

ETPIS- PESI 2020 Vision

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

Four (4) deployment areas:

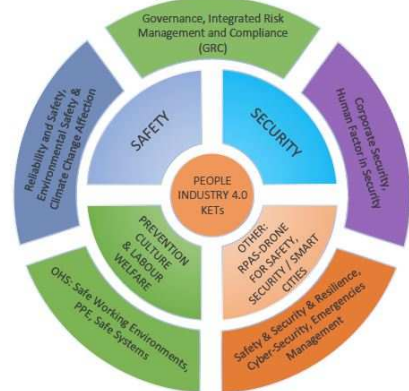
- Safety (processes, instalations)
- Occupational Safety & Health
- Environmental Safety (SHE) (+ climate change affection on infrastructures)
- Corporate Security and Resilience based on the CIP European Directive (plants, transport infrastructures & utility networks)



(Javier Larrañeta, Tecnalia, PESI S.G., ETPIS Board)

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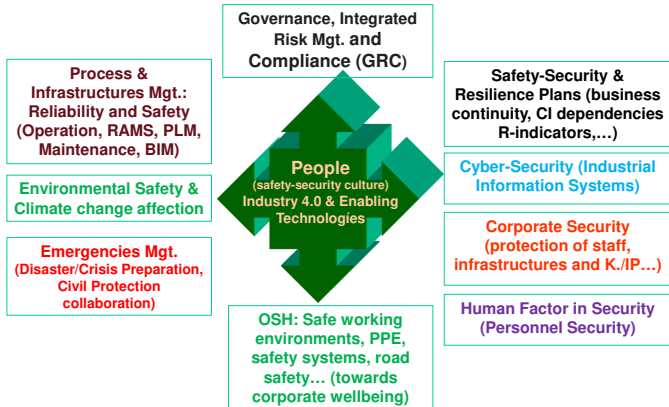
Worker as the central point of the Digital transformation (OSH, industrial Safety and Security, Risk Governance)



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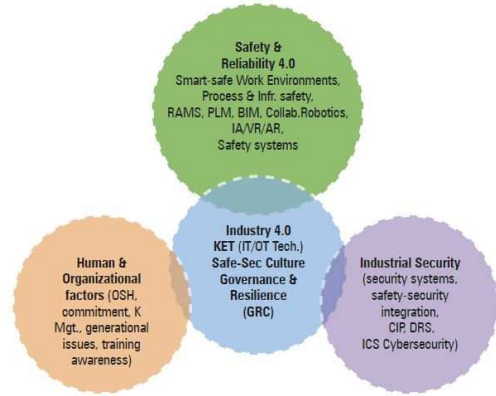
New Governance and integrated Risk Management model (OSH, reliability/safety, security and resilience under Industry 4.0)



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PESI-ETPIS: Innovation circles for EU Horizon Europe



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Industry 4.0 and Industrial Safety issues/requirements

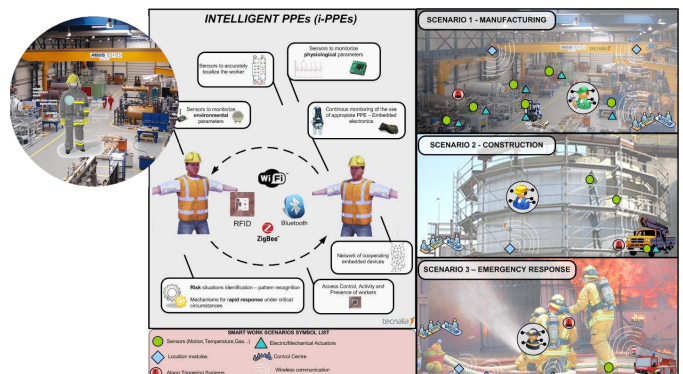
INDUSTRY 4.0	TECHNOLOGIES AND INDUSTRIAL SAFETY
CONNECTED	IoT, Cloud, BigData: Process information Integration Cooperation Systems/Workers, Internet of Things/Assets/Workers
AUTOMATED	Robots (plant, RPAS-Drones...) Safer processes
FLEXIBLE	Additive manufacturing (3D printing) Reliability (RAMS), Safety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

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Smart & safe working environments and Industry 5.0 (SWE)

Digital Factories (Industry 4.0/5.0): PPEs (Wearables 4.0), Sensors (IoT), Monitoring (Bigdata, IA), Robotics –collaborative-, VR/AR, Cyber, Interoperability (emergencies)



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PESI (XV Aniversario): Focused Gps for Horizon Europe

- **OSH (Human & Organizational factors)**
 - **Safety Culture, Health & wellbeing** (Ageing/generational issue, Drugs at work...)
 - **Prevention models** (assistance, training, campaigns, pandemics...)
 - **Road Safety at Work, Human factor in Security & CIP** (Cyber, Insider threats)
- **SAFETY under Digital transformation (Industry 4.0/5.0, KET)**
 - **INDUSTRIAL SAFETY** (Smart working environments & Factory 4.0): PPEs, Safety products & systems, Sensing-Monitoring, NDT, RAMS & Assets Management including ageing)
 - **Structural Safety** (Safe-Infrastructures, in coord. with **Construction & Transport ETPs**)
 - **Civil use of RPAS-drones on Safety-Maintenance & Security** (joint with FG-Sec)
- **SECURITY** (including Industrial Cybersecurity)
 - **Governance, Resilience & CIP: Safety-Security Integration (ETPIS)**
 - **Emergencies Management** (jointly with FG-Safety; natural disasters & climate change)
 - **Personnel Security, Technologies for Security; People & Assets Protection**
- **Inter-Platforms Groups:**
 - **SAFE MOBILITY:** Tech., ITS, Secure Transport, Hazardous goods transportation
 - **CIBERSECURITY** (Information Systems, Industrial Systems)
 - **GICI: Smart, Secure & Resilient Cities**
 - **GIEC** (Circular Economy and Sustainability)

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PESI strategic vision (main issues):

- **Digitalization at OSH Service Units** (digitalization of Information Systems/procedures, gender, age, evaluation, training...)
- **OSH communication and Workers interaction** (improve communication/needs, mobile devices...)
- **OSH forecast and information models** (Accidents prediction, new KPI based on Big data and Artificial Int.)
- **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)

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1. Digitalization at OSH Service Units

- **Main objectives for OSH Digitalization** (internal priorities and Safety Culture in the Organization, 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 be afford (gender, age, evaluation, training...). Consultancy and OSH digital Services. Support to SME from OSH companies. OSH support from tractor companies to their whole value chain (subcontracting, SME mainly)
- **Improve OSH internal communication and Workers interaction** (improve communication/needs, 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.).

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

- **Evaluation in different working environments/conditions:** office, Health, education, production plants, storages, transport & logistics, construction, agriculture, fisheries & forestry, off-site operations, maintenance and services;
- **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...): correction and improvement action plan;
- **New Skills (hard/soft) needed by Workers** to face the digital/smart working environments and processes: training plan (individual and teams);
- **Global awareness and Training** supported on new techniques and technologies (serious gaming, virtual/augmented reality, artificial intelligence...).

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

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

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Thank you so much for your attention:

Questions or comments ?

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