

context

1st CONFERENCE

Textiles in personal protection

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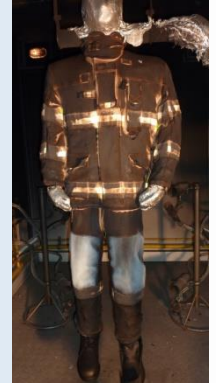
Barcelona
31st January 2019

Cost Action
CA17107



Textiles in personal protection

Smart PPE for those, who are daily exposed to the significant threats, like fires, road traffic accidents, major emergencies, natural disasters and terrorism.

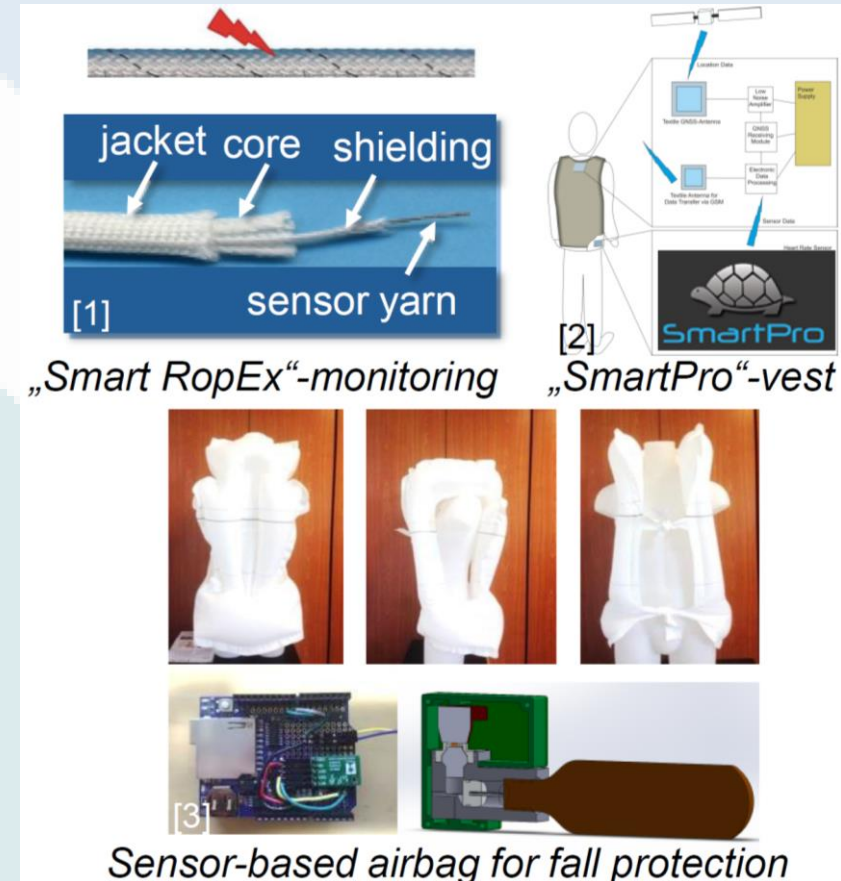
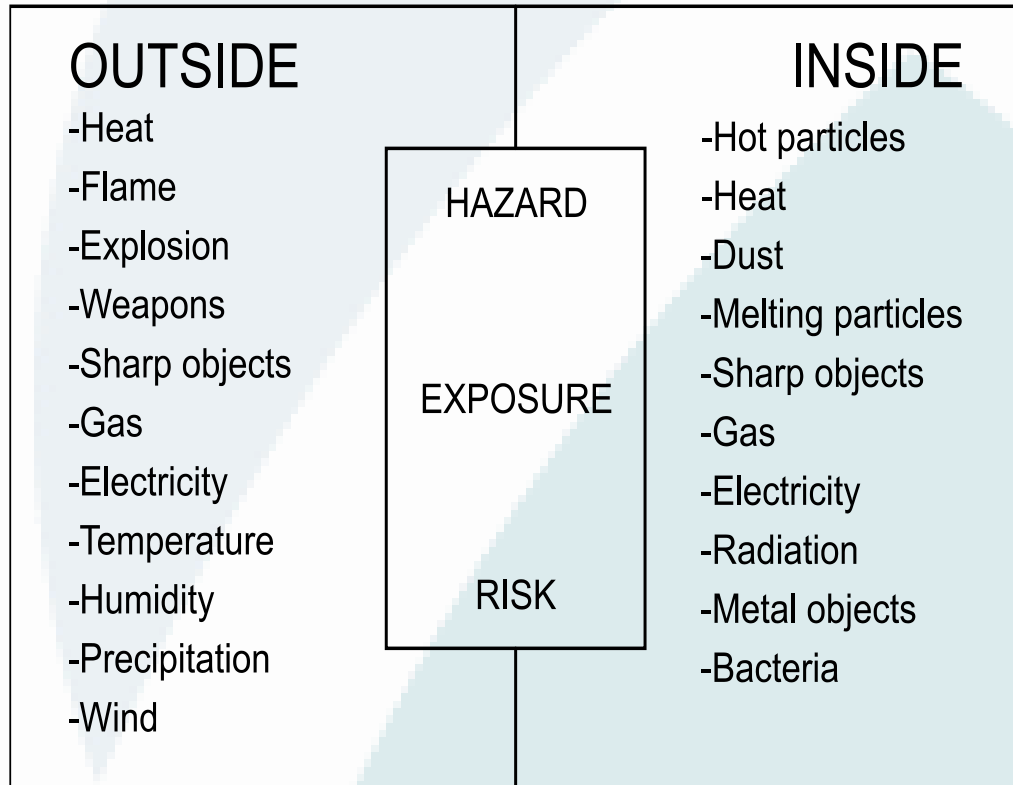


- # safe life
- # significant threats
- # PPE
- # cardiac death?

obtain + transmit information on the health state of the PPE system and on the health state of the user?

- # **automatically** detect a hazard and warn the user?
- # identify a situation of accident, initiate an emergency call and localize the user?
- # detect and neutralize or compensate a hazard?

Textiles in personal protection



Jordan, Dangel & Gries; 14th European Seminar on Personal Protective Equipment (PPE) 2018, Saariselkä, Finland - 24 January 2018

Textiles in personal protection



60% of cardiac death



physical training



Thermal overload
toxic substances



Integrated Activity Sensor



Integrated Respiration Sensor



Integrated Heart Sensor



Textiles in personal protection



The **protection and safety** of all those involved with, or affected by **heat, fire, hot particles** and other negative impacts from the environment, **cannot be achieved by one specific type of smart PPE**.



Textiles in personal protection

- WEALTHY (<http://www.wealthy-ist.com>) / (<http://www.smartex.it/en/wealthy>)
- BIOTEX (<http://www.biotex-eu.com>)
- PROETEX (<http://www.proetex.org/>)
- STELLA (<http://www.stella-project.de/>)
- OFSETH (<http://www.ofseth.org/>)
- CONTEXT (<http://www.context-project.org/>)
- WearIT@Work (<http://www.wearitatwork.com/>)
- MICROFLEX (<http://microflex.ecs.soton.ac.uk/>)
- DEPHOTEX (<http://www.dephotex.com>)
- PLACE-it (<http://www.place-it-project.eu/>)
- smart@fire (smartfire.eu)

Textiles in personal protection

What are the needs and expectations from users ?



Conclusions - Smart PPE...

- have high potential to
 - Increase risk awareness
 - Automize risk detection, prevention, emergency signal transmission
 - Increase user acceptance (comfort, functionality)
 - Connect workers to the „Internet of things/Work 4.0“
- may require a thorough training of the user
- have to be developed with a very strong focus on the challenging certification process
- innovation can be supported by technological „enablers“

Outlook – Further needs of investigation

- Which measurements can enhance enablers' focus on **certification?**
- Which factors are related to the **willingness of PPE manufacturers** to develop smart PPE?
- Which **demands of end-users** can beneficially be fulfilled by smart PPE?
- How can **notified bodies be supported** in opening themselves for conformity assessment of smart PPE?

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- may require a thorough training of the user
- have to be developed with a very strong focus on the challenging certification process
- innovation can be supported by technological „enablers“
- measurements to enhance enablers' focus on **certification** to be discussed



Status standardisation work in M/553

- TR terms and definitions : WI approved – enquiry expected April/May 2019 – publication Q3/2019
- TR SUCAM : NWIP expected Q1/2019 – enquiry expected Q1/2020 – publication Q2/2020
- EN standard requirements : roadmap in preparation – NWIP in 2019 – first enquiry 2020 – publication Q4 2021.

Textiles in personal protection

Definitions – why are they important?

<https://www.surveymonkey.de/r/GWHTBSM>

References

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2. Schwab, M.; Hörr, M.; Gries, T.; Jockenhövel, S.: „SmartPro : smart protective clothing for law enforcement personnel”, Poster at SALTEX : smart textiles & lightweight materials, Dornbirn/A 05.-06.10.2016
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4. Jordan, J.V.; Dangel, R.; Gries, T.: New generation of PPE - smart enough? In: Finnish Institute of Occupational Health (FIOH), Finland ; BG BAU – Berufsgenossenschaft der Bauwirtschaft, Germany ; European Safety Federation (ESF) (Ed.): 14th European Seminar on Personal Protective Equipment (PPE), 23.-25. January 2018, Saarisekä, Finland. - Työterveyslaitos ; Berlin ; Bavikrove : Finnish Institute of Occupational Health (FIOH) ; BG BAU – Berufsgenossenschaft der Bauwirtschaft ; European Safety Federation (ESF), 2018, S. 22-23
5. Thierbach, M.: Smart PPE for firefighters - User expectations, Poster publication by „Kommission Arbeitsschutz und Normung (KAN)“; 14th Seminar on Protective Clothing” in Saarisekä, 23. Januar 2018