

STANDARDIZATION EFFORTS FOR ENHANCED URBAN RESILIENCE

RENE LINDNER, DIN E. V.

T3 – DISASTER RISK & CRISIS MANAGEMENT

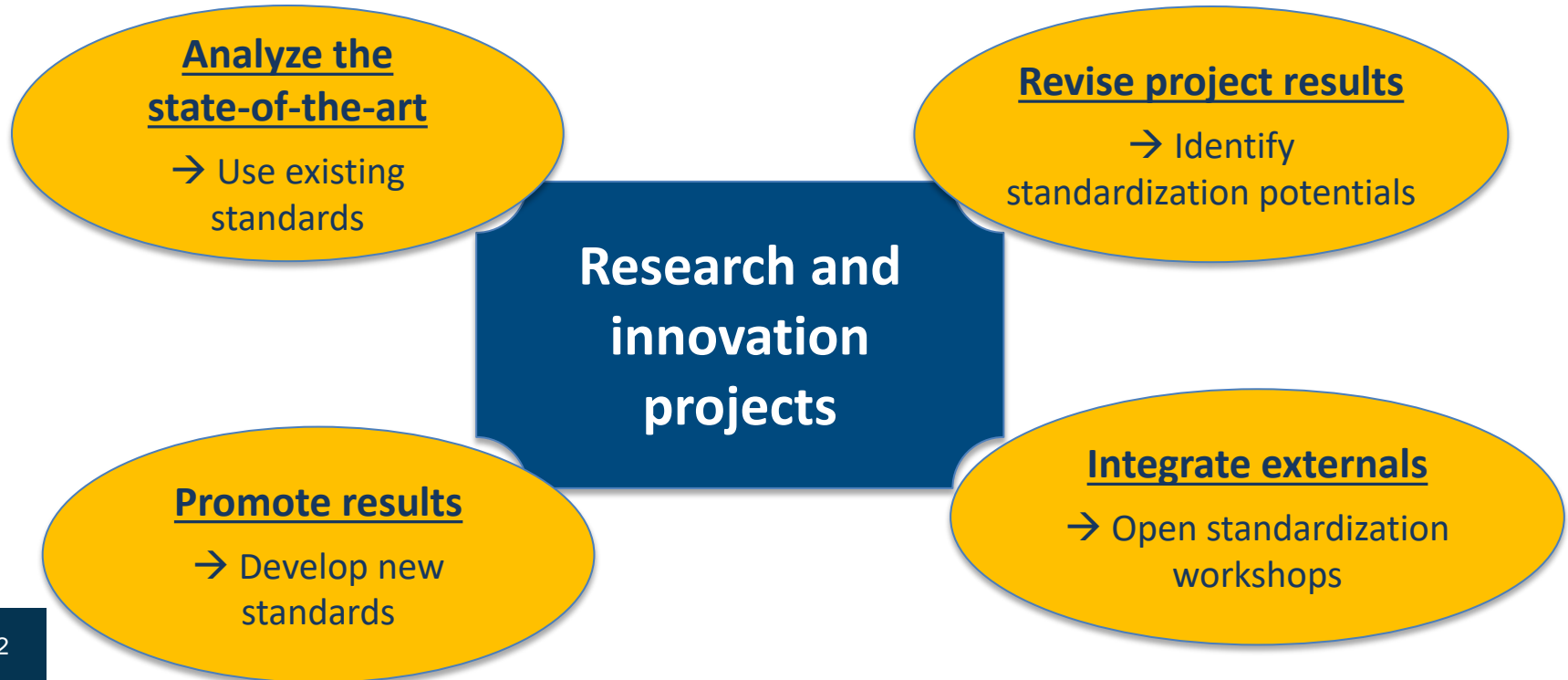
2ND CONFERENCE ON ORGANIZING URBAN RESILIENCE

René Lindner

3rd October 2019, Prague

STANDARDIZATION WITHIN RESEARCH PROJECTS

HOW CAN RESEARCH AND INNOVATION BENEFIT FROM STANDARDIZATION?



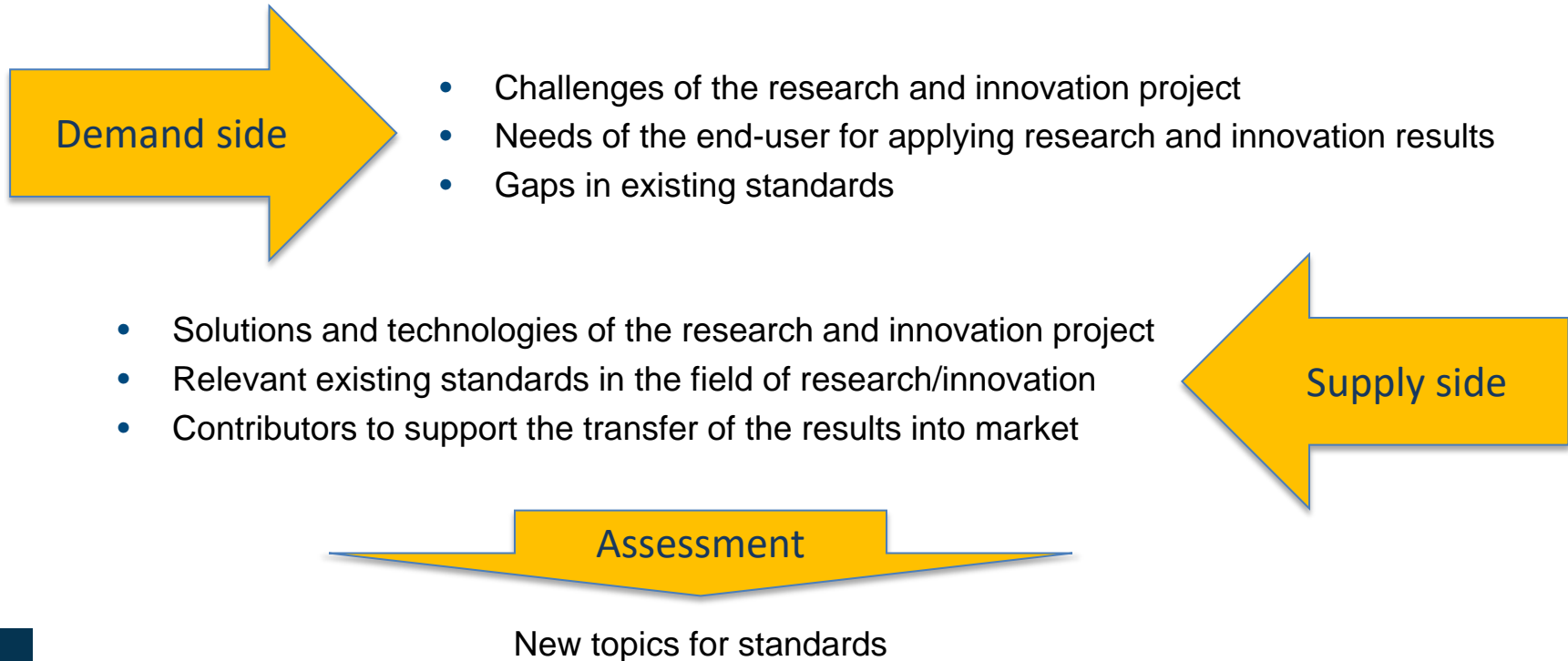
IMPACT OF STANDARDIZATION IN R&I PROJECTS

WHY INTEGRATING STANDARDIZATION?

- Enhancing dissemination activities of project results: Mostly scientific publications developed rather than transfer into practice (*Blessing and Seering 2016*)
- Few studies on the role and impact of standardization for research and innovation projects (*Technopolis 2013, CEN-CENELEC 2019*)
- Demand for new standards in security (M/487), an applied terminology and the use of standardization in all the phases of research and innovation (*Poustourli 2016*)
- Standardization for bringing research results into the market, and existing standards for state-of-the-art and as enablers for research and innovation (*Blind 2013*)
- Standardization is proposed by the funding authorities as a tool in research and innovation projects to support the exploitation and dissemination of their results (*European Union 2013; European Commission 2018*)

METHODOLOGY FOR STANDARDIZATION

WHAT ARE THE IN- AND OUTPUTS?



STANDARDIZATION AND URBAN RESILIENCE

HOW CAN STANDARDIZATION SUPPORT?

Standardization work of Technical Committees (TCs)

- such as ISO/TC 268 Sustainable cities and communities
- Resulting standards such as
 - ISO/TR 37121:2017 – Sustainable development in communities — Inventory of existing guidelines and approaches on sustainable development and resilience in cities
 - ISO/FDIS 37123 – Sustainable cities and communities — Indicators for resilient cities
 - CWA 17300:2018 – City Resilience Development – Operational Guidance

Promoting results of research and innovation projects

- Integration of standardization in projects, such as SMR or DRIVER+ projects
- Developing standards such as CEN Workshop Agreements (CWAs)

EXCURSE: THE SMR PROJECT

HOW CITY RESILIENCE WAS IMPROVED?



- ❑ Horizon 2020 project (duration: June 2015 and June 2018) on the **enhancement of city resilience**
- ❑ Tools: Maturity model, information platform, risk awareness, building policies and a overarching guideline
- ❑ SMR was marked as a **success story** by the Research Executive Agency of the EC, because
 - Standardization activities were implemented during the whole project
 - Comprehensive analysis of existing standards (*SMR 2016*)
 - Assessment of project results for standardization with support of assessment criteria
 - Necessity, Transferability, feasibility, standardization gap, need for input (*SMR 2018b*)
 - Conduction of standardization workshops
 - Pro-active integration of externals (workshops, liaison with relevant TC) – e.g. 7+7 cities
 - CEN Workshop Agreements - **CWA 17300 series on ‘City Resilience Development’**
- ❑ **Survey** to analyze standardization activities of the project
 - E.g. knowledge on standardization, reasons for participating, feedback to methodology

EXCURSE: THE SMR PROJECT

WHICH STANDARDS WERE DEVELOPED?



CWA 17300: City Resilience Development - Operational Guidance

Workshop members: 23 organisations (Categories: Administration, Consultant, Academia or Others) from Denmark, Germany, Greece, Island, Italy, Jordan, Latvia, Norway, Spain, Sweden, UK

Scope: Defines an operational framework for cities that provides guidance on local resilience planning and supports their efforts in building resilience.

CWA 17301: City Resilience Development – Maturity Model

→ theoretical roadmap about how the resilience process of a city may be (5 maturity stages)

CWA 17302: City Resilience Development – Information Portal

→ requirements and recommendations for an city resilience related information system (interaction)

STANDARDIZATION IN DRIVER+

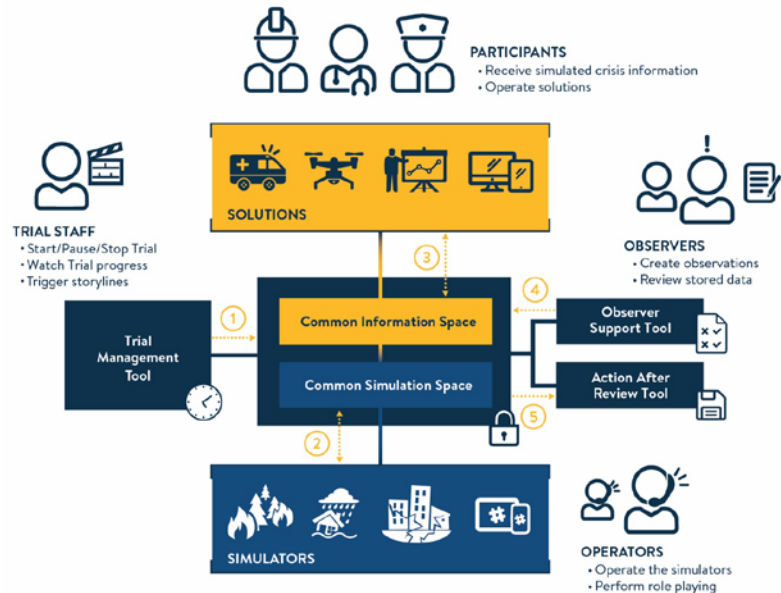
HOW STANDARDIZATION ENHANCE EU RESILIENCE?



- ❑ FP7 project (ongoing, finish by 2020) to cope with challenges due to increasingly severe consequences of natural disasters and terrorist threats, by the development and uptake of **innovative solutions** that are addressing the **operational needs of practitioners dealing with Crisis Management** (*DRIVER 2018b*)
- ❑ **Applying the standardization methodology**
 - Demand side: Needs of the crisis management community, suggestions from liaison with CEN/TC 391 Societal and Citizen Security (joint networking event), collection of project challenges (e.g. interoperability between solutions)
 - Supply side: Comprehensive list of standards, solutions and methodologies of the project, contributors from project and experts from CEN/TC 391 (future promotion and uptake of standards)
- ❑ **Assessment of project results and decision to develop four standards**
 - ❑ CWA 17335: 2018 - Terminologies in crisis and disaster management
 - ❑ CEN Workshops on three major project results

TEST-BED TECHNICAL INFRASTRUCTURE

A TOOLKIT TO FACILITATE THE ASSESSMENT OF INNOVATIVE SOLUTIONS



Software toolkit that allows to:

- **Connect** innovative Crisis Management **solutions** to each other to enable an **exchange of information** between them
- Connect different simulators to **create** and control **realistic crisis scenarios**

Free of charge and open source

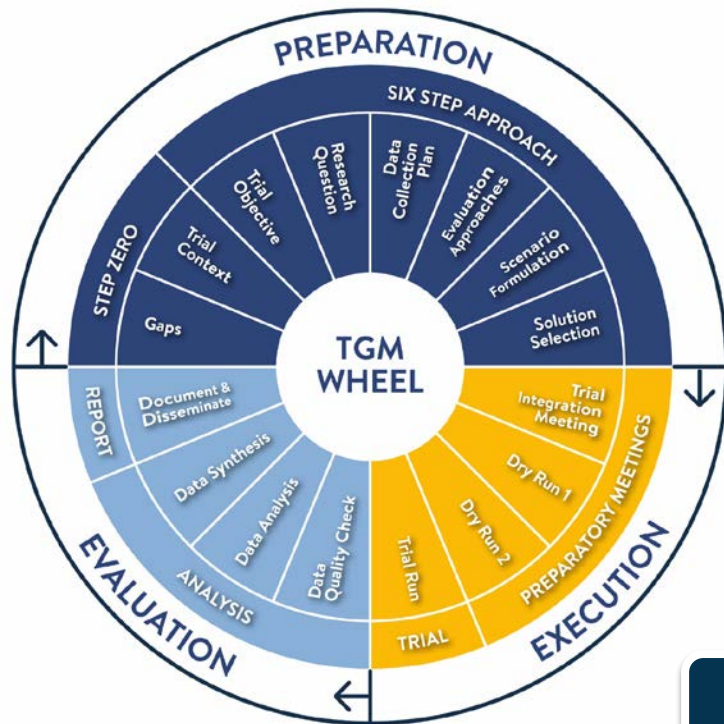
COMMON SIMULATION ENVIRONMENT

HOW DIFFERENT SIMULATORS CAN WORK TOGETHER?

- ❑ Problem: Different simulators within one test-bed need to work together (shared time, information etc.)
- ❑ Establishment of a CEN Workshop
 - Kick-off was in July 2019
 - Draft standard ready by January 2020
 - Publication foreseen for April 2020
- ❑ Scope of the resulting CWA: **technical framework for connecting simulators** aiming to easily facilitate interoperability between multiple stand-alone simulators, in order to jointly create and maintain a Common Simulation Space.
 - includes a description of infrastructure and accompanied protocol parameters, common simulation message formats, and a set of services or tools facilitating the common simulation space functionalities.
 - This CWA does not have the aim to closely integrate connected simulators together. The general vision is, that simulators are created for one or more specific domain knowledge areas with their own granularity, boundaries and purposes.

TRIAL GUIDANCE METHODOLOGY

A STRUCTURED APPROACH TO ASSESSING INNOVATIVE SOLUTIONS



Step-by-step guidelines to carry out a **robust assessment of solutions** and their potential **impact on** the socio-technical set-up of a Crisis Management **organisation**

Download the TGM Handbook

<https://www.driver-project.eu/trial-guidance-methodology/>

TRIAL GUIDANCE METHODOLOGY

WHAT IS THE BEST WAY TO ASSESS CRISIS MANAGEMENT SOLUTIONS IN SUCH A WAY THAT THEY MEET THE END-USERS EXPECTATIONS?

- ❑ Problem: End-users have the difficulty to find the right solution that is really able to help with the challenges being faced, and to assess it in a scenario that is as realistic as possible.
- ❑ Establishment of a CEN Workshop
 - Kick-off was in April 2019
 - Draft standard ready by December 2019
 - Publication foreseen for April 2020
- ❑ Scope of the resulting CWA: definition of a methodology that enables an **objective assessment of one or more socio-technical solutions** (hardware, software, training, procedure, a mix of those) within a realistic Crisis Management scenario.
 - includes the detailed explanation of the three phases of a trial (preparation, execution and evaluation phase), the responsibilities, several templates and lessons learned

PORTFOLIO OF SOLUTIONS

AN ONLINE CATALOGUE TO ACCESS INFORMATION ABOUT INNOVATIVE SOLUTIONS FOR CRISIS MANAGEMENT



Lessons identified
Gaps addressed
Knowledge database

EXPERIENCES

Shared place where
stakeholders meet
around solutions



SOLUTIONS

Crisis Management Functions
Technology Readiness Level
Innovation Stage

Open-source and interactive database for CM solutions (online market-place) that:

- Provides access to information about **available CM solutions** (supply) and matches it with **practitioner needs** (demand)
- Enriches solution descriptions with **experiences** and lessons identified from practitioners

Add your solution today

<https://pos.driver-project.eu/en/PoS/solutions>

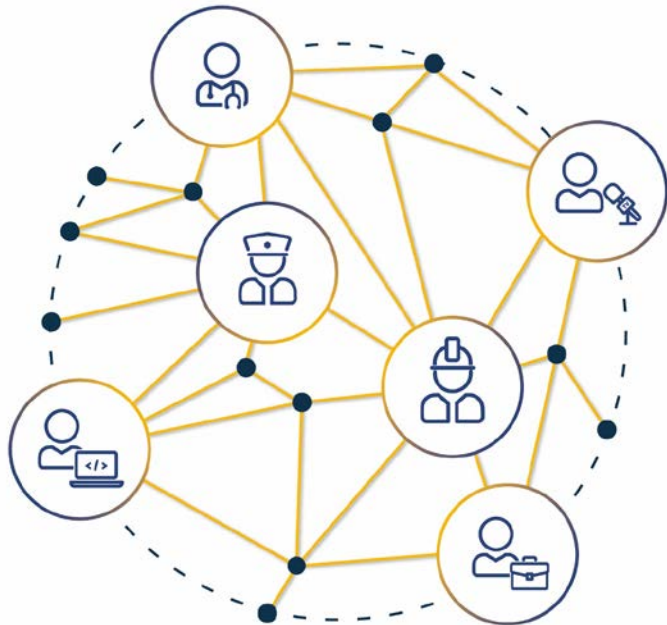
SEMANTIC AND SYNTACTICAL INTEROPERABILITY FOR CRISIS AND DISASTER MANAGEMENT

HOW TO ENSURE COMMUNICATION IN CRISIS SITUATIONS?

- ❑ Problem: Communication between different organizations, regions and countries – with their specific processes and tools was identified as a major challenge in crisis management.
- ❑ Establishment of a CEN Workshop
 - Kick-off was in April 2019
 - Draft standard ready by December 2019
 - Publication foreseen for April 2020
- ❑ Scope of the resulting CWA: definition of requirements to achieve **organizational and cross border interoperability** on syntactical and semantic level for crisis and disaster management.
 - includes the definition of operational requirements by analyzing different use cases and a layer model, the syntactical technical requirements to ensure exchange of data in way that allows automatic processing by another solution, and requirements for semantical interoperability to guarantee identical interpretation of information exchanged between systems.

PARTICIPATION IN THE CEN WORKSHOPS

JOIN THE CMINE – THE COMMUNITY OF PRACTICE TO FOSTER INNOVATION IN CRISIS MANAGEMENT



LinkedIn for Crisis Management with the ambition to become the **‘One-stop shop’** to foster innovation in CM in Europe

Contribute to an **enhanced understanding** of CM in Europe through **multi-stakeholder** and **cross-sectoral** interaction

Join the community

WWW.CMINE.EU

USER WORKSHOP



- Meet the developers
- Sharing of experiences and best practices with peer practitioners
- Interactively explore how to use and adopt the DRIVER+ products for your own purposes

17th OCTOBER 2019 IN BRUSSELS
(Travel costs can be reimbursed upon request)

CONCLUSION AND OUTLOOK

WHAT WE LEARNED AND WHAT'S NEXT?

- Integration of **standardization work as early as possible** in the project
 - supports the project implementation
 - gives the opportunity to influence upcoming research and innovation activities
- Development of standards such as **CEN Workshop Agreements**
 - to easily integrate the relevant stakeholders in a consensus building process and thus to transfer research results into a standard
 - especially in complex fields such as urban resilience (> stakeholders)
- Promoting the **success examples** from e.g. SMR and DRIVER+ and their developed standards
 - are key to raise awareness and to support this approach of linking effectively standardization with research and innovation
 - to other resilience and crisis management stakeholders (e.g. European cities) is needed to support the uptake of these standards
 - should be supported by the European Commission for sustainability and further uptake

QUESTIONS?

THANK YOU FOR YOUR ATTENTION



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René Lindner
DIN e. V.
rene.lindner@din.de



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