

## SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA18236

STSM title: Visiting Research Centre for BOLD (Big, Open and Linked Data)

Cities

STSM start and end date: 15/09/2021 to 24/09/2021

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### PURPOSE OF THE STSM:

(max.200 words)

My main aim and motivation for my research activities in Rotterdam are to work on the smart city based research questions which are in parallel with the objective of the multi-disciplinary innovations (MDI) for social change action (CA18236); "*how we can respond to social problems with a design-led approach*". Smart city technologies are also developed to solve social problems via technology use. The realized STSM is expected to contribute to respond to the following needs of the working groups:

1. (for WG2): to determine what we should teach in the future
2. (for WG3): to undertake a review of appropriate key thematic social challenges to be addressed
3. (for WG4): to focus on inclusion and diversity of dynamic innovation processes for social change in Europe

So, in-depth interviews with 6 experts were conducted:

1. to develop an understanding of smart cities as a teaching subject by Higher Education Institutions,
2. to reveal the social challenges where smart city technologies attempt to solve,
3. to explore whether smart city technologies as dynamic innovation processes for social change are able to be socially inclusive.

### DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

In-depth interviews as qualitative research technique with the experts at the center for BOLD cities were conducted through a structured flow. Ms. Roos Kemna (communications officer at Erasmus Graduate School of Social Sciences and the Humanities) and Ms. Ada Noorlander (secretary at Erasmus Graduate School of Social Sciences and the Humanities (EGSH) / Bold Cities) have invited the experts to the interview and planned the schedule between 17th and 29th September 2021. Six experts from three different universities (Erasmus University, Delft University of Technology, and Leiden University) have accepted to be included in the research based on their voluntary participation. The experts had specializations on different aspects of smart cities: politics of the smart city, location analysis of activities, digital technologies in public administration, smart city applications in the domain of public safety management, urban data platforms, social and political contexts of design (please see Table 1).

Each interview took around one hour (an average of 59.66 minutes). At the beginning of each interview, the consent was obtained from the experts to record the meetings and all the interviews were transcribed at the end of the interviews.

The responses gathered through in-depth interviews were analyzed using “content analysis”. Three steps were followed to reveal the themes and concepts related to the smart city context. First, the recordings of each focus group were listened. Then, the transcripts of the records were read to identify and extract common concepts that are based on the theoretical framework that was identified by analyzing the transcripts .

At the end of the research, a meeting was done with Prof. Lieasbet van Zoonen to discuss the results of the interviews and the future collaborations. The results were analyzed based on the categories included in the interview flow.

**Table 1. Descriptives of the Experts**

No of the Expert	Title	Interview Date	Interview Duration	Research Interest in the field of	Affiliation
1	Associate Professor	17.09.2021	57'	politics of the smart city	Erasmus University
2	Assistant Professor	20.09.2021	66'	location analysis of activities	Delft University of Technology
3	Assistant Professor	20.09.2021	50'	digital technologies in public administration	Leiden University
4	PhD candidate	21.09.2021	60'	smart city applications in the domain of public safety management	Erasmus University
5	Lecturer (Dr.)	21.09.2021	61'	urban data platforms	Erasmus University
6	Assistant Professor	29.09.2021	64'	social and political contexts of design	Delft University of Technology

## **DESCRIPTION OF THE MAIN RESULTS OBTAINED**

The results are expected to contribute to the needs described for three working groups of the MDI for social change action.

Corresponding Result to the Need 1 (for WG2):

Based on all the responses, a comprehensive definition of smart cities can be done as:

“Smart cities are the cities focusing on solving the problems of all social groups of citizens by the use of information and communication technologies that refer to collect, store and process the data to produce innovative ideas, so contributing on citizens’ quality of life.”

As described by MDI for social change action, WG2 intends to fulfill the need of stablish knowledge alliances and exchange between HEIs and enterprises which aim to foster innovation in creating social change. In parallel with this need, the context of ‘smart city’ presents an environment of collaboration where technology firms develop IoT technologies together with HEIs to increase citizens’ quality of life.

Corresponding Result to the Need 2 (for WG3):

Based on the responses received at the end of the in-depth interviews, smart cities were designed to solve social problems by addressing to entire society in it to contribute the sustainability. However, they are limited with solving relatively easy and measurable problems such as traffic jams or water levels and they do not provide solutions for important social problems such as poverty or inequality.

On the other hand smart cities can be categorized whether they are designed to monitor and control or to solve citizens’ problems (as suggested by van Zoonen (2016) whether the purpose of smart cities is service or surveillance).

Corresponding Result to the Need 3 (for WG4):

All the experts had the same opinion about the existing difference among different social groups benefiting differently from smart city technologies. Smart city should be for everyone, and the main aim should be social inclusion. However, highly educated, and high-income citizens are also the ones who can afford new technologies. So, they benefit most from smart cities than do low socio-economic groups. Moreover, the second expert noticed the limitations of the datasets used by smart city designers. And claimed that some groups like elderly who do not exist for example on social media become invisible in the dataset. So, they are excluded from the data on which smart city technologies are designed. Another concern of the second expert together with the forth expert, about the adoption of smart city technologies was also about the mental health in addition to the physical health. It was also noticed that sometimes, the population of cities are changing when they become smart. So, the people who are expected to adopt the technology leave these cities. One of the possible reasons for this difference was explained by the sixth expert. He stated that when a city is ranked higher in the world, richer people come to buy the properties, and then their prices go up and people are priced out of the market and the real people of the city can no longer live in it.

#### **FUTURE COLLABORATIONS (if applicable)**

At the end of the qualitative research, a meeting was done with Prof. Liesbet van Zoonen, the academic director of the Centre for BOLD Cities, and complementary research designs were formulated.

1. An extension of the qualitative research including more interviews with BOLD City members was planned to enrich the current report which will be turned into a working paper for the Centre for BOLD cities.
2. Complementary quantitative research designs were discussed in order to test the results in different case studies, such as micro-mobility systems and parking applications.
3. A newly developed coast cleaning robots which is not an individual technology project has been considered as an alternative case study about smart city technology adoption.
4. The University of Twente was also visited and a meeting was done with Prof. Jörg Henseler for the application of Partial Least Squares-Path Modeling (PLS-PM) in quantitative research designs.
5. Further meetings are intended to conduct with international offices of Erasmus University and University of Twente in order to develop Erasmus+ projects.