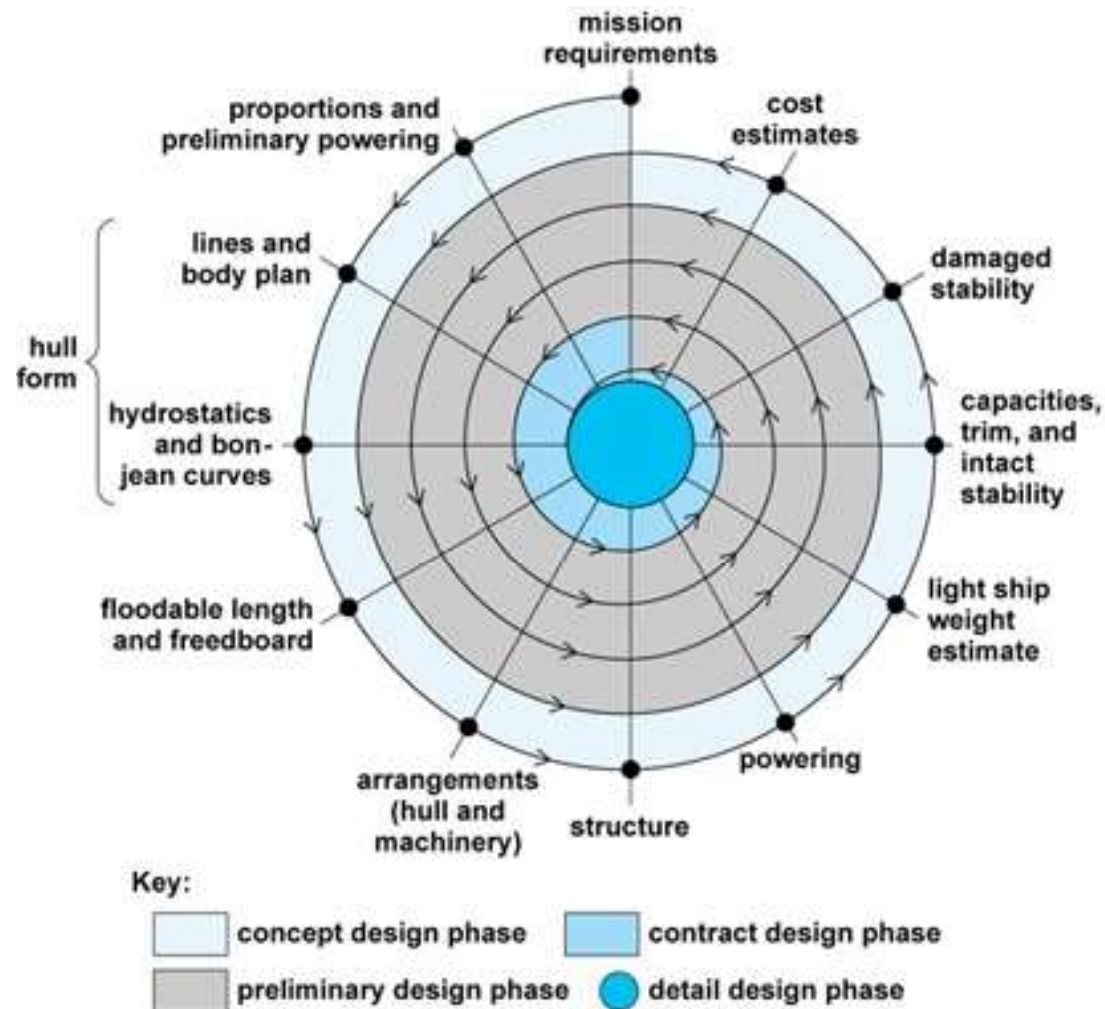


Building design and construction extend the total project lead time

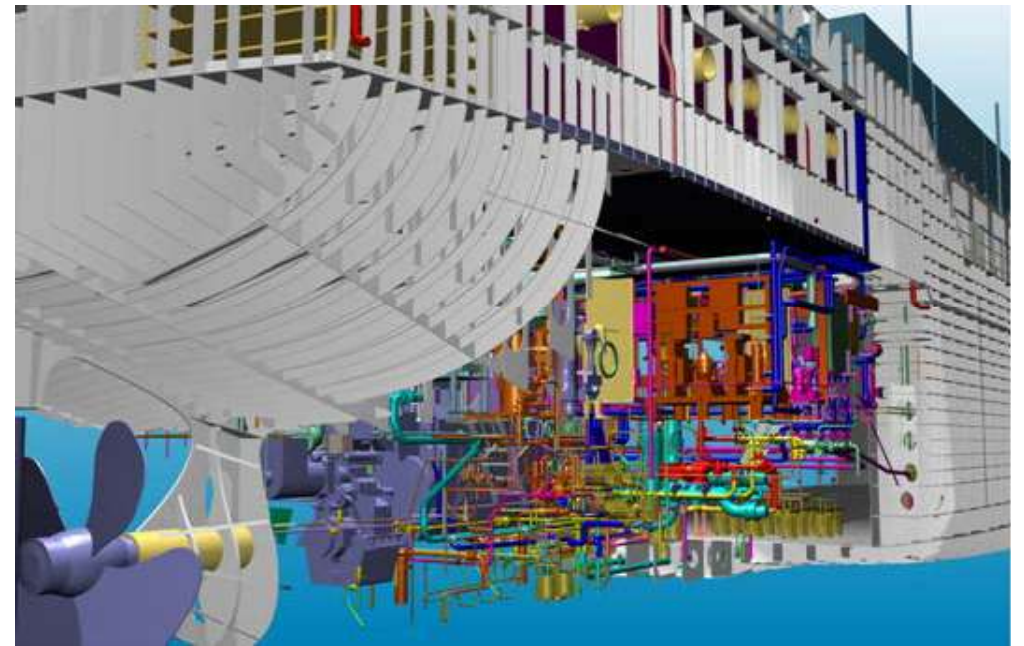




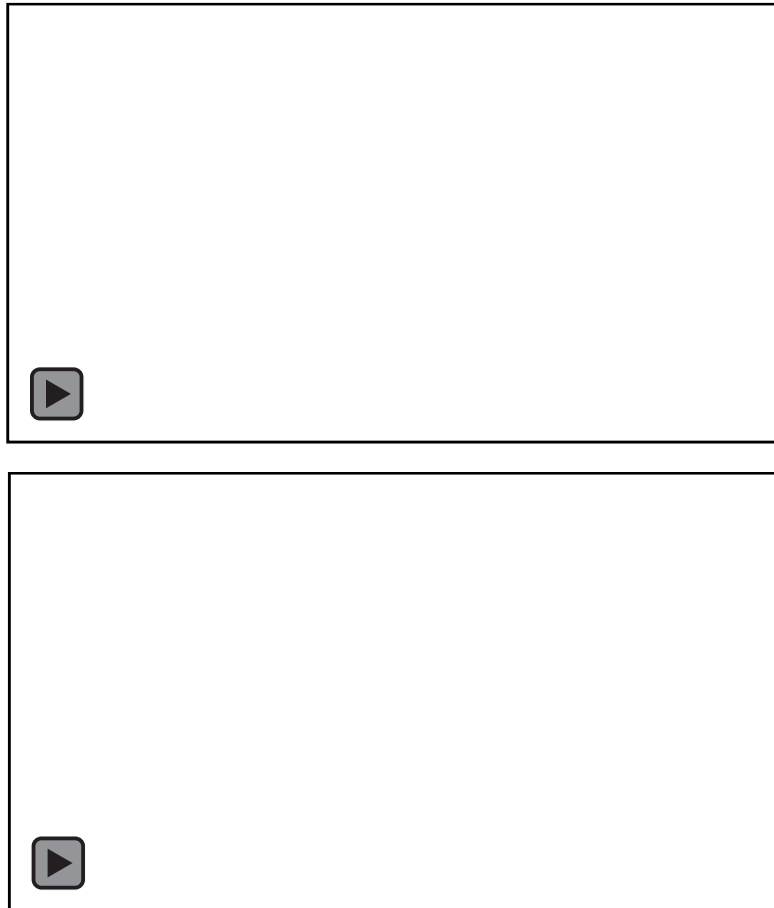
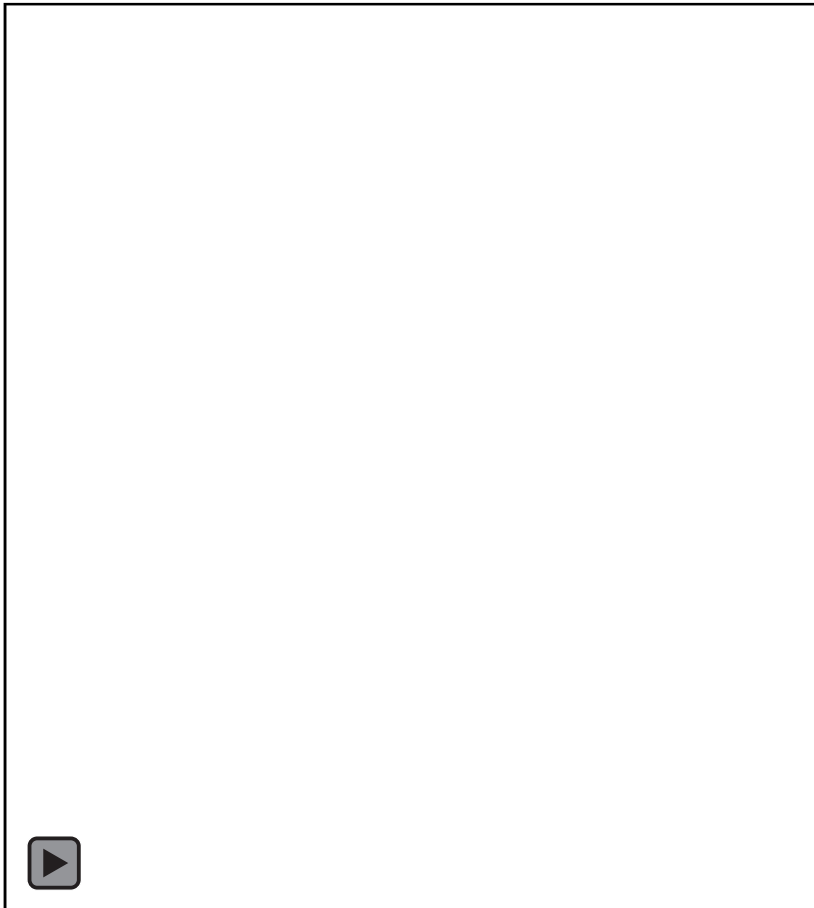
## Parallel and iterative development to minimize lead-time



- Early cooperation between building architects and solution designers
- Joint project planning
- Parallel execution
- Transparent trade-off decisions



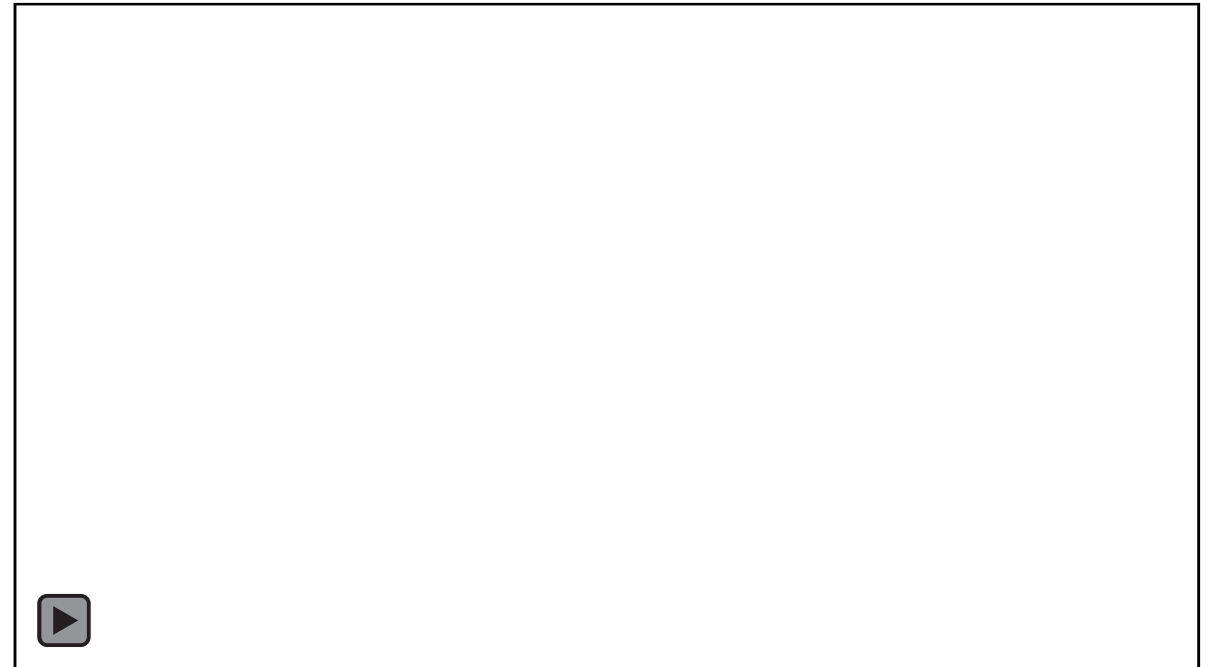
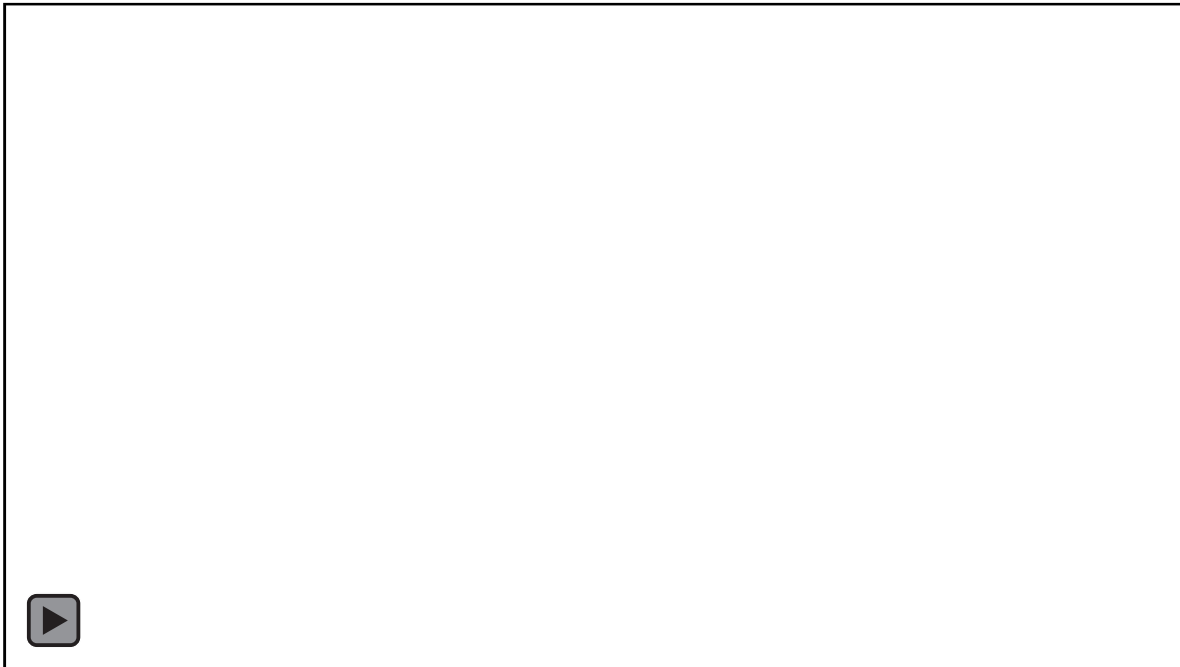
## Simulation, 3D visualization and VR for planning and operations

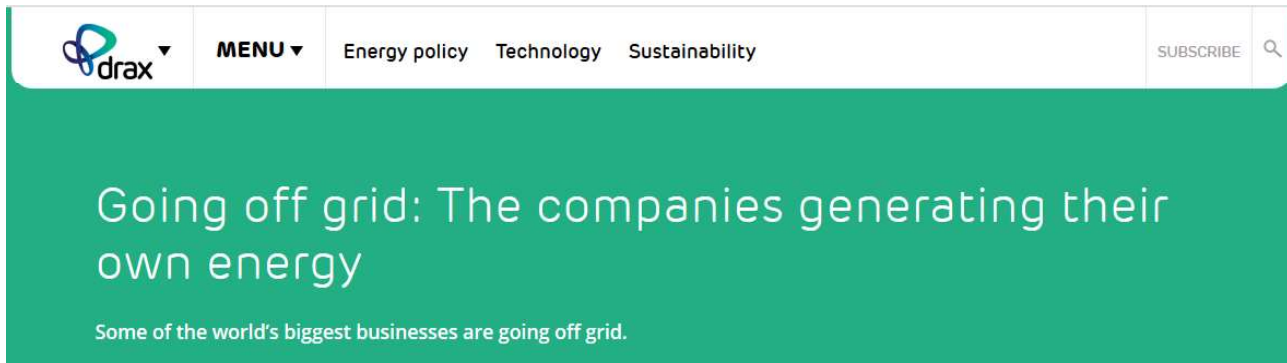


- Evaluate overall design
- Trial work in virtual picking stations
- Training
- Cooperate between warehouses
- Simulate and emulate flows
- Evaluate strategies
- Analyze performance, KPI reporting



## Trend towards avoiding fixed structures in automation





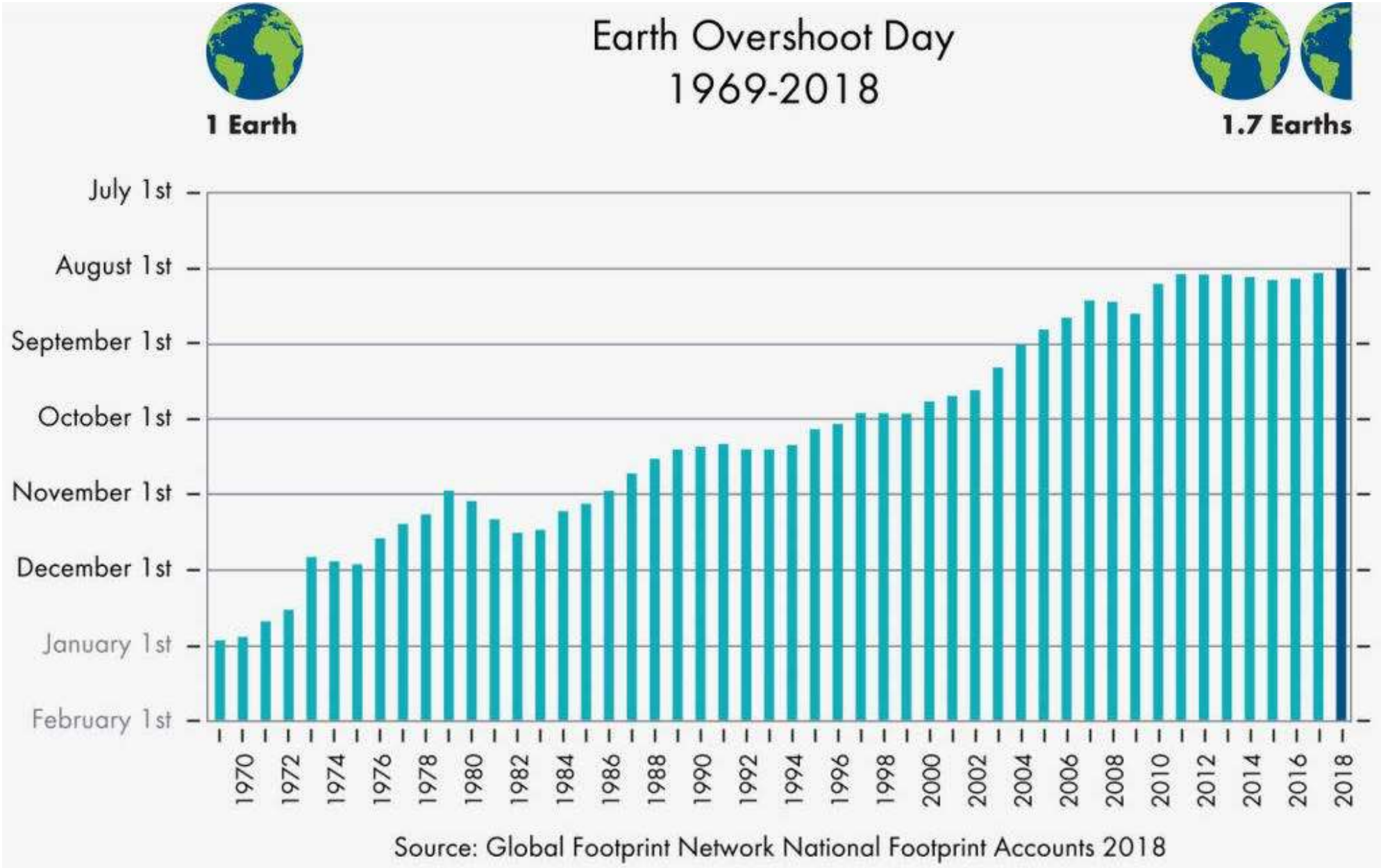
- IKEA plans to generate more energy than it uses world-wide by 2020
- Target was the US' leading corporate solar installer with 147,5 MW of capacity
- Walmart has 145 MW capacity
- European Energy Efficiency directive



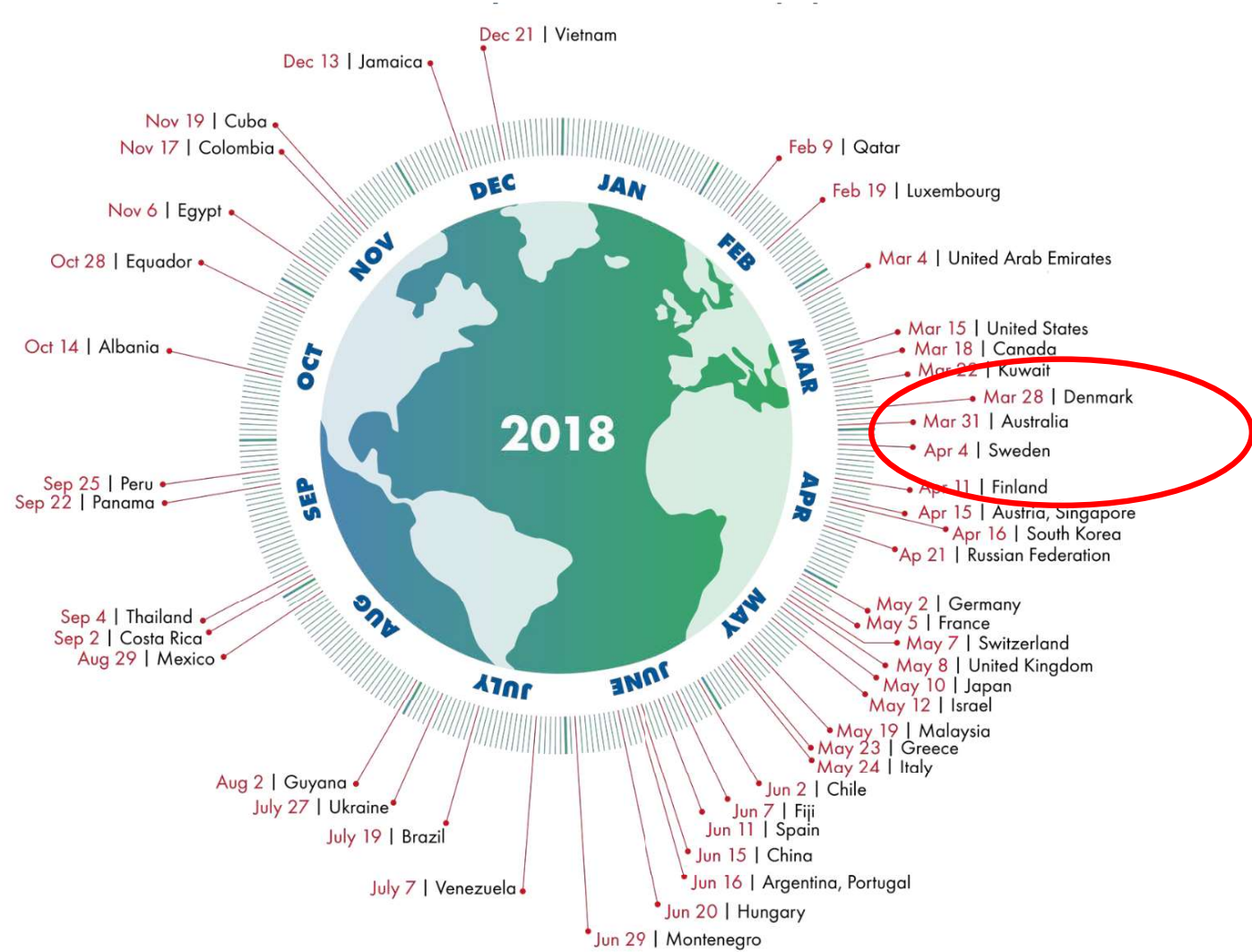
LatAm Parque Logístico Lima Sur

Peru





But, in Nordic we are good on environmental aspects ?



To maintain our lifestyle we need to work harder on environmental friendly solutions.

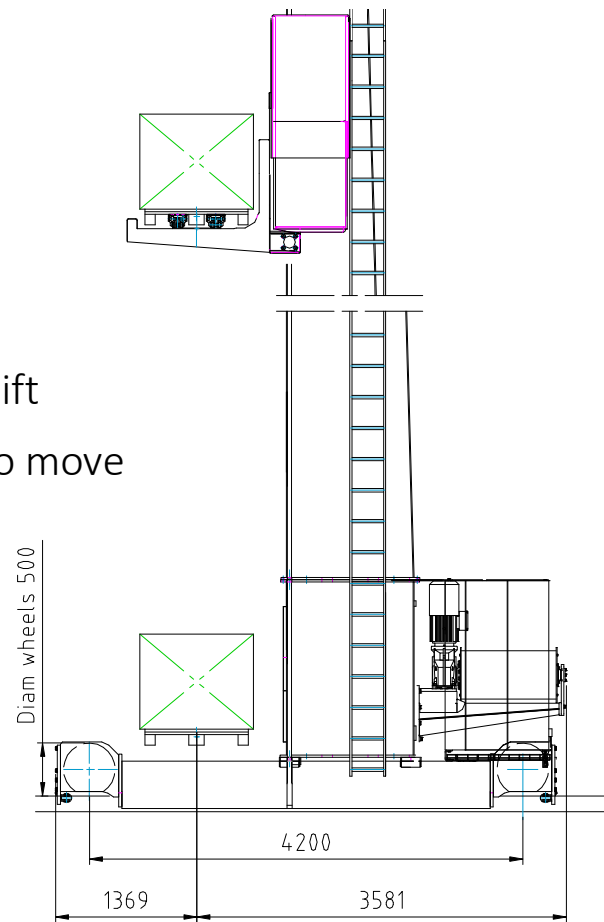


## Energy efficient design

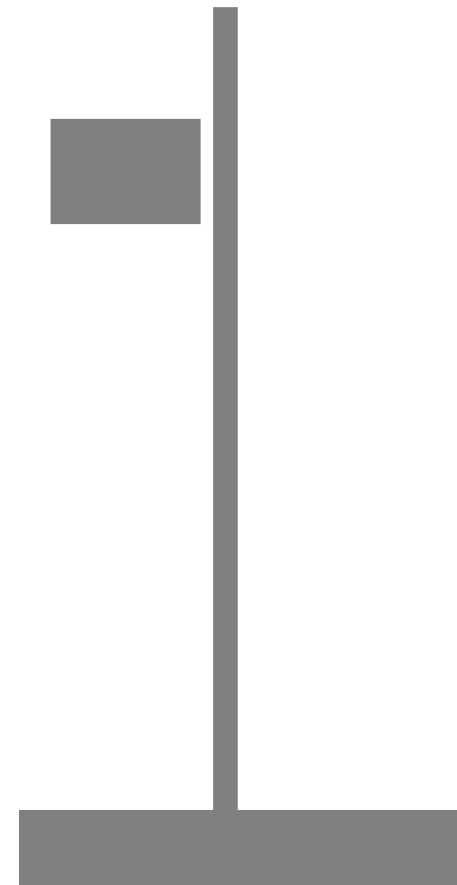
27 m high crane for 1,000 kg design load

### Vectura

- Weight 11,350 kg
- Weight of lift carriage 900 kg
- 500 kg (35%) lower weight to lift
- 2,300 kg (17%) lower weight to move



**Vectura**



**A leading competitor**

### Competitor

- Weight 13,650 kg
- Weight of lift carriage 1,400 kg



## Financing

- Pay per use
- Software as a service
- Leasing of robots or whole integrated systems
  - Preferable cash flow
- Rent is a lever for property value
  - Lower financing cost
  - Operational costs matter
- Financing companies are showing increased interest
- Property developers are looking at offering buildings with automation
- "Jordabalken" on acquisition and integration of building accessories



**swisslog**

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