

Innovative products and smart solutions

challenges and solutions towards standardization, testing and certification

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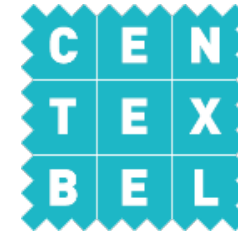


Introduction to CENTEXBEL



Collective Research Centre

- Membership organisation, governed by and in service of the industry
- Activities
 - Research & Development
 - Testing
 - Platforms for open innovation
 - Consultancy & Services
 - Product certification
 - Knowledge dissemination
 - Sector Operator for the NBN (member of CEN and ISO)



Innovative products and solutions – going beyond the state of the art



State of the art vs Innovation

State of the Art:

- Well defined products, designed for being assessed with the existing methods to demonstrate conformity with legislative requirements are easily available
- Freedom towards modifications is limited by this framework.

Innovation:

- Aiming at improving the product performance; also, product circularity and sustainability have become important.
- Using novel designs and materials can result in products which not necessarily can be assessed with the existing methods to demonstrate conformity.



Revised and new assessment methods

Challenges

- The list of harmonised standards which can be used is fixed by a standardization request;
=> revising the scope or adding new documents can only be done through an amendment or a new standardization request.
- Solid proof has to be provided that the new assessment method fulfils all requirements of the legislation.



Examples



Heat and flame protection

Garments/ ensembles providing protection against heat and flame, with integrated smart textiles and non-textile elements (Standardisation request M/553)

Standards developed as response:

- CEN/TR 17512:2020 *Personal protective equipment - Smart garments - Terms and definitions*
- CEN/TR 17620:2021 *Guidelines for selection, use, care and maintenance of smart garments protecting against heat and flame*
- EN 17673:2022 *Protective clothing - Protection against heat and flame - Requirements and test methods for garments with integrated smart textiles and non textile elements*



EN 17673:2022

- Supplements the requirements of EN ISO 11612 and EN ISO 13688
- Sets additional testing and performance requirements linked specifically to the integrated smart textiles and non-textile elements, taking into account
 - the functionality of the smart textiles or non-textile element
 - any risks from an electrical/electronic safety perspective in these situations.

Supplements but does not replace any of the requirements



Warning clothing with active lighting

WI 00162478 *Warning clothing with active lighting in addition to EN ISO 20471 and EN 17353 – Equipment for active luminous warning clothing – Test methods and requirements*

- Sets additional testing and performance requirements linked specifically to the active lighting
 - any risks from an electrical/electronic and light safety perspective
 - evaluation of the additional visibility from the active lighting (in situations with and without light sources for retroreflection)

Supplements but does not replace any of the requirements



Innovative design and materials replacing current ones



Smart systems - Examples

- Adaptive lighting for replacing retroreflection
 - Advantage: potential to ensure visibility under any type of lighting conditions
 - Elements in the system: lamps, sensor(s) for ambient light, power supply, wiring, (wireless) communication on person, software, warning system for (potential) malfunctioning and low power.
- Sensors and warning system to replace layers of clothing
 - Advantage: potential to reduce product weight and enhance safety
 - Elements in the system: sensor(s) for detecting the hazard, power supply, wiring, (wireless) communication on person and/ or to external monitor, software, warning system for (potential) malfunctioning and low power.



Smart systems - challenges

- Apparent complexity (garment, electronics, software, wireless communication, etc.)
=> Requires different technology sectors to cooperate and understand each other, especially the required safety levels !
- Definition of design criteria to ensure at least equal level of safety
- Methods to assess the safety level
- Trust in the new technology



Smart/ novel materials

Face similar problems:

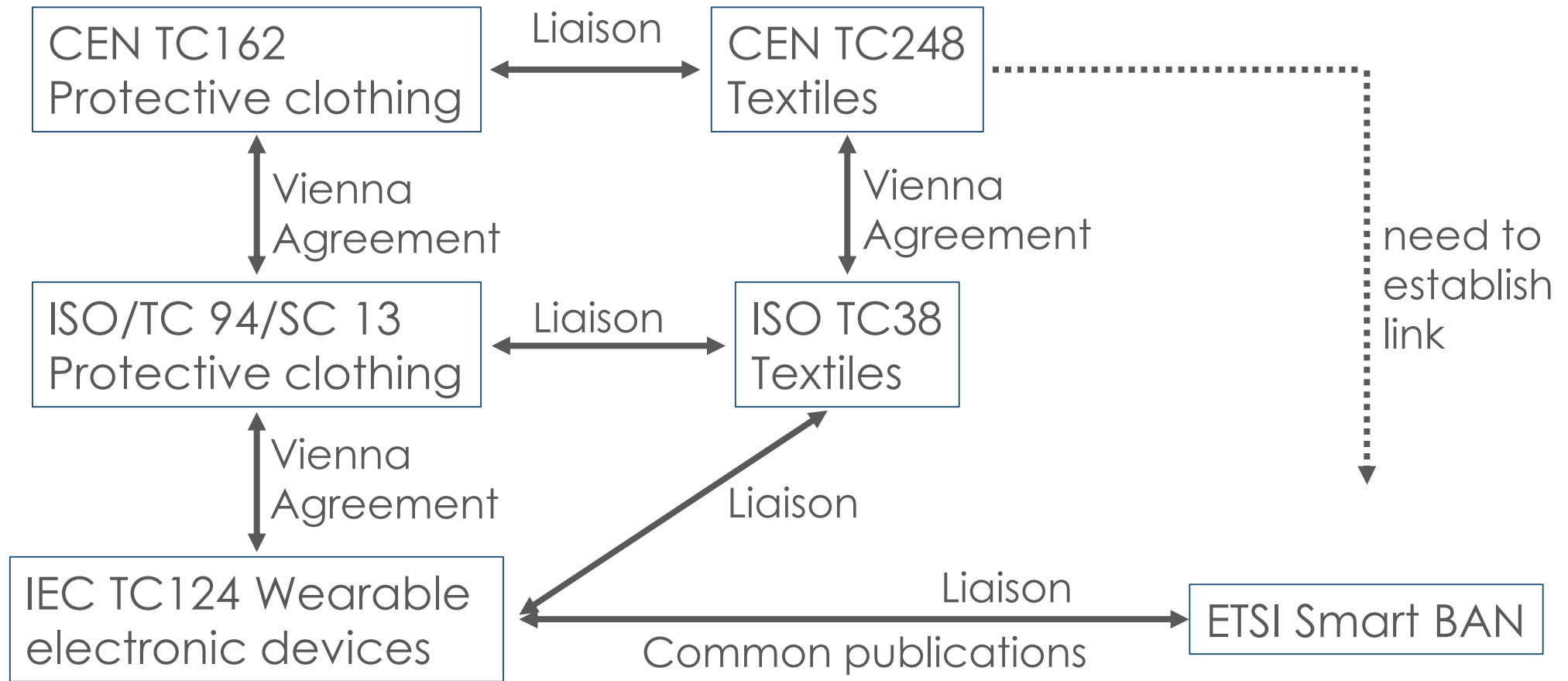
- Definition of design criteria to ensure at least equal level of safety
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- Trust in the new technology



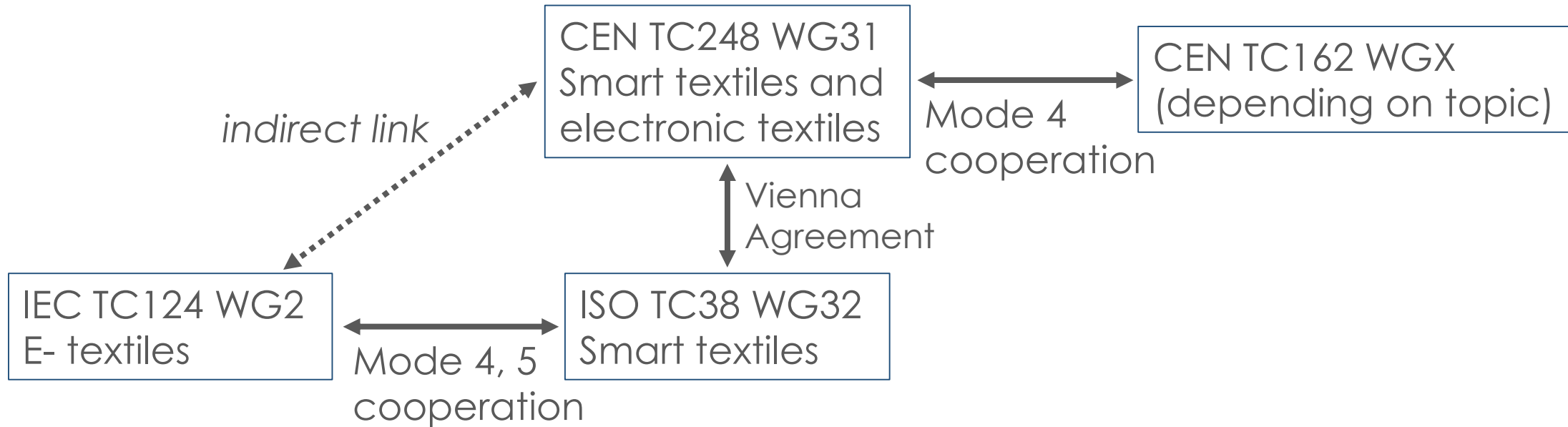
Novel assessment methods – Standards for smart systems



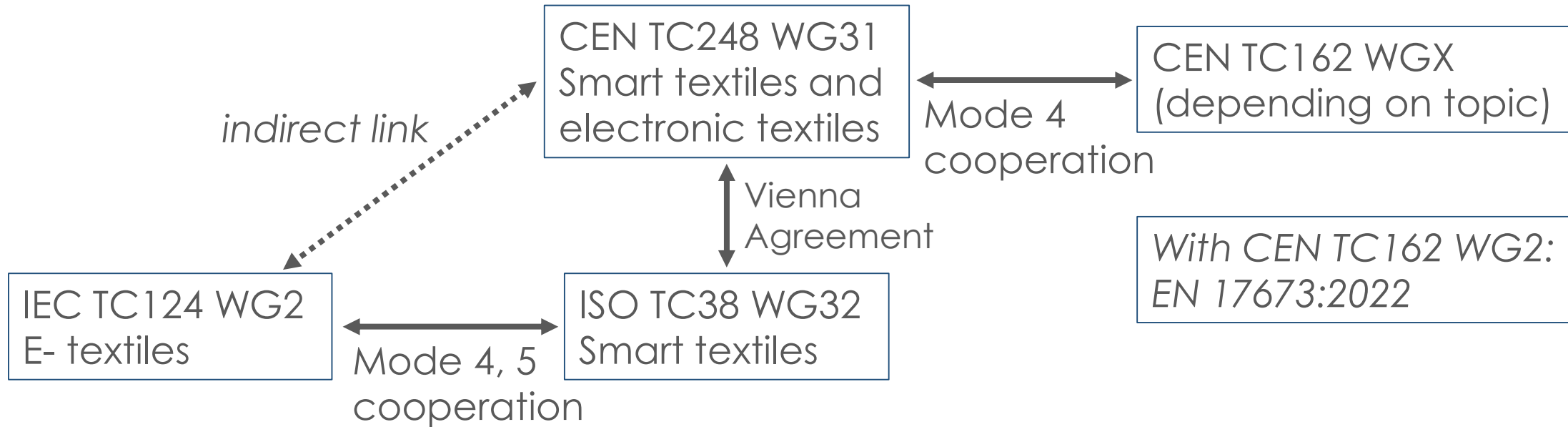
Relationships – Technical Committees



Relationships – Working groups



Relationships – Working groups



Mode 5: IEC/CD 63517 Wearable electronic textiles — Test method for performance of heating products



Conclusions

Building the network enables bringing the experts together for addressing the

- definition of design criteria to ensure at least equal level of safety and
- methods to assess the safety level.

=> And will bring trust in new technology developed by research and innovation!



Thank you

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