



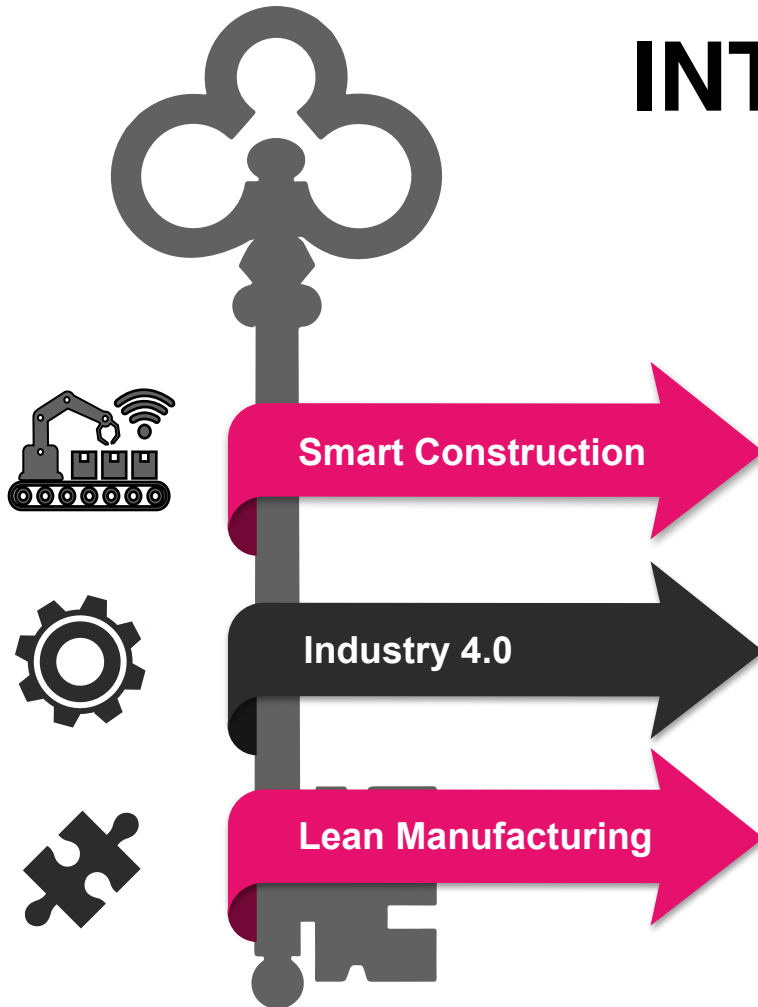
INDUSTRY 4.0



Smart Construction via integration with industry 4.0 and Lean based Manufacturing Approaches

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INTEGRATION & APPROACHES



Smart Construction can be defined as digital technologies and techniques for designing and operating the construction to maximise user benefits (**smart design, smart monitoring, smart machines, smart control, smart scheduling**).



Industry 4.0 is regarded as a new way of creating future technologies, information and communication systems in the entire value chain to have smart and intelligent construction.

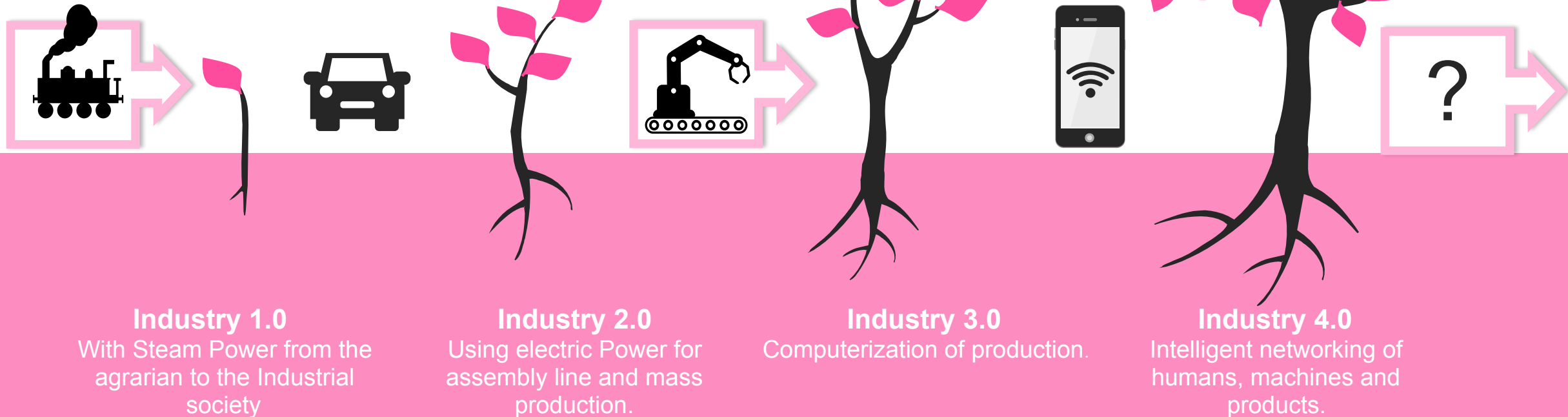


Lean Manufacturing is identified to specify the value, array value generating actions in the best sequence without disruption to the process flow during demand and enhance their performance and levels of the productivity by eliminating the waste from the construction projects at the proper time.



Industry Revolution

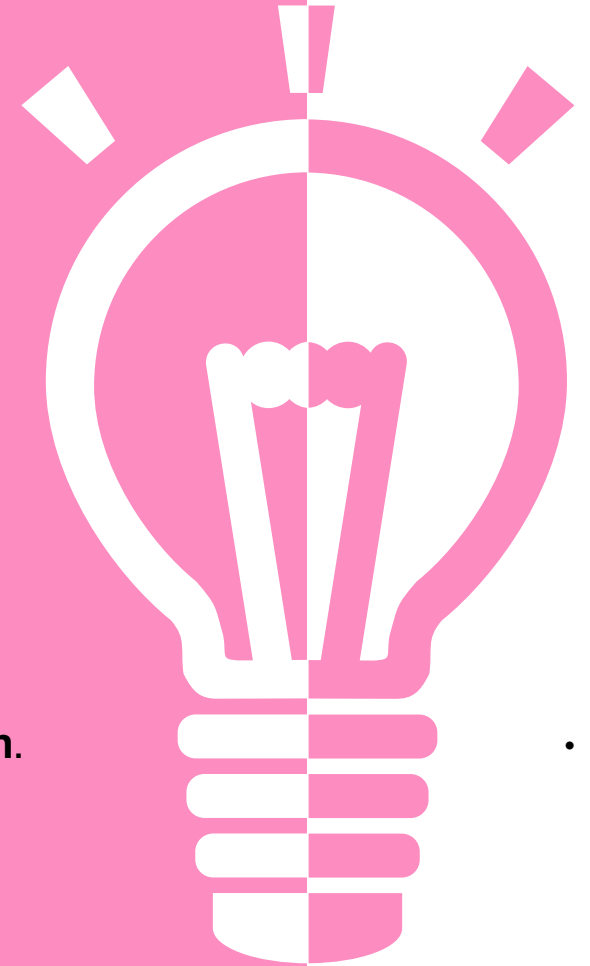
Industry 4.0 Technologies: Big Data & Internet of Things & Additive Manufacturing & Advanced Robotics & Virtual reality & Cloud Computing & Machine Learning & System Integration and Simulation



Similarities

Differences

Lean & Industry 4.0



- Influence???
- Full attention and support.
- support???
- Plan, Do, Check, Act.
- Customer Centricity.
- Integrated Value Chain.
- Update???

- Working with People **vs** focuses on computers, automation, and robotics
- speed of the changes
- Flexibility
- Continuous Improvement

Lean vs Industry 4.0

In Conducting
Smart
Construction

**Barriers and
Obstacles**

Insufficient Resources

Fear of Transformation

Data Security



Time-consuming changeovers

Equipment breakdowns and failures

Inconsistent product quality



Maximum
Benefit form
Combining

01

Structed
Implementation
Approach

02

Solid Change
Management

03

Strong
Leadership

04

Skill
Enhancement

Safety

Security

New Bis Model

Con Improve

Smart Construction

Conclusion



Thank You
For your
Attention