E-tools in the construction sector and other outdoor work

History and perspectives to the e-safety topics

Martin Röhrich, Czech Republic, Employer
Tools for safety protection

- **Ultrasonic sensors**: Parking assist, Parking systems
- **RADAR sensor**: Audio assistance, Reverse info
- **Long range RADAR**: Audio assistance, Obstacle detection, ACC Stop & Go
- **Front cameras**: Vehicle detection, Collision avoidance, Sign reading
- **LIDAR**: Distance & speed detection, Obstacle detection, Emergency braking systems
- **Infrared cameras**: Pedestrian detection, Night vision
- **Side and inside cameras**: Blind spot assist, Lane change assist, Driver behaviour monitoring
Tools for safety protection
Tools for safety protection
Tools for safety protection

LIDAR (Light Detection And Ranging) and positioning detection
New possibilities with and a new e-tools for safety protection
New possibilities with and a new e-tools for safety protection

Fire Fighters with Infrared support

From Heart beats you may indicate:
- HRV, status of ANS (stress level)
- Breathing activity
- Blood pressure

Heart rate – life security support
Air remaining volume 57%

Fire fighting - MoCap technology with IMU units

Heart rate – life security support
Air remaining volume 12%
New possibilities with and a new e-tools for safety protection

Fire Fighters cold exposure

Secured - well equipped person

Unsecured - NOT equipped person

HR activity

Brain activity
Recommendations for e-tool future development

**Strengths**

- Technological growth
- HSE e-tolls / Telemedicine growth
- Use of the technology from other industries in HSE
- Reduction of No of hazard situations, accidents, and fatals
- Support of people health and safety - Through the technology
- Support preparedness and Resilience
- Strong support of "longevity", aging workforce

**Weaknesses**

- Technology evolves quickly, making it challenging for e-safety measures and guidelines
- Lack of Digital Literacy
- Lack of Regulation
- Online Anonymity and loss of People Behavioral Safety
- Stakeholder motivation
- Employees/ workers/ people motivation
- Price/ accessibility

**Opportunities**

- There are no legal regulations for Digital technology/ Industry X.X/ or other e-tool
- There are no recommendations or best practice for Digital technology/ Industry X.X/ or other e-tool
- There are no recommendations or best practice for human data analysis for HSE/ work related purpose
- Communication infrastructure/ data connectivity/ IOT
- Indoor/ outdoor solution
- Common rules for data storage are not existing - too many producers and devices
- Education and communication

**Threats**

- Data privacy and data protection
- Data misuse
- Evolving Cyber Threats
- Wrong interpretation of the data
- Slow technological and infrastructure growth
- Data storage capacity and failures
- Malfunctionality of the systems
Thanks for attention

Martin Röhrich

martin.rohrich@rohrich.cz
Mobile: +420 602 582 996