



***Smart Lean – next generation technologies and how they
can improve Lean practices in manufacturing***

NTNU, Trondheim, 26 June 2019

LEAN 4.0

Lean European Action-learning Network utilizing Industry 4.0

 **Start: 01-01-2019 - End: 31-12-2021**

 **Project Reference: 601227-EPP-1-2018-1-NO-EPPKA2-KA**

 **EU Grant: 999940 EUR**

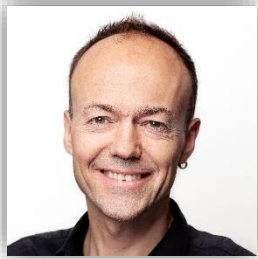
Programme: **Erasmus+**

Key Action: **Cooperation for innovation and the exchange of good practices**

Action Type: **Knowledge Alliances for higher education**



Speakers



Erlend Alfnes



Jannes Slomp



Menno Herkes



Fabio Sgarbossa



Holger Klus



Daryl Powell

Agenda

- 08:30-09:00 Welcome and introduction to the Lean 4.0 project - Erlend Alfnes
- 09:00-09:30 The Logistics 4.0 lab and new opportunities for Lean - Fabio Sgarbossa
- Coffee break
- 09:45-10:15 Lean planning and control in customised manufacturing – history and digital future - Jannes Slomp
- 10:15-10:30 Manufacturing Execution Systems and Digitalization at Rosen GmbH
- Holger Klus
- Coffee break
- 10:45-11:15 How can smart and Lean improve operations in manufacturing
- Menno Herkes
- 11:15-11:45 Lean and digitalisation at Kongsberg Maritime - Daryl Powell
- Lunch
- 12:45-14:00 Logistics 4.0 laboratory tour
- 14:00-14:30 Closure 4.0 discussion

Logistics 4.0 Laboratory tour



For master education

Theory and practice



For research

Beyond the state of the art

Smart Logistics

Integrate innovative manufacturing technologies with innovative production planning & control methods and simulation



For industry

Simulation and implementation



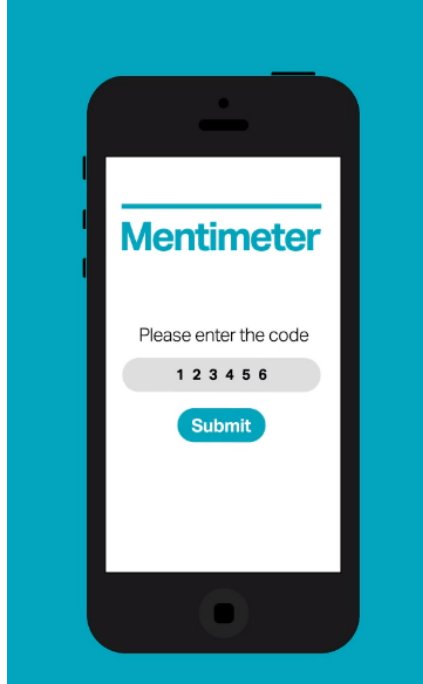
SMARTLOG

For international communication

Share knowledge

Indoor positioning systems, Motion capture systems, Augmented and Immersive Reality, Visual interactive boards, Real time control.....

Closure 4.0 discussion at 14:00 in VG11

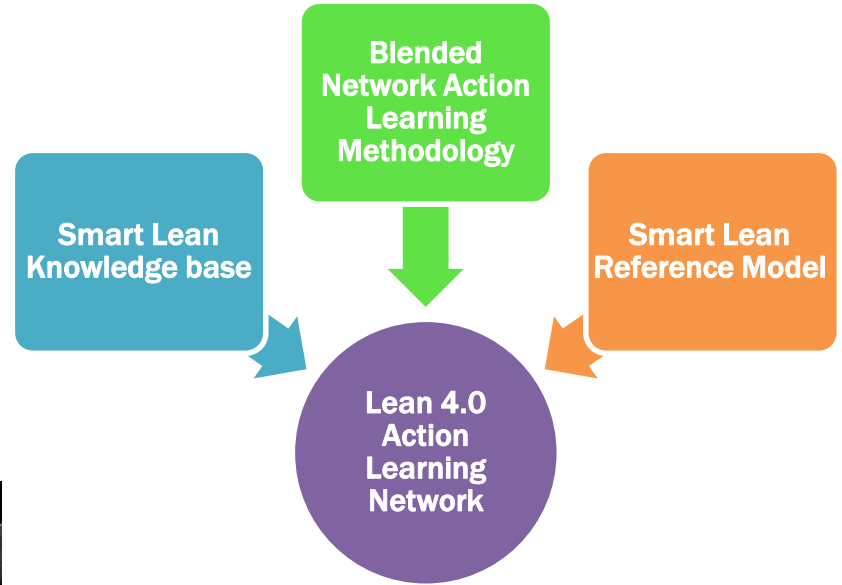


Which technology from the Logistics lab would you like to implement?

- 1st | Motion Capture System
- 2nd | Indoor-positioning System
- 3rd | Augmented and Virtual Reality
- 4th | Mobile Robots
- 5th | Smart Workstations
- 6th | Smart Objects
- 7th | 3D Mapping

LEAN 4.0

Will educate the operations managers of the future



ROSEN

NTNU





erip

(2008-2013)



EuroLEAN+

(2015-2018)



LEAN 4.0

(2019-2021)






Lean thinking was developed at Toyota – leads to high productivity
Here is an illustrative picture from Toyota's gear box factory in Poland.



INDUSTRY 4.0



- 
Augmented Reality
- 
3D
- 
Robots
- 
Big Data
- 
Internet Of Things
- 
Simulation
- 
Cloud Computing
- 
System Integration



ROSEN



KONGSBERG



MBI

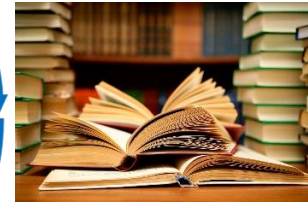


Learning "Home and Away" - "Physical and Virtual"

Problem
clarification



Reflection



Study



Action
(laboratories, factories)

Systematic development of Lean 4.0 driven by pilot projects



Internet Of Things



Simulation

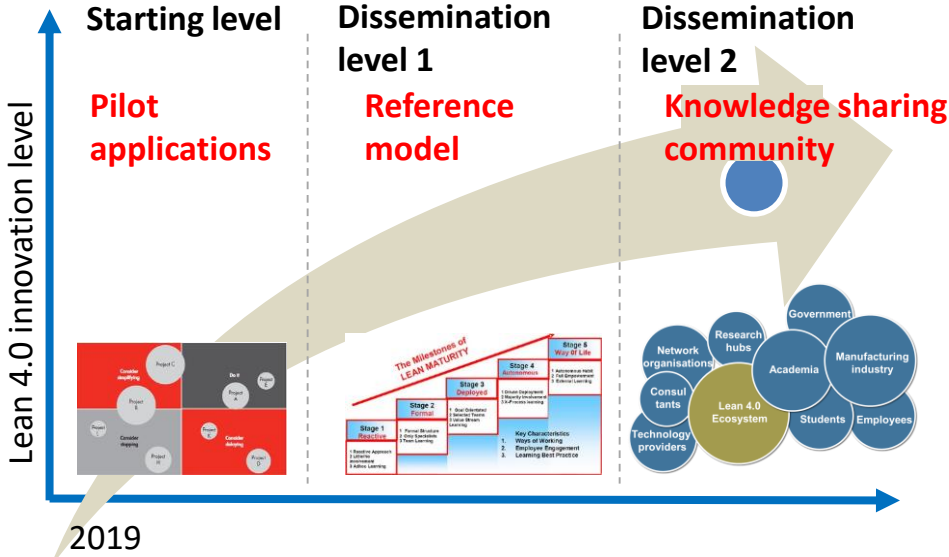
LEAN



Augmented Reality



Big Data



Join us!

Dissemination both local and EU level.

- Engage with industry and academia through the project cycle



- Communication through social media and dissemination in the networks of the partners



- Seminars
- Webinars
- Videos
- Cases and best practises
- Training materials
- Articles

