



# LESSONS LEARNED ON STANDARDIZATION IN THE SMR PROJECT

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## Introduction

The SMR project was a Horizon2020 project conducted between June 2015 and June 2018 with focussing on the development of various tools and a guideline to enhance city resilience. Because of its significant outcomes, SMR was marked as a success story by the REA, the Research Executive Agency of the European Commission. One of the reasons for achieving this level of success was the effective and fruitful integration of standardization activities within the project lifetime.

The project had dedicated one work package to address all standardization related aspects of the project, i.e. the analysis of project relevant existing standards and standardization activities, the identification of standardization potential of project results and based on these the initiation of new standardization activities. This work package was led by DIN, the German Institute for Standardization. The main outcome of this work has been the standards series CWA<sup>1</sup> 17300 on *City Resilience Development*, consisting of

- CWA 17300 City Resilience Development – Operational Guidance (as overarching document),
- CWA 17301 City Resilience Development – Maturity Model, and
- CWA 17302 City Resilience Development – Information Portal<sup>2</sup>.

This document summarizes the lessons learned of the integration of standardization activities within the SMR project, mainly to reflect the related activities conducted and to support future research and innovation projects with providing respective recommendations. The information that follows was collected by a survey with project partners and external partners involved in the development of the standards<sup>3</sup> as well as by the reflection of the DIN staff involved in the project.

## Revision of standardization activities conducted in the SMR project

In the beginning of the project and the development of the standards the knowledge on standardization was in general quite low among the involved organizations. This is not unusual as integrating standardization in research and innovation projects is just increasing the last years. However, this mostly low knowledge urges the consortia to get sufficient information and support on the envisaged and conducted standardization activities throughout the whole project. The results of the study have shown that the amount of knowledge has been significantly increased from 5% to almost 50% after having finalized the project<sup>4</sup>. This was enabled by continuous awareness raising on the envisaged SMR standardization activities and its related processes as well as the pro-active participation of the standardization organization within the consortia meetings.

One success factor of the standards development in SMR was the involvement of all project partners as well as external partners. The survey asked the involved persons on their reasons for participating in the CWA development and it resulted that most of them have seen the importance (e.g. dissemination and exploitation possibilities) of the tools described in the standards, were general interested in the topic of city resilience or wanted to be part in standards development on this topic.

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<sup>1</sup> CEN Workshop Agreement (CWA), for more information: <https://www.cen.eu/work/products/CWA/Pages/default.aspx>

<sup>2</sup> The standards series can be downloaded for free on: <https://www.cencenelec.eu/research/CWA/Pages/default.aspx>

<sup>3</sup> The survey was in total answered by 21 persons that were involved in the standardization activities of SMR.

<sup>4</sup> Survey resulted that in the beginning of the project only 5% of the involved persons had good knowledge on standardization, in the end of the project 48% have rated their knowledge either very good or good.

During the first phase of the project an analysis of relevant existing standards and ongoing standardization activities was conducted. This resulted list has an outstanding importance to understand possible gaps in existing standards and to a develop project specific standardization roadmap. The project team had seen the essential benefits of having such an analysis mainly to get an increased awareness of the diversity of existing standards and to support the implementation of the project tasks and work packages, but also to identify standards of interest for their own work within their city or research. Especially the latter is important for future engagement of the consortia in standardization, resulting in strategic decisions on e.g. the uptake of the workshop chair.

In the second phase the standardization potential of the project results needed to be assessed. In this regard several criteria to evaluate the developed tools have been defined, of which 'filling the gap on existing standardization', the 'need of getting further input to the project results' and the 'transferability of the SMR solution into a standard' have been seen as most appropriate criteria. In general the overall methodology of the project (see figure below) was rated as suitable for the needs of the project. The methodology includes the comparison of the demand side, consisting of the specific needs of the cities regarding their resilience goals, and the supply side, consisting of the specific solutions developed in SMR as well as relevant existing standards with relation to city resilience. The outcome of the comparison is the identification of topics for new standards, of which the assessment of these topics, supported by the use of the above mentioned selection criteria, resulted in the development of the three standards, i.e. the CWA 17300 series.

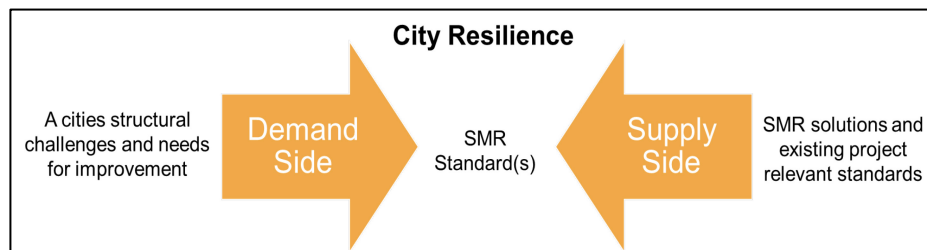


Figure 1 – Extract of the methodology for identifying the topics of the SMR Standards (CWAs)

Additionally the conduction of the European Workshop with other projects funded under the same or similar call was a success in order to share project results with externals, to consider other projects' outputs with the ones of SMR that were foreseen to be standardized as well as to identify possible project external contributors for the development of the standards.

Within the development of the CWAs the co-creation methodic and the mix of continuous virtual and physical meetings have been highlighted from more than  $\frac{3}{4}$  of the respondents as most appropriate. Especially the splitting into small groups has been rated from more than 90% as useful or very useful, mainly for supporting a common understanding on the respective topic. Also most of the Workshop members haven't seen a real difficulty working in a bigger group of experts and to find consensus on the content.

Since the CWAs are targeted to mainly cities, it was of great benefit to have several project external cities and stakeholders within the standards development involved. Thus it was possible to have a deep exchange on sharing others' experiences and good practices as well as to get to know other resilience approaches and to widen the own network.

After participating in the standardization activities of SMR the respondents of the survey summarized that they

- have a high willingness for future involvement in standards development (>75%),
- want to promote the standards in their own network (>70%),

- use the standards in their own city (>40%),
- consider standards more in future research and innovation activities (>80%),
- want to be more active in standardization with closer relationship to their standardization organization (>45%),
- wish to have standardization as essential part in research and innovation (>65%),
- see standardization as an appropriate tool to transfer research results into the market (>80%).

Specific lessons learned from the participating organizations were that

- the technical quality of standards and their reliability as well as their practical applicability in and by cities can be enhanced by starting from city-centric research and innovation activities as well as the engagement of project consortia in standardization processes,
- the availability of well defined standards could be a scientific basis for a robust definition of resilience policies,
- starting standardization work as early as possible in the project to establish the basis objectives and to have the opportunity to influence upcoming research and innovation activities as well as ongoing and forthcoming standardization activities adequately,
- the communication and dissemination of the CWAs to other European cities is needed to support the uptake of these standards,
- the European Commission should foster more the integration of standardization within R&I projects to support exploitation and prepare transferring research and innovation results to market effectively,
- the development of standards such as CWAs as part of a research project can enhance the information and uptake of project results, can intensify work on specific project results among partners with the potential inclusion of externals as well as can support the application and transfer of achieved research and innovation results,
- the role of the participating standardization organization as a guide and capacity developer is a key feature, ensured when the standardization organization has a technical understanding of the topic, an overview of relevant ongoing standardization processes and the accessibility to effectively link project activities into standardization.

Specific lessons learned from the involved staff of the standardization organization were that

- ensuring visibility and active involvement of the standardization organization during the whole project is crucial, e.g. by maintaining awareness and information of standardisation activities in the consortium updated and by having dedicated standardization sessions at meetings to link identified standards with project work,
- early involvement in content-developing WPs of the project is essential,
- making project partners "owners" of the standards – e.g. transparency when developing project plan for CWA among all project partners, ask for direct contributions, is crucial for the standards development,
- it is important to present the advantages of the chosen standardization option (e.g. CWA)
  - Organise events/fora for engaging externals in project specific standards development
  - Support the dissemination and exploitation
  - Mentioning of project partners and external organization involved in standard,
- the development of standards need continuously exchange with the involved project partners but also with the ones less involved to keep them on board and have them contributed when needed,

- consider sufficient resources (travels and time) for project partners for participation in standardization activities at international level, (ISO, IEC, ITU), European level (CEN, CENELEC, ETSI) and national level, and check usage of resources frequently,
- enough time for standards development to be considered; early but appropriate start of the standards development to allow for having the scope of the envisaged standard clearly defined,
- the basis for standards should be "ready" and "relevant" outputs of the project (e.g. innovative methods, instruments – i.e. systems and tools, product or service specifications),
- working with city representatives as key actors can ensure the integration of a variety of city stakeholders.

The above mentioned review of the standardization activities conducted in the project as well as the specific lessons learned from the participants in these activities and in specific the standards development are of high value for future integration of standardization in research and innovation projects. The following recommendations complement these and can be a support for both communities – the research and innovation on one hand and the standardization bodies on the other.

#### ***Recommendations to the research and innovation community***

- Consider standardization activities as a value and integral of your research and innovation activities
- Integrate the standardization organization/ activities already in an early step of the project and even in an early phase of the proposal development
- Highlight and understand the importance of cities to be involved – for definition of research needs and questions as well as as users of deliverables and results – make research city centered and city-lead
- Understand relevance of generation of project specific standardization road-map at early stage to guide and facilitate engagement respecting limited capacities
- Be transparent about what you envisage in terms of standardization and communicate it to project externals

#### ***Recommendations to standardization organizations***

- Ensure visibility of standardization body during the whole project duration
- Early involvement in content-developing WPs of the project
- Ensure that sufficient resources for project partners for standardization activities are allocated and check the usage of these resources frequently
- Development of standards need continuously exchange with the involved project partners but also with the ones less involved to keep them on board and have them contributed when needed
- Regular exchange with the European Commission (e.g. DG RTD/EASME) by the European Standardization Organizations (CEN/CENELEC) in regard of research and innovation projects with relevance to standardization in general

#### ***Recommendations to EC***

- Close cooperation with the standardization organizations to involve and encourage standardization in the "needed" topics
- Link to DG RTD Innovating for Cities and High Level Panel on 'Innovation for and with cities'
- Make standardisation a topic in project clusters of research and innovation projects