A practical approach to digitalization in occupational health and safety

How connected safety helps organizations improve work safety in a proposed 5 level approach

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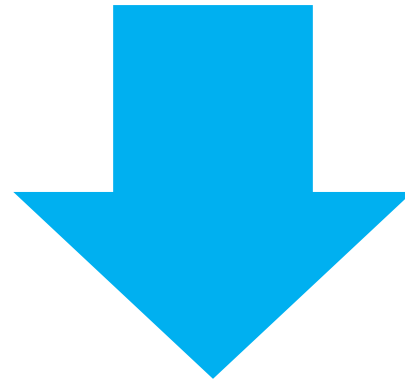# Challenges of OSH Digitalization Approach

INNOVATION →

TRUSTINESS ←

- Compatibility
- Data storage and privacy
- Ethics
- Intellectual property
- Reliability
- Regulatory compliance
- …

Driving OSH Digitalization

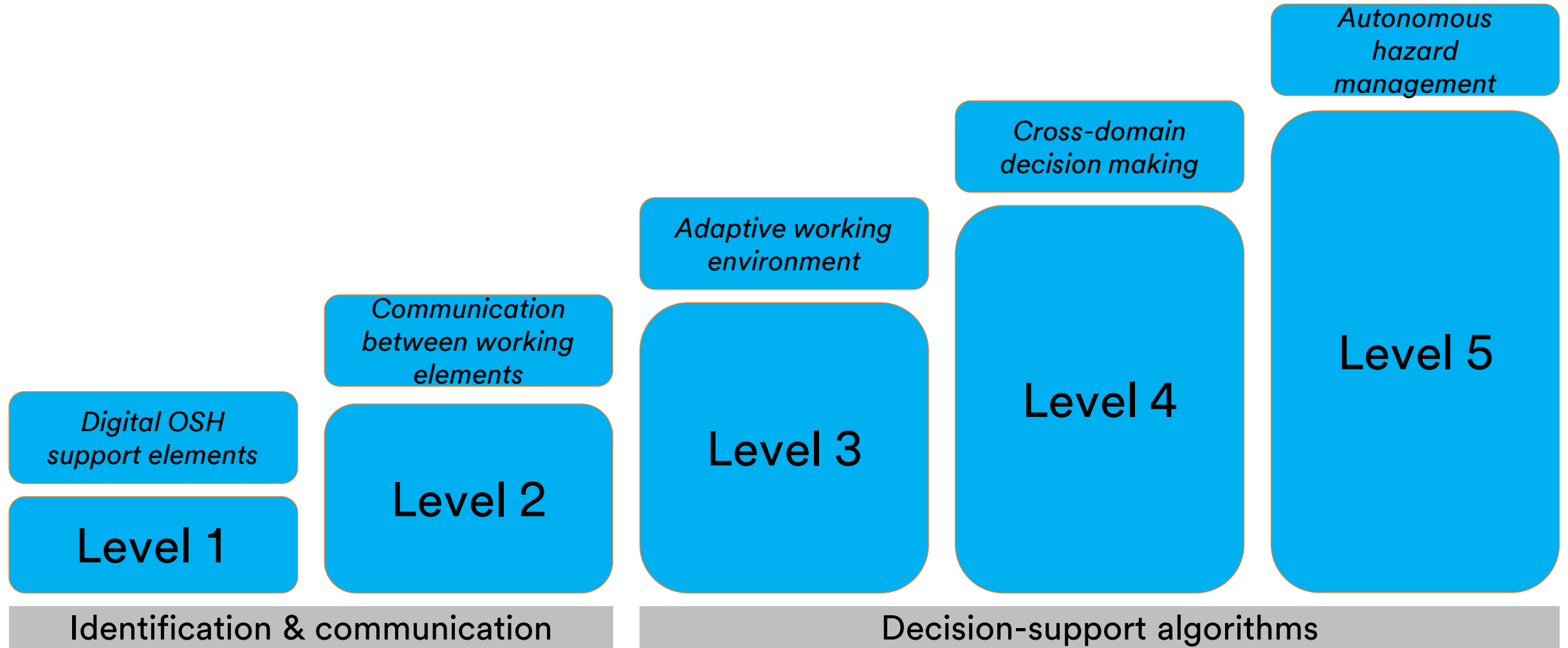**Occupational Health and Safety Products & Services**

Regulated Market

Need for Standardization

Five Levels of Connected Safety

Standardizing Levels of Connected OSH

Autonomous hazard management

Cross-domain decision making

Adaptive working environment

Communication between working elements

Digital OSH support elements

Level 5

Level 4

Level 3

Level 2

Level 1

Identification & communication

Decision-support algorithms

Five Levels of Connected Safety - Examples

Level 1
Digital OSH support elements

- Unique product identification
- Product model and type
- Identification of infrastructure elements (areas, workers)
- Trainings and instructions
- Maintenance and inspections
- Hazard analysis & risk visualization
- Passive signals & sensors

Level 2
Communication between working elements

- Active sensors
- Connected PPE
- Online feedback from workplaces
- Remote surveillance

Level 3
Adaptive working environment

- Location/risk depending worker warnings
- Feedback from Connected Sensors & individual Warnings
- Cloud storage and analysis of data (big data management)
- Remote risk assessment
- Activation of adequate protection level
- System self-check

Level 4
Cross-domain decision making

- Cross-domain interaction (PPE <-> machinery, infrastructure)
- Prediction of work scenarios and prediction of multi-risks
- Automated multi-risk emergency reaction

Level 5
Autonomous hazard management

- Elimination of machine and human errors
- Full risk control
- Autonomous hazard mitigation
- Vision Zero (no accidents at work and no work diseases)

Identification & communication

Decision-support algorithms

3M

Conclusion

❑ OSH digitalization is a global trend – generating needs and expectations

❑ Leverage for the promotion and increase of OHS functionality

❑ Benefits must be considered together with the potential risks

❑ Strong need to involve multidisciplinary experts

❑ Inclusion of the subject in standardization work (technical committees)

❑ Parallel development and implementation of digital solutions for employees, employers and administrative units (labour inspections, social security, market surveillance)

Contact

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Thank you