



# Digital training solutions for shipyards



02.12.2020  
Aki Piironen

Machine Technology Center Turku Ltd.



EUROPEAN  
REGIONAL  
DEVELOPMENT  
FUND

[www.ecoprodig.eu](http://www.ecoprodig.eu)  
@ECOPRODIGI\_BSR



# Challenges we tried to find answers to:

- Finding best practices of eco-efficiency digital tools in yard process optimisation.
- How to use and share information gathered from digital performance systems?
- Finding what are the best practices and lessons learned in terms of co-creating, piloting and implementing digital solutions in the shipyard ecosystem?
- What should be the new standard for in yard digital ecosystems?
- What are the best practices and lessons learned in terms of utilizing 3D scanning?
- Besides the technological tools, what is needed in the yards ecosystems?

# Why should we care?

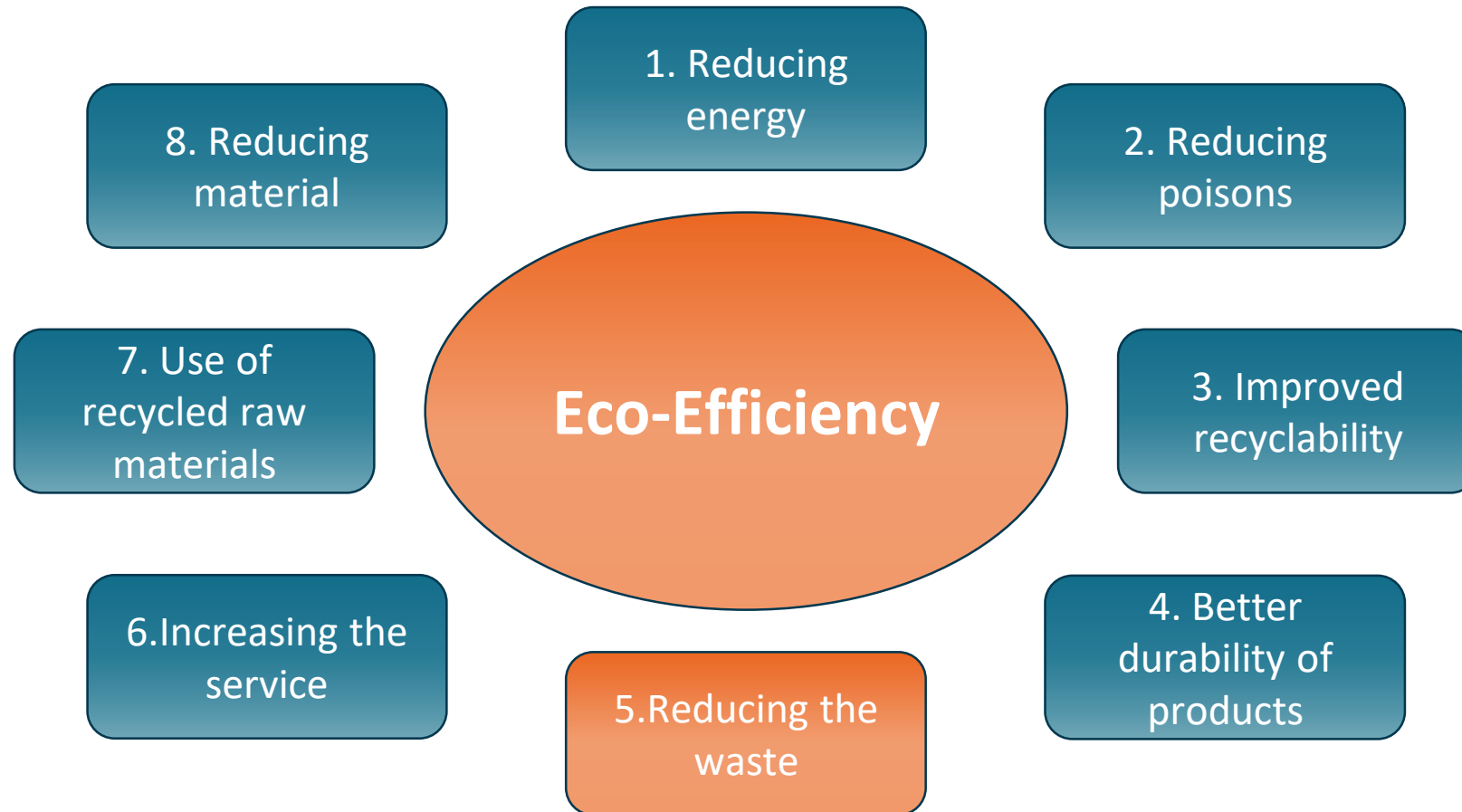
- We believe that the effective use of new digital opportunities in the present will bring value in being more eco-efficient in our future business.
- Transparent sharing of eco-efficiency indicators will naturally creates a willingness to improve work processes.
- Customers are increasingly demanding eco-efficiency, but it needs to be implemented cost-effectively.
- Using and sharing easily accessible digital work instructions creates less errors and better quality.
- In the shipyard ecosystem, considerable efficiency-improvements and lead-time reductions can be achieved through better collection and use of data of tasks and processes between various actors in the eco-system.

# Partners for finding solutions to shipyards digital training

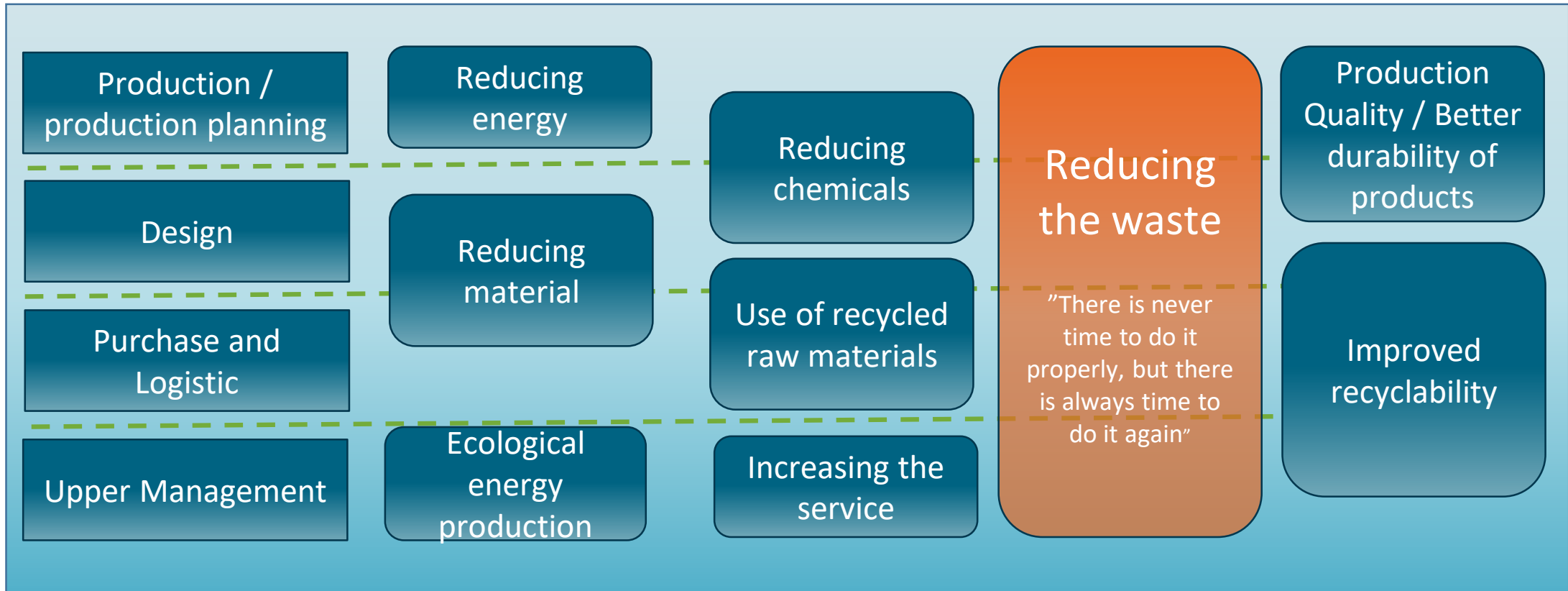
- Project partners Carina Solutions Oy and Sininen polku Oy focused on yard process optimization.
- Machine technology center Turku focused on competence development technologies.
- Klaipeda Science and Technology Park together with Machine technology center Turku and Chalmers University in Gothenburg focused on utilizing 3D scanning.



# Different aspects of eco-efficiency



# Work position effect on eco-efficiency topics



# Eco-efficiency flash cards

### 1. Reducing energy

- Minimizing the movement of materials and works
- Tracking energy consumption different work phases
- Transparent energy consumption (Digi/Mobile)

How to evaluate?

Feedback:

- At one time
- Reducing energy consumption
- Machine monitoring
- New welding methods

A+++  
A++

### 2. Reducing chemicals

- Instructions for handling chemicals (Digi/mobile)
  - How to use
  - How to protect yourself
  - How to dispose
- Transparency (Digi/mobile)

How to evaluate?

Feedback:

- Welding fumes
- Welding instructions

### 3. Recyclability

- Sorting of side streams → Digi handling instructions
- Utilizing side streams
- Life cycle consideration

How to evaluate?

Feedback:

- Welding fumes
- Welding instructions

Value chain steel and scrap

### 4. Better durability of products

"Up to 80% of the lifecycle environmental impact of a product can be affected during the design phase and Quality"

How to evaluate? → Lifetime forecast vs Reality

Feedback:

- Weld Design -> Weld fatigue
- Weld Quality -> Welder follows WPS (Welding Procedure Specification)

(Profession specific examples)

### 5. Reducing the waste

- Improving Flow efficiency
  - Materials in the right place at the right time
  - Peoples in the right place at the right time
  - Pull control between work stages
  - Reduce the search for goods
- Minimizing waste

Feedback:

- WPS in production

~~waste~~

### 6. Increasing the service

- Development of internal logistics services
- Increasing digital services
- Increasing transparency
- What is measured is achieved
- Eco efficiency
- Automation

How to evaluate?

Feedback:

- New digital line production

### 7. Use of recycled raw materials

- Considered when purchasing materials
- Supply chain choices and audits

How to evaluate?

Feedback:

- Search for recycled materials

### 8. Reducing material

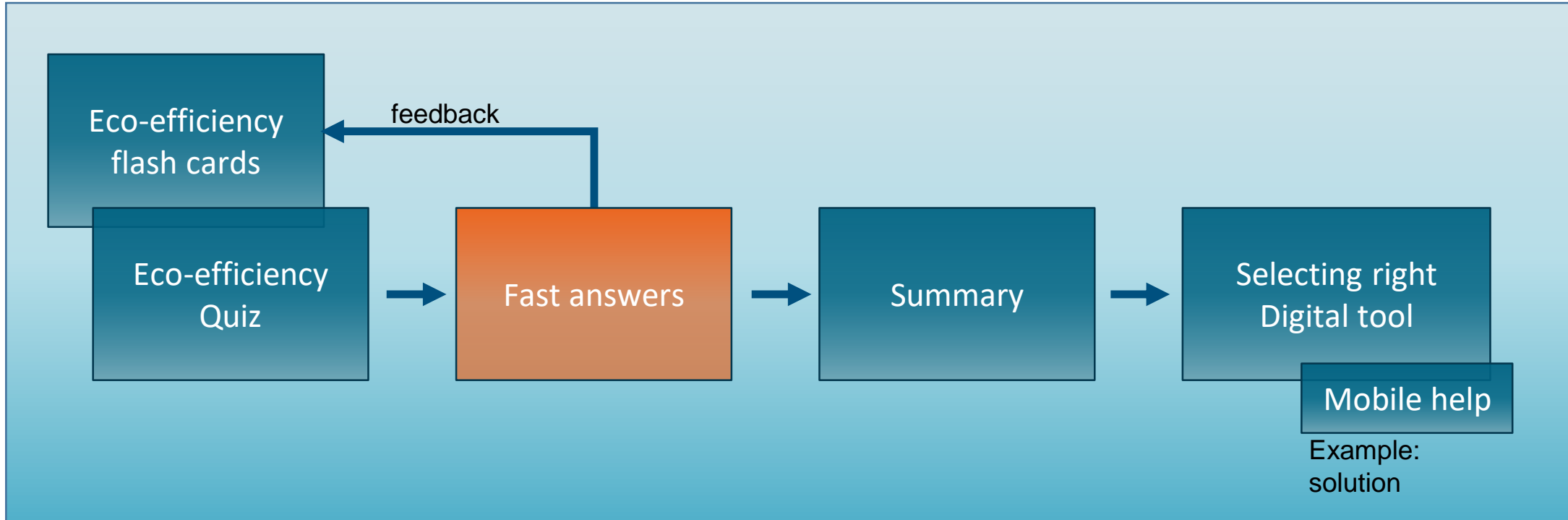
- Utilization of new materials Reduction of storage
- Prevent loss of material → prevent pollution

Feedback:

- Find better materials
- Find new methods
- Improve shipyard logistic (RFID)

(Profession specific examples)

# Model for creating eco efficiency value

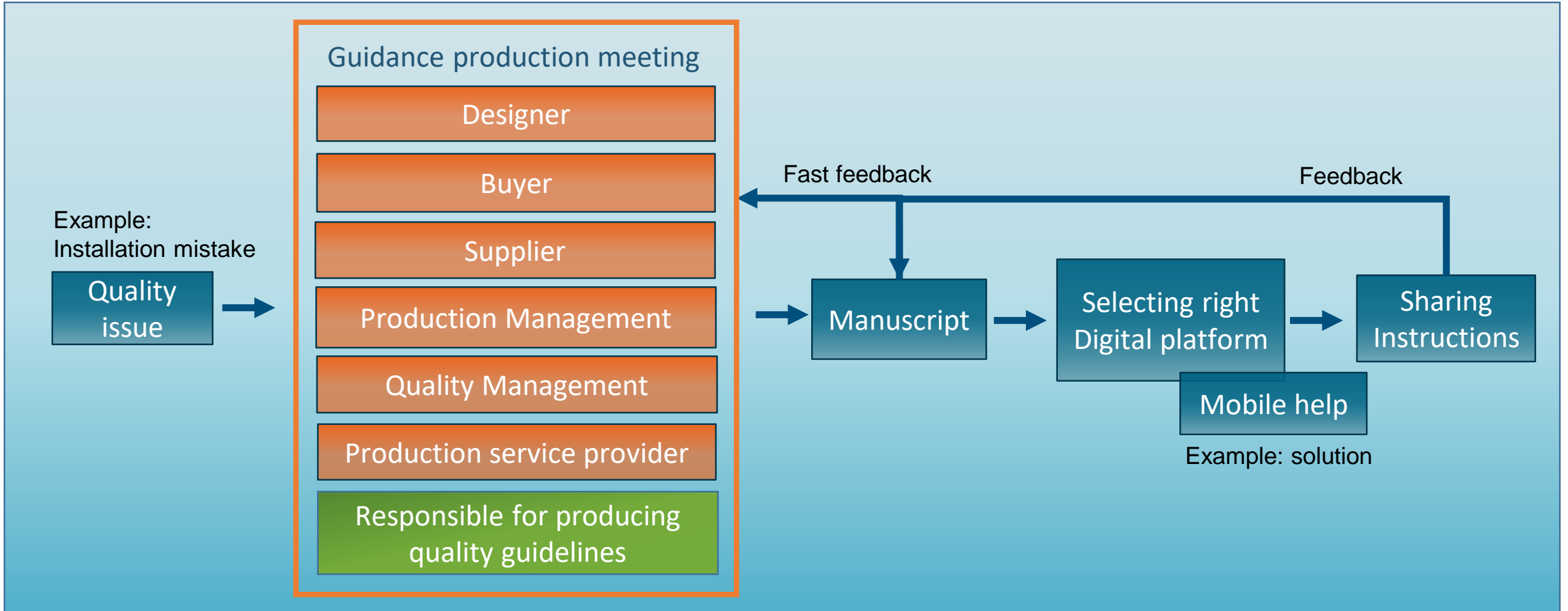




# Example solution: Mobile Welding Procedure Specification (WPS) guide for welder



# Example solution: Model for creating digital quality instructions



# Thank you!

Aki Piironen

Machine Technology Center Turku Ltd.

[aki.piiroinen@koneteknologiakeskus.fi](mailto:aki.piiroinen@koneteknologiakeskus.fi)



MACHINE TECHNOLOGY CENTER  
TURKU LTD



ECOPRODIGI

 **Interreg**  
Baltic Sea Region



EUROPEAN  
REGIONAL  
DEVELOPMENT  
FUND

[www.ecoprodigi.eu](http://www.ecoprodigi.eu)



@ECOPRODIGI\_BSR

