



Exchange of good practices in OSH Healthy Workplaces Campaign Partner event

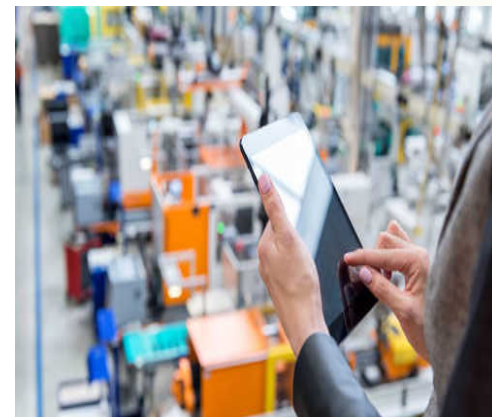
Brussels, 13-14 June 2022

Workshop 3: OSH & Digitalization (Javier Larrañeta, PESI)

Digitalization & OSH: a strategic vision and a proposed systemic approach

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1. Vision on KET, Industry 5.0 and OSH
2. Strategic vision on Digitalization and OSH
3. A systemic approach:
 1. Digitalization at OSH Service Units (corporate and value-chains: SME, subcontractors)
 2. Management of New Risks derived from Digitalization processes in Companies
 3. OSH Professionals' participation in the design of Digitalization processes (Health & Safety by design)



1. ETPIS- PESI 2020 Vision (since 2007)

« Innovation and technology development (R&D+i)
based on a global and integrating vision on
Industrial Safety and Risk management»
(OSH + Safety 4.0 + Security)

Four (4) deployment areas:

- Safety (processes, instalations)
- Occupational Safety & Health
- Environmental Safety (SHE)
(+ climate change affection on infrastructures)
- Corporate Security and Resilience
based on the CIP European Directive
(plants, transport infrastructures & utility networks)



PESE
PLATAFORMA TECNOLÓGICA ESPAÑOLA
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Key Enabling Technologies (KET) for Industry 4.0



Industry 4.0 is the vision of the industrial production of the future

Source: BCG.

Industry 4.0 (ICT + KET): global characteristics



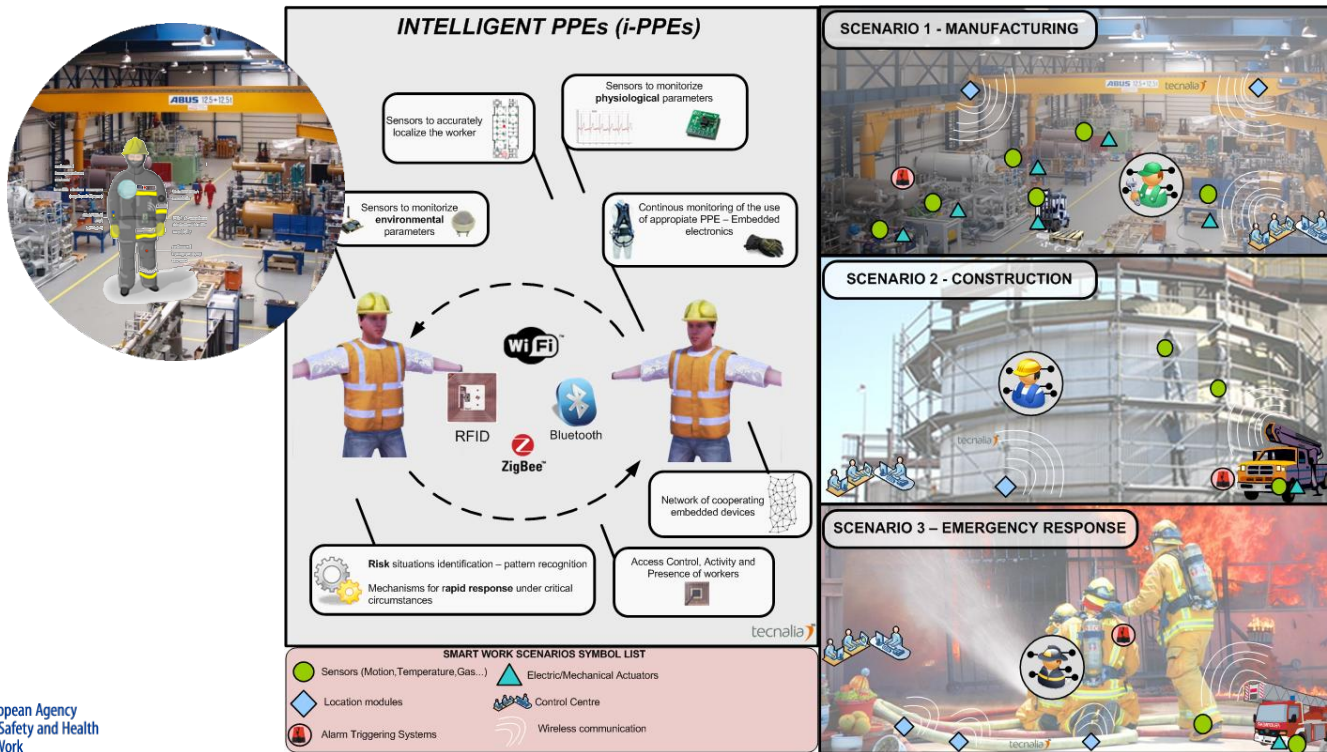
Industry 4.0 and Industrial Safety issues and requirements

| INDUSTRY 4.0 | TECHNOLOGIES AND INDUSTRIAL SAFETY |
|--------------|---|
| CONNECTED | IoT, Cloud, BigData: Process information Integration Cooperation Systems/Workers, Internet of Things/Assets/Workers (IoW) |
| AUTOMATED | Robots (automated plants, RPAS-Drones...) Safier processes, Cybersecure |
| FLEXIBLE | Additive manufacturing (3D printing) Reliability (RAMS), Safety by design |
| SMART | CPS (Cyber Physical Systems) Smart PPE, Safety & Protection Systems in S2WE |
| SOCIAL | Human-centered design, OSH New (Safety) Services to Industry and Society |
| SUSTAINABLE | Environment-friendly, Resilient Reduction of Technological accidents |



Smart & safe working environments (S2WE) under Industry 5.0

Digital Factories (Industry 5.0): PPE (Wearables), Safety systems, Monitoring (Sensors, IoT, Big data, AI), O&M (Robotics, VR/AR), Cybersec, Interoperability (emergencies)



2. OSH and Digitalization (our proposal to EU-OSHA)

Main issues and challenges (PEI strategic vision)

- **Digitalization at OSH Service Units** (digitalization of Information Systems/procedures & protocols, gender/age, evaluation, training...)
- **OSH communication and Workers interaction** (improve communication, needs, Web APPs and mobile devices...)
- **OSH forecast and information models** (Accidents prediction, new KPI based on Big data and Artificial Intelligence...)
- **New Risks from Digitalization processes in Companies** (different environments: office, plants, services; new workers risks: aged workers, lack of KET training, psycho-social diseases...)
- **OSH specialists participation in Digitalization processes** (include safety and OSH issues by design)



3. OSH and Digitalization: Systemic approach

Area 1. Digitalization at OSH Service Units

Area 2. Management of New Risks derived from Digitalization processes inside Companies

Area 3. OSH professionals' participation in the Digitalization processes (whole lifecycle)

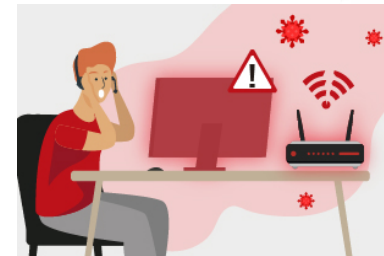
- **Main objectives for OSH Digitalization**
 - Corporate priorities and **Safety Culture** in the Organization,
 - Other issues: UN-SDG and EU Societal Challenges (Sustainability, Equality, Wellbeing...-)
 - deployment plans, benefits and evaluation, investment (ROI)
- **Digitalization of OSH Information Systems/ Procedures**
embedding new challenges to afford:
 - personalization: gender, age, culture...(and privacy),
 - new areas (safe mobility...),
 - improve awareness & training,
 - better evaluation (KPI) and legal compliance
 - OSH support from tractor companies to their whole value chain (subcontracting, SME mainly)
- **Consultancy and OSH digital Services** (selection criteria).
 - Support to SME from OSH Consultancy firms.

- **Improve OSH internal communication and Workers interaction**
 - improve communication and personalization (workers needs evaluation, KET tools –AI, BD,...-),
 - Tech-based means: Web/social networks, APPs, mobile devices
 - extend OSH principles and Safety culture to the whole value chain (SME, subcontractors, logistics...)
- **OSH forecast and advanced information models** (accidents prediction, new KPI...), based on Big data, Cloud computing and Artificial Intelligence; simulation and Risk Management for safer working places using KET-based tools (digital tweens, VR/AR virtual & augmented reality, etc.).



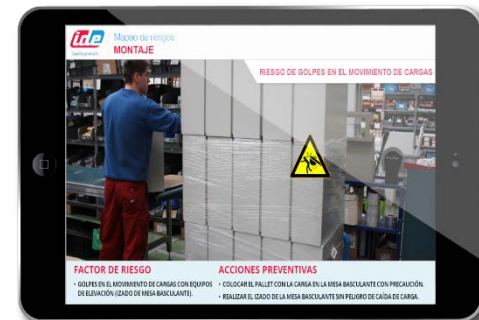
Area 2. Management of New Risks derived from Digitalization processes inside Companies

- **Evaluation in different working environments / sectors:**
office, Health, education, production plants, storages,
transport & logistics, construction, agriculture, fisheries &
forestry, off-site operations, maintenance and services;
 - Workers profiles
 - **New Working organizations**
 - Technologies and digital processes
 - **Digital tweens (KET) for Risk assessment**
- **New Risks for Workers due to the introduction of Technologies and digitalized process**
(aged workers, lack of ICT-KET knowledge and training,
psychosocial challenges and diseases...):
action plan, evaluation and improvement plan.



Area 2. Management of New Risks derived from Digitalization processes inside Companies (2)

- **New Skills (hard/soft) needed by Workers** to face the digital/smart working environments and processes: training plan (individuals and teams)
- **Global awareness and Training** supported on new pedagogy techniques and technologies (e-learning, serious gaming, virtual reality /augmented reality, artificial intelligence...).



Workshops



on-site Training/eLearning



Exercises



Grouping dinamization

Area 3. OSH professionals' participation in the Digitalization processes (whole lifecycle)

- **Main objectives:** include Safety and OSH issues by design, avoid new risks (digital tweens for safety assessment), improve working conditions, better coordination with O&M (Operational Safety), etc.
- **Role of Personnel Area & OSH Dept.** and Technicians in Digitalization strategies
- **Education and Training of OSH practitioners** in new technologies (ICT, KET, Industry 5.0...) and Digitalization (general and sectoral approach)
- **Active participation in Digitalization** (all steps: definition, deployment, evaluation, improvements...)
- **Other** aspects to be considered (Company strategies)



***Thank you so much for your attention:
Questions or comments ?***

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