

# **Smart City Initiatives: Factors Influencing Stakeholder Involvement**

---

Master Thesis submitted in fulfillment of the Degree

Master of Science

In International Tourism Management

Submitted to Dr. Lidija Lalicic

Maruša Grobelnik

1211064

Vienna, 7 June 2017



## AFFIDAVIT

I hereby affirm that this Master's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

7. 6. 2017

---

Date

Haruša Grobelnik

---

Signature



## **ABSTRACT**

Smart city initiatives have in the recent years been launched in various European cities. For these initiatives to be successfully implemented, various stakeholders need to participate as well as engage in innovative networks. However, in research there is a lack in understanding the factors that influence stakeholders' engagements, in particular in smart city initiatives.

Therefore, the aim of this study is to analyze the factors that determine if and how stakeholders involve and engage in projects stemming from smart city initiatives and what factors contribute to successful stakeholder collaboration. The participating stakeholders of the smart city initiative Maribor (Slovenia) were questioned in the form of semi-structured interviews. By identifying these factors, the thesis is able to provide recommendations for project initiators on how to attract and engage essential stakeholders, subsequently leading to successful initiatives. Furthermore, the study provides insights into how to steer stakeholders' collaboration behavior.



## **ACKNOWLEDGEMENTS**

Firstly, I would like to thank my supervisor, Dr. Lidija Lalicic, for the feedback, help and for always responding to my e-mails. I also want to thank my family, friends and my husband, Nejc, for all the support and patience during my studies. Lastly, my thanks go to the stakeholders of the smart city initiative Maribor who took the time and participated in my study.





# TABLE OF CONTENTS

<b>AFFIDAVIT .....</b>	<b>I</b>
<b>ABSTRACT.....</b>	<b>III</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>V</b>
<b>LIST OF FIGURES .....</b>	<b>X</b>
<b>1 INTRODUCTION .....</b>	<b>1</b>
1.1 BACKGROUND INFORMATION.....	1
1.2. STUDY OBJECTIVES.....	2
<b>2 LITERATURE REVIEW .....</b>	<b>3</b>
2.1 INTRODUCTION.....	3
2.2 SMART CITY CONCEPT .....	5
2.2.1 <i>Definitions of “smart city”</i> .....	5
2.2.2 <i>Working definition</i> .....	8
2.2.3 <i>Conceptual relatives of “smart city”</i> .....	9
2.2.4 <i>Dimensions of smart city</i> .....	10
2.3 STAKEHOLDER COLLABORATION.....	14
2.3.1 <i>Definition of a “stakeholder”</i> .....	14
2.3.2 <i>Stakeholder networks</i> .....	14
2.3.3 <i>Stakeholders and their roles in smart city initiatives</i> .....	16
2.3.4 <i>Definition of “collaboration”</i> .....	17
2.3.5 <i>Elements of stakeholder collaboration</i> .....	18
2.3.6 <i>Significance of stakeholder collaboration in smart city initiatives</i> .....	18
2.3.7 <i>Challenges of stakeholder collaboration</i> .....	19
2.3.8 <i>Motivation factors for stakeholder collaboration</i> .....	21
2.3.9 <i>Success factors influencing stakeholder collaboration</i> .....	24
<b>3 CASE STUDY MARIBOR .....</b>	<b>28</b>
3.1 INTRODUCTION OF MARIBOR AND SMART CITY INITIATIVE .....	28
3.2 DETAILED DESCRIPTION OF THE INITIATIVE .....	31
<b>4 METHODOLOGY .....</b>	<b>36</b>
4.1 DEFINITION OF THE METHOD.....	36
4.2 SAMPLE .....	37
4.3 DESIGN OF THE INTERVIEW .....	37
4.4 DATA COLLECTION PROCESS.....	39
4.5 METHOD FOR PRESENTATION OF RESULTS AND ANALYSIS .....	39
<b>5 RESULTS AND DISCUSSION .....</b>	<b>40</b>

5.1	MUNICIPALITY OF MARIBOR AND E-INSTITUTE .....	40
5.1.1	<i>Smart city initiative</i> .....	40
5.1.2	<i>Stakeholders</i> .....	41
5.1.3	<i>Stakeholder collaboration</i> .....	42
5.1.4	<i>Motivation factors</i> .....	43
5.1.5	<i>Success factors</i> .....	44
5.1.6	<i>Conclusion</i> .....	45
5.2	STAKEHOLDERS, WHO DO COLLABORATE .....	46
5.2.1	<i>Smart city initiative</i> .....	46
5.2.2	<i>Stakeholders</i> .....	47
5.2.3	<i>Stakeholder collaboration</i> .....	48
5.2.4	<i>Motivation factors</i> .....	48
5.2.5	<i>Success factors</i> .....	52
5.2.6	<i>Conclusion</i> .....	54
5.3	STAKEHOLDERS, WHO DO NOT COLLABORATE .....	55
5.3.1	<i>Smart city initiative</i> .....	55
5.3.2	<i>Stakeholder collaboration</i> .....	57
5.3.3	<i>Suggestions for the coordinator</i> .....	59
5.3.4	<i>Motivation factors</i> .....	59
5.3.5	<i>Success factors</i> .....	62
5.3.6	<i>Conclusion</i> .....	65
5.4	DISCUSSION .....	65
<b>6</b>	<b>CONCLUSION .....</b>	<b>74</b>
6.1	FINAL REMARKS.....	74
6.2	RECOMMENDATIONS .....	74
6.3	CONTRIBUTION TO THE KNOWLEDGE .....	75
6.4	LIMITATIONS OF THE STUDY AND FUTURE RESEARCH .....	75
<b>7</b>	<b>BIBLIOGRAPHY.....</b>	<b>77</b>
<b>8</b>	<b>APPENDICES.....</b>	<b>85</b>
8.1	APPENDIX A: INTERVIEW GUIDE.....	85
8.1.1	<i>Municipality and e-Institute</i> .....	85
8.1.2	<i>Stakeholders, who do collaborate</i> .....	86
8.1.3	<i>Stakeholders, who do not collaborate</i> .....	87
8.2	APPENDIX B: INTERVIEW TRANSCRIPTS.....	89
8.2.1	<i>Municipality and e-Institute</i> .....	89
8.2.2	<i>Stakeholders, who do collaborate</i> .....	92
8.2.3	<i>Stakeholders, who do not collaborate</i> .....	106

## LIST OF TABLES

TABLE 1: "SMART CITY" DEFINITIONS.....	7
TABLE 2: TERMS RELATED TO "SMART CITY" .....	9
TABLE 3: "SMART CITY" DIMENSIONS .....	11
TABLE 4: MOTIVATION FACTORS PROPOSED BY THE MUNICIPALITY OF MARIBOR AND E-INSTITUTE.....	44
TABLE 5: SUCCESS FACTORS PROPOSED BY THE MUNICIPALITY OF MARIBOR AND E-INSTITUTE.....	45
TABLE 6: MOTIVATION FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO COLLABORATE.....	51
TABLE 7: SUCCESS FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO COLLABORATE .....	54
TABLE 8: MOTIVATION FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO NOT COLLABORATE.....	62
TABLE 9: SUCCESS FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO NOT COLLABORATE .....	65
TABLE 10: MOTIVATION FACTORS FOR COLLABORATION.....	68
TABLE 11: SUCCESS FACTORS FOR COLLABORATION.....	70

## LIST OF FIGURES

FIGURE 1: PERCENTAGE OF WORLDWIDE URBAN POPULATION (TOPPETA, 2010) .....	3
FIGURE 2: TRIPLE HELIX MODEL .....	16
FIGURE 3: GEOGRAPHICAL LOCATION OF MARIBOR (GOOGLE, N.D.) .....	28
FIGURE 4: MARIBOR TODAY (LEVA, N.D.) .....	31
FIGURE 5: THE STRUCTURE OF THE SMART CITY INITIATIVE MARIBOR.....	32
FIGURE 6: BENCHMARKING MARIBOR VS. LUXEMBOURG (GIFFINGER ET AL., 2014).....	33

# 1 INTRODUCTION

## 1.1 Background information

In the recent years, smart city initiatives have increasingly been launched in various European cities. For these initiatives to be successfully implemented, various stakeholders need to participate as well as engage in innovative networks. Many researchers support the above-mentioned statement in their papers. According to Auci and Mundula (2012, p.5) “smart cities can solve social problems [...] by listening and by involving various local actors including citizens, businesses and associations”. Nam and Pardo (2011, p.283) suggest that “IT infrastructure and applications are prerequisites, but without real engagement and willingness to collaborate and cooperate between public institutions, private sector, voluntary organizations, schools and citizens there is no smart city”. Therefore, according to Buhalis et al (2015, p. 393) the creation of social capital is a fundamental construct of a smart city and collaboration and cooperation are at the forefront of this. Apart from the research, smart city initiatives that have been successfully implemented emphasize the importance of the collaboration of the stakeholders in initiatives. There are various significant examples visualizing this. For example, smart City Helsinki implies that smart cities majorly depend on the collaborations between stakeholders (Buhalis et al., 2015). Analysis of the smart city Barcelona revealed that: “cities need to proactively engage and collaborate with public and private organizations as well as knowledge institutions” (Bakici et al., 2012). The research that has been done on stakeholders is mainly including the stakeholder theory that does not give answers to why different stakeholders do or do not collaborate (Beritelli, 2011). Moreover, Beritelli (2011) suggests that if stakeholders are simply brought together this will not necessarily lead to cooperation between them.

However, in research there is a lack in understanding the factors that influence stakeholders’ engagements, in particular in smart city initiatives. According to Nam and Pardo (2011) limited research has been done on the success factors of smart city initiatives. The authors suggest future research should focus on the dynamics of stakeholders participating in the smart city initiatives. Suyata et al. (2016) believe that limited research has been done on the managerial implications of the smart city initiatives. Moreover, examination of the implications could provide a better understanding of the smart city initiatives (Suyata et al., 2016). In addition, Ma-

yansari and Novani (2015) imply that further research should gain an insight into the stakeholders' perspective of the collaboration in the smart city initiatives.

## **1.2. Study Objectives**

Based upon the preceding discussion, this study has a central research question:

*Which factors play a crucial role for stakeholders to engage and subsequently collaborate in smart city initiatives and what factors contribute to successful collaboration?*

The aim of this master thesis is to find out in general what engages stakeholders in these smart initiatives. But, also whether there are other factors that play an important role for stakeholders to engage. Furthermore, the purpose of this thesis is to provide recommendations for project initiators on how to attract, engage and steer essential stakeholders of the smart city initiatives in order to achieve to successful initiatives. Also, given the lack of research related to stakeholder collaboration in smart city initiatives, the thesis also aims to enhance the understanding of smart city collaboration synergies and fruitful outcomes.

First, an overview of the literature is provided discussing the relevant topics for this thesis, including smart cities, stakeholders, significance for stakeholder collaboration, challenges of stakeholder collaboration and lastly, the motivation and success factors of stakeholder collaboration. Next chapter elaborates on the methodology used in this thesis. Therefore, the concept of qualitative research is defined, followed by the presentation of the sample, description of the design of the interview and data collection process and overview of the method for presentation of results and analysis. Third chapter of this thesis provides an introduction to Maribor today, briefly discusses the history of the city, elaborates on the current pressing problems that the city is facing and gives a detailed description of the smart city initiative Maribor. Results and discussion chapter presents the empirical findings of the three types of interviews conducted with the municipality of Maribor and e-Institute, stakeholders, who do collaborate in the initiative and the stakeholders, who do not collaborate in the initiative. The second part of the chapter discusses and analyses the empirical findings and connects them to the literature. Lastly, the conclusion chapter provides an overview of the thesis, answers the research question and elaborates on limitations and further research.

## 2 LITERATURE REVIEW

The first part of the literature review explains how smart city is defined, informs which are the terms that are often used interchangeably with the term smart city, discusses the dimensions of a smart city and briefly describes the idea of smart city initiative. The second part of the literature chapter defines stakeholders, provides an overview of the stakeholder roles in a smart city initiative and explains elements of stakeholder collaboration. Further, the significance of stakeholder collaboration in smart cities as well as challenges of stakeholder collaboration are discussed. At the end of the chapter motivation and success factors of stakeholder collaboration are elaborated upon.

### 2.1 Introduction

According to the United Nations Report (2011) more than 50% (or 3.3 billion) of people worldwide live in cities (see Figure 1).

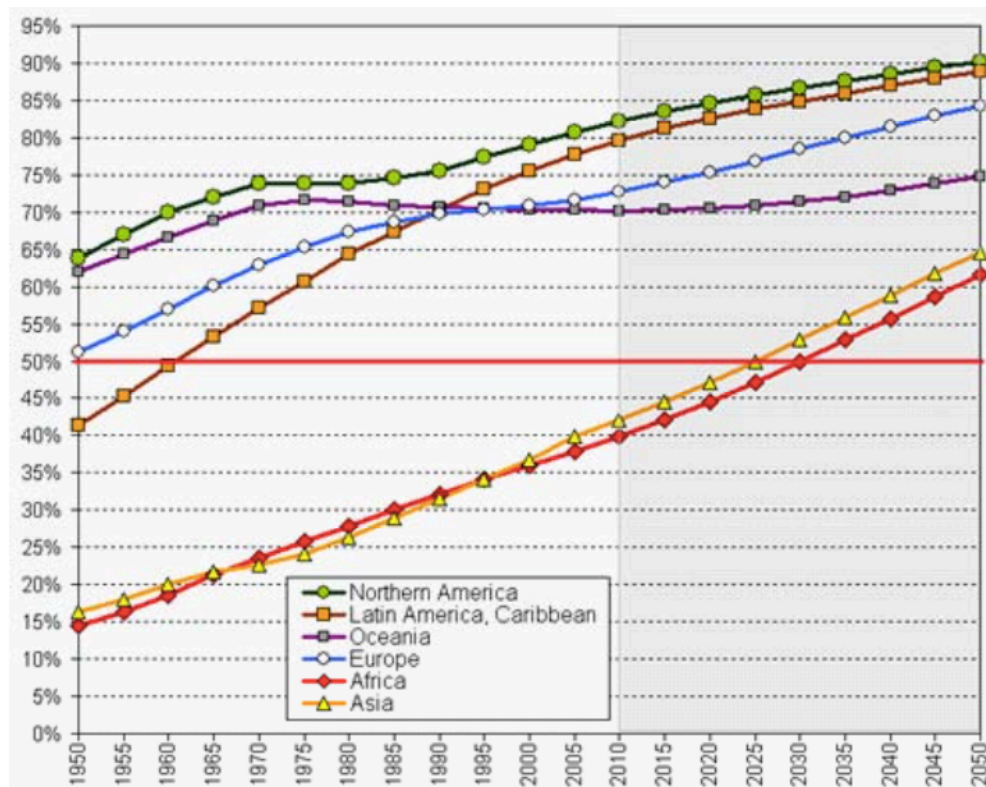


FIGURE 1: PERCENTAGE OF WORLDWIDE URBAN POPULATION (TOPPETA, 2010)

EU Parliament (2014) gathered the data suggesting the yearly growth of the population in cities is reaching 60 million. Additionally, the forecasts show that by 2030 6 out of 10 people will

live in a city, reaching 5 billion of the whole world's population (EU Parliament, 2014). By 2050 this number will reach 7 out of 10 people (EU Parliament, 2014) or 6.4 billion (Toppeta, 2010) and at the same time the number of people living in cities will double (World Health Organization, 2013).

As a result, today cities are perceived as complex systems, given their fast expansion of the size. However, this occurrence leads to the increasing amount of challenges cities are confronted with. For example, according to Toppeta (2010) 71% of the world's green house gas emissions are produced solely in cities. Other pollution examples provided in the literature are smog events, particulate air pollution (Washburn et al., 2010) and noise and water pollution. Washburn et al. (2010) mention scarcity of resources (and services) as one of the biggest urbanization problems. These include limitations of energy, healthcare, housing as well as water (Washburn et al., 2010). Studies have shown that cities consume 60% of the water that has been allocated for domestic use (Toppeta, 2010). This number is expected to increase by 25% by 2030 (Washburn et al., 2010). Moreover, concerns related to health, traffic congestion, waste management, unemployment (Nam & Pardo, 2011), overcrowding, environmental protection (EU Parliament, 2014), poverty, poor security and poor infrastructure have been raised (Mitchell, 2007; Toppeta, 2010; Washburn et al., 2010).

This great amount of challenges has forced academia as well as industry to consider new management strategies. In particular, a focus on enhancing collaboration, sharing resources and making optimal use of a city's network. A recently proposed solution is the "smart" approach in connection to cities, to integrate these various components. The next section will introduce this new paradigm in more details.



## 2.2 Smart city concept

### 2.2.1 Definitions of “smart city”

The term “smart” is used when talking about different kinds of developments in relation to new technologies such as big data or open data, which lead to improved connectivity and exchange of information between stakeholders. Recently, the idea of smartness has been increasingly connected to the context of cities. The phrase “smart city” represents a concept where technologies are used in an innovative way in order to reach resource optimization, effective and trustworthy governance, sustainability and high quality of life (Gretzel et al., 2015).

The expression “smart city” initially appeared in the 1990s, when the main association of the term was new Information and Communication Technologies (ICT) in connection with the modern infrastructure in a city. The California Institute for Smart Communities was the initiator in providing ideas about how communities could evolve into smart communities. Additionally, the institute was occupied with the notion of how to best design cities for the effective use of ICT (Alawadhi et al., 2011). Shortly thereafter, the concept of smart cities has been denounced of overly focusing on the technology. In the beginning of the 21<sup>st</sup> century, academia majorly criticized the term “smart city” as being used as an “urban label”. The problems stemming from the smart city urban labeling include: inability to separate the term “smart city” from the other similar concepts such as “intelligent city”; the excessive use of the term for marketing purposes (image is not reality) and the lack of criticism of urban development. The academics have, however, in the recent years demanded that the “real smart cities” come forward and address all positive and negative sides of a true smart city (Hollands, 2008).

The literature suggests numerous “smart city” definitions, however, there is not one definition that has been agreed upon by researchers (Albino et al., 2015). Moreover, the many definitions are ambiguous and inconsistent (Nam & Pardo, 2011). EU Parliament (2014) suggests that there exists a flood of definitions because the smart city concept is still very new, continuously evolving and broad concept. Further, it is proposed that no cities are the same, meaning they all have different characteristics, past and future. Additionally, smart cities are formed by their own policies, objectives, economic and social factors, mix of technology, governance and businesses (EU Parliament, 2014). Table 1 presents some definitions of “smart city” that have been proposed by various authors.

Definition	Author
A city that monitors and integrates conditions of all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to citizens.	Hall (2000)
A city well performing in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of endowments and activities of self-decisive, independent and aware citizens. Smart city generally refers to the research and identification of intelligent solutions, which allow modern cities to enhance the quality of the services provided to citizens.	Giffinger et al. (2007)
Smart community- a community which makes a conscious decision to aggressively deploy technology as a catalyst to solving its social and business needs- will undoubtedly focus on building its high-speed broadband infrastructures, but the real opportunity is in rebuilding and renewing a sense of place, and in the process a sense of civic pride. Smart communities are not, at their core, exercises in the deployment and use of technology, but in the promotion of economic development, job growth, and an increased quality of life. In other words, technological propagation of smart communities isn't an end in itself, but only a means to reinventing cities for new economy and society with clear and compelling community benefit.	Eger (2009)
A city connecting the physical infrastructure, the IT infrastructure, the social infrastructure, and the business infrastructure to leverage the collective intelligence of the city.	Harrison et al. (2010)
The use of Smart Computing technologies to make the critical infrastructure components and services of a city- which include city administration, education, healthcare, public safety, real estate, transportation, and utilities- more intelligent, interconnected, and efficient.	Washburn et al. (2010)
A city is smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.	Caragliu et al. (2011)

Smart cities of the future will need sustainable urban development **policies** where all residents, including the poor, can live well and the attraction of the towns and cities is preserved. Smart cities are cities that have a **high quality of life**; those that pursue sustainable **economic development** through investments in human and social capital, and traditional and modern communications infrastructure (**transport and information communication technology**); and manage natural resources through participatory policies. Smart cities should also be **sustainable**, converging economic, social and environmental goals.

Thuzar (2011)

A smart city **infuses information into its physical infrastructure** to improve conveniences, facilitate mobility, add efficiencies, conserve energy, improve the quality of air and water, identify problems and fix them quickly, recover rapidly from disasters, collect data to make better decisions, deploy resources effectively, and share data to enable collaboration across entities and domains. Two main streams of research ideas: 1) smart cities should do everything related to **governance and economy** using new thinking paradigms and 2) smart cities are all about networks of sensors, smart devices, real-time data, and **ICT** integration in every aspect of human life.

Nam and Pardo (2011)

Cretu (2012)

Smart cities are also instruments for improving **competitiveness** in such a way that **community and quality of life** are enhanced.

Batty et al. (2012)

The application of **ICT** with their effects on **human capital/education, social** and relational capital, and **environmental** issues is often indicated by the notion of smart city.

Lombardi et al. (2012)

Smart city is a high-tech intensive and advanced city that connects people, information and city elements using new **technologies** in order to create a **sustainable, greener city, competitive and innovative** commerce, and an **increased life quality**.

Bakici et al. (2012)

TABLE 1: "SMART CITY" DEFINITIONS

Thus, based upon Table 1, smart city definitions can in general be divided into two main groups. First, various authors emphasize the importance of information and communication technologies (ICT) in smart cities. For example, according to Cretu (2012) the core idea behind smart cities is to integrate ICTs into citizens' everyday life. Harrison et al. (2010) propose that city's operational efficiency and quality of life of its citizens can be enhanced through new technologies. Also, Dirks and Keeling (2009) explain in their IBM report that cities should be-

come digitalized, interconnected and intelligent with the help of new technologies in order to efficiently and effectively reach own set goals. Hall (2000) suggests that self-monitoring and self-response systems are the main processes of a smart city. Additionally, Graham (2002) is convinced that ICTs are the fundamental element of an economic development of a city, leading to social and spatial impacts. Furthermore, according to the EU Parliament (2014, p. 28) ICT leads to: “smart data, organizations, information and people; redesign of relationships between government, private sector, non-profits, communities and citizens; synergies and interoperability within and across-city policy domains and systems (e.g. transportation, energy, education, health care) and innovation”.

The second group of researchers also stresses the importance of factors that tend to be oriented more toward the society and people. Nam and Pardo (2011), for example, prioritize that a smart city needs to include knowledge workforce, collaborative spaces, innovation and social capital. Also, Lombardi et al. (2012) promote the importance of human and social capital, innovation, relationships and inter-connections within a smart city. Caragliu et al. (2011, p. 11) include factors such as “human capital/education, social and relational capital and environmental interest”. “The EU Parliament (2014, p. 44) furthermore highlights the role of sustainability, quality of life and urban welfare created through social participation as an essential part of the smart city concept. Also, Batty et al. (2012) propose that every smart city should set the quality of life of its citizens as a main goal. Thuzar (2011) stresses the role of education, learning and knowledge are pivotal for a smart city. Moreover, Berry and Glaeser (2005) demonstrate a relation between human capital and the development of a city. As they state, in case there is a high share of educated human capital, there is a faster urban development (Berry & Glaeser, 2005). Similarly, Coe et al. (2001, p. 13) are convinced that economic growth in a smart city “is not possible outside of development of smart communities- communities that have learned how to learn, adapt and innovate”. As various authors state, social capital is also indispensable for stakeholder participation in a smart city. Citizens need to be able to exploit and understand the ICTs first, only then the technologies can improve their lives. In the end, the collaboration of urban communities and not wires lead to smart communities. Furthermore, the above-mentioned factors seem to be equally if not more fundamental for a smart city than ICTs (Hollands, 2008).

### **2.2.2 Working definition**

It is beyond the scope of this study to produce a definition of a smart city. Considering there does not exist one generally agreed upon definition of a smart city, this thesis refers to the

mostly cited definition in the literature, developed by Giffinger et al. (2007, p. 4): “A city well performing in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of endowments and activities of self-decisive, independent and aware citizens. Smart city generally refers to the research and identification of intelligent solutions, which allow modern cities to enhance the quality of the services provided to citizens”.

### 2.2.3 Conceptual relatives of “smart city”

Furthermore, popular terms related to the “smart city” that are also often used in practice additionally contribute to the utter confusion of the concept (Albino et al., 2015). The many urban labels are either used analogously to “smart city” or interchangeably, disregarding the fact that all of the terms have different meanings (Hollands, 2008). Mostly cited related terms in academic papers are presented in the Table 2. The terms, also known as conceptual relatives (Nam & Pardo, 2011), have the same roots as “smart city”, however, their definitions focus more on the specific elements of a city and are not as comprehensive of a concept as “smart city”. Therefore, many ideas of a “smart city” usually include the following related terms (Caragliu et al., 2009). However, the “smart city” concept has become a prevailing one at the city policy level, as well as in the EU and globally (EU Parliament, 2014).

Related terms	Authors
Intelligent city	Hollands, 2008; Komninos et al., 2013
Digital city	Ishida, 2002
Ubiquitous city	Lee et al., 2012
Virtual city	Albino et al., 2015
Wired city	Dutton, 1987
Creative city	Hall, 2000
Knowledge city	Dirks & Keeling, 2009
Smart community	Nam & Pardo, 2011

TABLE 2: TERMS RELATED TO “SMART CITY”

According to Komninos et al. (2013) “intelligent city” is the closest relative to the “smart city”. The main idea behind this label is the improvement of life and work of citizens with the help of ICTs. Moreover, the mentioned concept strives to support learning, technological development and innovation in cities (Komninos et al., 2013).

“Digital city” is according to Ishida (2002) “a connected community that combines broadband communications infrastructure to meet the needs of governments, citizens and businesses”. The aim of such a concept is virtual reconstruction of a city, meaning the urban environment is designed in a way that citizens can share information, collaborate and enjoy seamless experiences on every step and interoperability in a city. Additionally, digital city is not automatically intelligent, intelligent city, however, always includes digital components (Albino et al., 2015).

A “ubiquitous city” strives to provide its citizens access to services that they can reach anywhere and anytime. This can be done with the help of computer chips and sensors built into the city’s infrastructure (Lee et al., 2012).

“Virtual city” is comprised of two environments. One is the reality, including real citizens and physical objects; the second one is a cyberspace. The main concept of a “virtual city” is the amalgam of both environments (Albino et al., 2015).

Dutton (1987, p. 39) simply explained the idea of a “wired city” as the “laying down of cable and connectivity”.

In all of the above-mentioned concepts “people” component is not included to the degree it is in the “smart city” phenomenon (Korninos et al., 2013). However, there exist terms that majorly focus on people and are key drivers of “smart city”, namely “creative city”, “knowledge city” and “smart community” (Albino et al., 2015). As the name already suggests, the goal of the “creative city” is to provide an environment where citizens could develop creativity (Hall, 2000). Next, “knowledge city” strives to foster the knowledge of its people (Dirks & Keeling, 2009). Lastly, the core of the concept of “smart community” is to inspire citizens and institutions to work together in order to improve their environment and subsequently give citizens a feeling they are part of a community (Nam & Pardo, 2011). The next section will explain the various dimensions of a smart city.

#### **2.2.4 Dimensions of smart city**

It is agreed upon, that ICTs are an essential part of the idea of smartness, nonetheless, the foundation of the smart city concept is not solely sensors, networks or analytics (EU Parliament, 2014). Dirks and Keeling (2009) propose that smart cities should be perceived as large organic systems. This means that no one system in a city should function alone, separately from others. In addition, a city cannot become smart provided that each system (e.g. transportation, education, infrastructure) is being developed one at a time (Kantner & Litow, 2009).

Therefore, according to Kantner and Litow (2009), the smart city concept can also be explained as “interconnected system- as a network or a linked system”. Nevertheless, the review of the literature contributed to the understanding that many researchers perceive the idea of smart city as multi-dimensional (Albino et al., 2015). Thus, this further section provides an insight into different smart city dimensions proposed by academia. In addition, an overview of the various dimensions is presented in Table 3 below.

Dimensions	Author
Smart economy Smart mobility Smart environment Smart people Smart governance Smart living	Giffinger et al. (2007)
Technology Economic development Job growth Increased quality of life	Eger (2009)
People and communities Economy Built infrastructure Natural environment Governance Technology Policy Organization	Alawadhi et al. (2011)
Technology factors Human factors Institutional factors	Nam & Pardo (2011)
Leadership Human capital Entrepreneurship and Innovation Social capital Technology applications	Boes et al. (2015)
Social factors Management factors Economy factors Legal factors Technology factors Sustainability factors	Sujata et al. (2016)

TABLE 3: "SMART CITY" DIMENSIONS

The literature reviews of numerous dimensions suggested by researchers lead to the conclusion that there exist five main dimensions or characteristics that are common to most studies namely: *economy, social/human capital, governance, technology and environment*.

Economy is seen as the most motivating factor for smart cities. Economic growth is an indicator of how well the city is performing, especially when compared to the benchmark. Thus, initiatives foster smart economies that create environments for industrial and business development (Suyata et al., 2016, Boes et al., 2015), attract skilled workforce (Alawadhi et al., 2011), strive toward necessary change, control the power of corporations, ease the capital flow and encourage profit maximization (Suyata et al., 2016). Additionally, smart economy should have set strategic plans to prevail financial crisis (Alawadhi et al., 2011). Moreover, innovation and creativeness are perceived to be the foundation of a smart economy (Boes et al., 2015; Lombardi et al., 2012). The benefits that arise from implementation of the mentioned economy include new business and job creation, workforce development and increased productivity (Suyata et al., 2016). Giffinger et al. (2007) proposed 7 factors of this dimension, specifically innovative spirit, entrepreneurship, economic image and trademarks, productivity, flexibility of labour market, international embeddedness and ability to transform.

The next dimension presented is the one of social/human capital. Increasingly many researchers recognize this dimension as being the core of smart cities (Hollands, 2008; Nam & Pardo, 2011). Carley et al. (2001, p.) defined social capital as “the constructions of social relations and networks of trust and reciprocity. Therefore, the essence of social capital is collaboration and cooperation of stakeholders (Caragliu et al., 2011; Lombardi et al., 2012), that is public and private agencies, academics and citizens (Bakici et al., 2012). The participation in smart cities can be enhanced through the active promotion of the initiatives among the citizens (PWC, 2014). Furthermore, development of a smart city largely depends on the human capital (Berry & Glaeser, 2005). Well-developed human capital (EU Parliament, 2014) is created by enabling citizens access to knowledge (PWC, 2014), education (Nam & Pardo, 2011), social learning (Holland, 2008) and creative environments (Yigitcanlar & Velibeyoglu, 2008). All of these elements contribute to emergence of smart workforce that, with its smart solutions, solves many urban problems (Caragliu et al., 2009). Moreover, quality of life of citizens has recently become the key objective of smart cities. Also, academia has been increasingly including quality of life to the list of smart city components (Nam & Pardo, 2011). Lastly, the smart people dimension is defined by factors such as level of qualification, affinity to life long learning, social and ethnic plurality, flexibility, creativity, cosmopolitanism/open-mindedness and participation in public life (Giffinger et al., 2007).

The third dimension is governance, which is often also perceived as one of the biggest challenges of smart cities. Smart city initiatives propose a more efficient and effective form of gov-



ernance, namely e-governance (Albino et al., 2015). Citizen participation and private-public partnerships are the foundation of e-governance. This new form of government aims to enhance decision-making processes, public-policy making and public governance with the help of ICT. Apart from improved democratic procedures, ICT also enables citizens to easier communicate with the government and access information in a more simple and quick way. Governments, councils and other political institutions are essential for the development of smart cities. The influence of these bodies can either lead to success or failure of the efforts of the initiatives. Therefore, it is necessary that political and legal institutions write law and make policies that support city's growth and development. It is imperative that laws and policies adapt to technical and non-technical matters, also, innovation in policy making is crucial (Suyata et al., 2016). Additionally, Giffinger et al. (2007) suggested the following factors of the governance dimension: participation in decision-making, public and social services, transparent governance, political strategies and perspectives.

Fourth dimension is technology. As Suyata et al. (2016) state, a city cannot become smart without technology, especially ICT. According to Nam and Pardo (2011) new technologies change the way people live and work, improve city's economy, governance and mobility. Real-time decision making with the support of the technology can help predict, prevent and alleviate the many obstacles cities face. Furthermore, the service that governments provide for its citizens can be improved with ICTs, so that the communication between both parties is easier and more efficient (Alawadhi et al., 2011). Additionally, the implementation of ICT can boost sustainability and quality of life of citizens (Suyata et al., 2016).

The last dimension covers the environment. Smart environment dimension is in most studies associated with the sustainability of the natural environment. The goal of a smart city regarding the environmental sustainability should thus become energy, food and water preservation, water management, reduction of the green house gas emissions (Suyata et al., 2016) and protection of the environment (Alawadhi et al., 2011). Additionally, smart cities should become resilient to the environmental disasters (Suyata et al., 2016). Giffinger et al. (2007) determined seven factors of the environmental dimension: attractiveness of natural conditions, pollution, environmental protection and sustainable resource management. Suyata et al. (2016) also considered further sustainability dimensions. Looking at the economic sustainability dimension, smart cities should attract business and capital in order to reach a goal of economic stability. To improve the social sustainability and increase social inclusiveness cities have to in-

crease quality of life for its citizens, enable business opportunities and security and become more efficient and livable (Suyata et al., 2016).

It is implied that the above-mentioned factors are essential for understanding and developing smart cities. Moreover, if the factors are taken into consideration, smart city initiatives can be planned and implemented more effectively and efficiently, challenges of smart city initiatives can be identified and analysis of the effect of the factors on the smart city initiatives can be performed (Suyata et al., 2016). The next section will review literature related to the stakeholders' contribution and their commitment to the various dimensions previously discussed.

## **2.3 Stakeholder collaboration**

### **2.3.1 Definition of a “stakeholder”**

There are various definitions explaining the concept of a stakeholder in the literature (Mitchell et al., 1997). The most established one within academia is the definition proposed by Freeman, which has in the recent years become known as the classic definition of a stakeholder (Fassin, 2008). According to Freeman (1984, p. 46): *“a stakeholder in an organization is any group or individual who can affect or is affected by the achievement of the organisation’s objectives”*. Therefore, a stakeholder is someone with valid interest in the organisation’s activities (Donaldson & Preston, 1995), someone who can influence the organisation’s activities or someone with a share in the organization’s activities (Sauter & Leisen, 1999). The next section will explain the role of networks.

### **2.3.2 Stakeholder networks**

As stakeholders in a city often should work together or have synergies in their activities, naturally a network evolves. Merilinen and Lemmetyinen (2011, p. 26) define network as: *“an intentional strategic entity comprising a set of activities that are linked through business relationships, and that are carried out by more than two actors (companies or other organizations) using a variety of resources”*. The activity mentioned in the definition is according to Möller and Rajala (2007) such that it adds value to the business.

Traditional stakeholder theory implies that the relationships between stakeholders are independent and dyadic (Neville & Menguc, 2006). Moreover, traditional theory suggests that each stakeholder on its own competes to gain resources and attention (Frooman, 1999). Recent studies, however, suggest that stakeholder relationships are in fact intertwining and part of a

complex network (Rowley, 1997). Stakeholders in reality oftentimes interact, cooperate and form alliances with each other (Frooman, 1999). Furthermore, the identification of roles in a certain group of stakeholder shows the true complexity of relationships between stakeholders (Rowley, 1997). In the mid-nineties the term multi-stakeholder network has become increasingly popular. The mentioned network is perceived as an organizational structure. Moreover, in such a network stakeholder groups, such as businesses, governments or supranational institutions engage with each other with the aim to find a common solution by which everyone involved is affected and that cannot be addressed individually. Simply said, the issue cannot be tackled without stakeholders' collaboration. In addition, participation in a multi-stakeholder network is voluntary, purpose and activities are discussed and determined by everyone involved and partnership of stakeholders is perceived as a core element. There exist many different multi-stakeholder networks that completely depend on the situation. Nevertheless, they share some similar characteristics. The majority of multi-stakeholder networks are "tri-partite", including businesses, society and government. Further, most of these networks are initiated as a result of threatening issues or simply matters that stakeholders mutually want to address. It is proposed that smart city initiatives can be seen as a form of multi-stakeholder networks (Roloff, 2008).

In addition, Post et al. (2002) suggest that stakeholder connections in a network are not solely transactional, however, they are also relational. Moreover, Calton and Kurland (1996), discussed the idea of stakeholders' enabling and stakeholder management. Following the post-modern theory, the authors suggest that stakeholder networks should rather be enabled instead of managed. It has been argued that the notion of management is always connected with the hierarchy of the relationships, meaning managers/organizers are more powerful than others. However, when it comes to enabling, everyone in the relationship shares the power, no-one is above the other, hence a flatter hierarchy exists. Thus, all the stakeholders need to generally agree in order to reach an aim (Calton & Kurland, 1996).

Similarly, when considering a city as a network of stakeholders, Andersen and Nielsen (2009) propose empowerment of stakeholders. The city, as the only party with power, with static and dyadic relationships between government and stakeholders is passé (Andersen & Nielsen, 2009). Rather, according to Neville and Menguc (2006) city networks are perceived as webs of interdependencies, emergent formations, such as strategic alliances and social partnerships and infinite relationships.

### 2.3.3 Stakeholders and their roles in smart city initiatives

Triple Helix model suggests the main stakeholders in a smart city identified are *university, industry and government* (see Figure 2). Moreover, they all with their different, nevertheless important roles largely contribute to the success of smart city initiatives (Leydesdorf & Deakin, 2011).

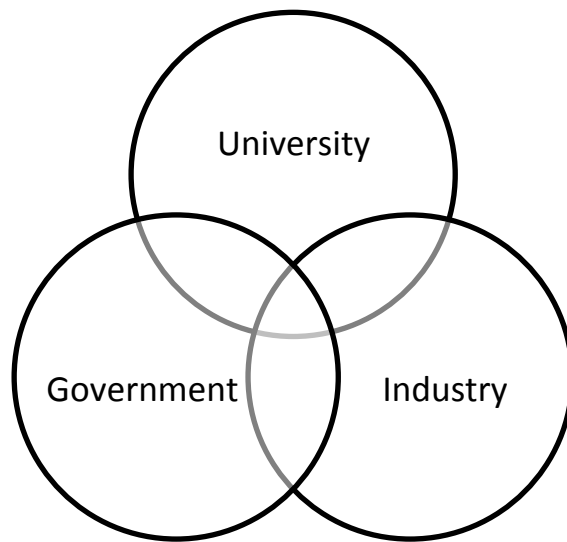


FIGURE 2: TRIPLE HELIX MODEL

The city government or municipality is seen in many European cities as the initiator of smart city initiatives (Andersson & Pierce, 2017) and thus, usually steps in to the shoes of a project coordinator. Further, the municipality connects other stakeholders, encourages and promotes the co-creation and oversees that all of them have the same vision regarding the initiative. Moreover, supporting stakeholders, executing strategies and making decisions is also a job of the city government (Dameri & Rosenthal-Sabroux, 2014).

Industry largely contributes to the new knowledge or technological proficiency needed for the development of a smart city. Additionally, by being innovative, businesses majorly help the cities' economy grow. Furthermore, industry in some cases provides financial support for the municipalities (Cooke & De Propriis, 2011).

The university is essential for smart city initiatives as it provides intellectual capital (Leydesdorf & Deakin, 2011), such as expertise and knowledge (Baccarne et al., 2014). Additionally, the academic community supports smart city initiatives with the research on technical, policy or even business matters (Baccarne et al., 2014).

Other researchers (e.g. Lombardi et al., 2012) imply that the triple helix model should actually be called quadruple helix model due to the fact that citizen collaboration is also crucial for successful smart city initiatives. However, for the purpose of this thesis only the above-mentioned stakeholders are considered. The next section will explain the definition of collaboration between those entities in more details.

#### **2.3.4 Definition of “collaboration”**

There are many definitions of stakeholder collaboration, due to the ever complex and changing business environment (Franco, 2008). The definition of collaboration as proposed by Gray (1989, p.5) is described as: “a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible”. Moreover, Martinez-Moyano (2006) suggests that stakeholders who form collaboration are focused on reaching common goals by means of general agreement, shared knowledge and information. Also, Kozar (2010) adds a notion to the above definition refers to the fact that stakeholders are collaborating mutually and under coordination. Lastly, availability of time, resources and leadership are the main reasons for the intensity of collaborative efforts among partners (Byrd, 2007).

Additionally, there exist various terms that are used reciprocally to the word collaboration. The terms that are most commonly used are coordination, cooperation and teamwork. Coordination and cooperation are by some authors defined as components of collaboration. Stakeholders that choose to cooperate do this either to share an investment risk or to reach a common goal that otherwise would not be as easily reachable. Stakeholders who form cooperation, however, strive to achieve a goal for the lowest possible expense (Gulati et al., 2012).

Furthermore, collaboration has many different forms. The most referred ones are partnership, strategic or business alliance and also coalition and cooperative agreement (Albrecht, 2013). In a partnership, entities from the same or different industry are striving towards reaching a set goal (Gursoy et al., 2015). Similarly, a strategic alliance is established by businesses in the interest of sharing and exchanging resources and to subsequently develop new products, services and technologies (Gulati, 1998). According to Franco (2008), the form of the collaboration contingents upon the goal that stakeholders want to achieve, such as develop a shared vision or stay competitive. The next section will explain more about the elements of stakeholder collaboration.

### 2.3.5 Elements of stakeholder collaboration

Roberts and Bradley (1991) determined five elements of stakeholder collaboration. The first element, called *transmutational purpose*, which suggests that stakeholders work together mutually and want to achieve a set common goal, such as a new product development. The next element, *explicit and voluntary membership*, indicates that partners collaborate out of free will. They have to be aware of who the other partners are and to what degree they are involved into the collaboration. The third element of stakeholder collaboration is *organization*. It refers to the fact that collaboration needs some planning, coordination, shared decision-making as well as decided upon norms and rules. This is due to the intricate and manifold nature of collaboration. The fourth element is an *interactive process*. It proposes that collaboration should be a subject of a constant re-examination and re-evaluation considering the previously mentioned fact that stakeholder collaboration is very complex. Lastly, the fifth element specifies collaboration as a *temporal property*. This further means that when the common goals are reached, collaboration between the stakeholders ends. In case that this partnership becomes a long term one, it cannot be referred to as collaboration no more (Roberts & Bradley, 1991).

### 2.3.6 Significance of stakeholder collaboration in smart city initiatives

Various stakeholders need to participate as well as engage in innovative networks in order for smart city initiatives to be successfully implemented (Ojo et al., 2014). Collaboration of different private and public organizations, local businesses and universities can enable smart city initiatives overcome current and future urbanization problems (Breuer et al., 2014). Furthermore, participation of stakeholders can contribute to an accessible, information based, interactive and participatory climate of a city (Baccarne et al., 2014). Many studies done on the topic support the above-mentioned statement. According to Auci and Mundula (2012, p. 9): “smart cities can solve social problems [...] by listening and by involving various local actors including citizens, businesses and associations”. Furthermore, Lindskog (2004, p. 15) implies that “IT infrastructure and applications are prerequisites, but without real engagement and willingness to collaborate and cooperate between public institutions, private sector, voluntary organizations, schools and citizens there is no smart city”. Moreover, Buhalis et al. (2015, p. 397) propose that “the creation of social capital is a fundamental construct of a smart city and collaboration and cooperation are at the forefront of this”. Also, Baccarne et al. (2014, p. 178) reiterate that: “[...] collaboration is central in smart cities, not all projects involve all the actors, policy, research, citizens and private partners, in the city. Especially the lack of involvement of

private partners and possible business models forecloses the long-term sustainability and economic value creation of smart city projects”.

Apart from the researchers, smart city initiatives that have been successfully implemented emphasize the importance of the collaboration of the stakeholders in initiatives. There exist various significant examples visualizing this. The smart city of Helsinki, for example, indicates that smart cities majorly depend on the collaborations between stakeholders (Schaffers et al., 2012). Moreover, stakeholder collaboration is a key driver of the innovation in Helsinki (Forum Virium Helsinki, 2014). Furthermore, the analysis of the smart city of Barcelona revealed that: “cities need to proactively engage and collaborate with public and private organizations as well as knowledge institutions in order to run the smart city model successfully” (Bakici et al., 2012, p. 13). Lastly, Amsterdam is also known as a successful smart city, however, this would not be the case without the collaboration, connection (Dameri, 2014), co-creation and co-development (EU Parliament, 2014) of public and private agencies, academics and even citizens (Buhalis et al., 2015). However, also challenges are identified when stakeholders collaborate, the next section will explain this.

### **2.3.7 Challenges of stakeholder collaboration**

Despite the fact that collaboration plays the key role for successful implementation of smart city initiatives, it is still in many smart cities, difficult to achieve. Various researchers have reported about stakeholder collaboration as being one of the main challenges of smart city initiatives. A study conducted by Andersson and Pierce (2017), for example, identified collaboration as the greatest challenge of the non-technical challenges category among 25 mid-sized European cities. In these smart cities exists a lack of both, external and internal (departments in a municipality) stakeholder collaboration. Therefore, the authors propose that it is essential for smart city initiatives to organize networks for stakeholder collaboration as early and carefully as possible (Andersson & Pierce, 2017). Additionally, Breuer et al. (2014) imply that one of the difficulties of smart city platforms is the collaboration between diverse stakeholders. Moreover, the reason for this might include different visions of stakeholders or organizational issues (Breuer et al., 2014). Likewise, according to Baccarne et al. (2014) many smart cities assert that the collaboration of the stakeholders is at their core, however, many essential actors are not participating in the initiatives. And also, that many cities in reality still put more emphasis on the technology (Baccarne et al., 2014).

Fatimath (2015) researched the challenges of the stakeholder collaboration in Auckland city, New Zealand (see Table 4). The author's main purpose was in fact to learn about the collaboration of stakeholders in a tourism destination. However, due to a lack of literature on this topic in connection to smart cities, the reported challenges will still be described here. The smart city concept does not involve just the development of the city. It includes other industries, for example the tourism industry (Guo et al., 2014).

The first obstacle reported by Fatimath (2015) is the *lack of trust* of stakeholders in other stakeholders. Consequently, stakeholders perceive others as competition and reject the collaboration. Also, this behaviour impedes the progress of reaching a desired goal and the endeavours of those stakeholders that are prepared to work collaboratively. Next, barrier presented in the literature is the habit of "*working in silos*". This means that some stakeholders are either not interested in working with others or are not convinced by the beneficial outcomes of collaboration. The idea of working alone additionally leads to the spread of competitive behaviour. Furthermore, the author of the article sees the behaviour of stakeholders that only want to collaborate with those in their trusted circle and refusing to expand this circle as an obstacle (Fathimath, 2015). Additionally, some stakeholders do not engage with others due to *their disregard of the positive outcomes of collaboration*. Moreover, *the change of the key personnel* of important stakeholders that possess the knowledge, experiences and information is considered a barrier for collaboration. It takes time to develop trust and good relationships with new employees and meanwhile the communication and successful collaboration can be obstructed. Next challenge described in the mentioned paper is the *stakeholders' high anticipation* to see the prompt results of the collaboration. If these results are not immediate stakeholders perceive collaboration as though to conclude and are consequently increasingly less motivated for further collaboration. Lastly, if there is *no solution on the horizon* that would help with the problems that stem from collaboration, the enthusiasm and commitment to participate can be spoilt (Fathimath, 2015).

Additionally, McQuaid (2010) identified the following challenges of the inter-agency co-operations: conflicts over goals and objectives, costs of resources, accountability for the actions, organisational difficulties, lack of organizational, professional or financial capacity of stakeholders, differences in philosophy among partners and power relations between stakeholders.

Hence, a project coordinator needs to carefully understand these challenges in order to steer and enhance the collaboration in a network, or as in this thesis, smart city initiative. However,



it is also important to identify the motivation and success factors for stakeholder collaboration. The next section will give an overview.

### **2.3.8 Motivation factors for stakeholder collaboration**

This section is largely based on the work of Leeb and Rudeberg (2014), due to the lack of the literature on the mentioned topics. The referenced study researched the motivation and success factors for stakeholder collaboration of sustainable development initiatives in the city of San Francisco. The authors interviewed various stakeholders, businesses and government that contributed to the outcome. The study of Leeb and Rudeberg (2014) is perceived as suitable for this research, as sustainability plays a major role for smart cities. Additionally, there exists a considerable overlap of the idea of smart city with the sustainable city (EU Parliament, 2014). As Leeb and Rudeberg (2014) suggest, the motivation factors for stakeholder collaboration have been divided into the macro and micro level.

#### **2.3.8.1 Macro level**

##### *Complex social, economic and environmental problems*

Social, economic and environmental problems have in the recent years been identified as the most prevailing problems of urban environments (Austin, 2000). Due to the complexity of just these, it is difficult to find simple solutions, especially by individual organizations. For that reason, social, economic and environmental issues represent one of the motivating factors for stakeholder collaboration in a city on a macro level (Leeb & Rudeberg, 2014; Austin, 2000; Van Huijstee et al., 2007).

##### *Changed role of government*

According to Austin (2000) and Newell (2000), the government has recently changed to the degree that it is not perceived as a sole problem solver anymore. Stakeholders have increasingly been involved into that process as well. Furthermore, the regulations and policies have thus become a joint outcome of the various stakeholders and the government. Additionally, this leads to broader acceptance of the regulations in a society. Therefore, the possibility to influence governmental regulations has become one of the main motivating factors for stakeholder collaboration (Leeb & Rudeberg, 2014).

### *Changed role of business*

Leeb and Rudeberg (2014) suggest that the role of business has changed as well. Reportedly, the society and the employees expect more from businesses (Rodgers, 2000), especially when it comes to the environment and sustainability practices. For this reason, the motivation for collaboration among various stakeholders has increased (Leeb & Rudeberg, 2014).

#### **2.3.8.2 Micro level**

##### *Combine resources and strengths*

One of the main motivation factors for stakeholders to participate in a collaboration process is the idea that they can combine own resources and strengths with others (Bendell, 2000). The goal here is to make advantage of everyone's abilities and to create something superior to what stakeholders could have achieved individually (Leeb & Rudeberg, 2014).

##### *Access to financial resources*

Access to financial resources is another factor that motivates stakeholders to collaborate with others (Weisbrod, 1997). This is particularly the case for organizations that lack funding collaborating in initiatives or projects with the main focus on sustainability. Sustainable solutions can reach high costs that cannot be funded by many organizations (Leeb & Rudeberg, 2014).

##### *Access to knowledge and expertise*

Leeb and Rudeberg (2014) identified access to knowledge and expertise as an important motivation factor for stakeholder collaboration. Van Huijste et al. (2007) also agree with this finding. Stakeholders are experts each on their own field, possessing knowledge that others might lack. When forming collaboration the knowledge and expertise of the individuals are shared with other participants. Knowledgeable partners are especially important when collaborating in initiatives focusing on certain aspects of sustainability development (Leeb & Rudeberg, 2014).

##### *Access to new markets*

Different organizations are all linked to various other organizations, industries, groups and communities. An organization individually might not be able to access these new markets on its own, however, when collaborating with others the access to new markets is much likely to be reached (Leeb & Rudeberg, 2014).

### *Innovation*

An analysis of the literature resulted in identification of innovation as one of the motivating factors for stakeholder collaboration. In collaboration process diverse people with differing outlooks and opinions gather and consequently produce new opportunities and ideas. These can further help to reach the goals of the collaboration (Leeb & Rudeberg, 2014).

### *Gain legitimacy and credibility*

This next motivation factor implies that stakeholders who collaborate with organizations that are considered to be credible and legitimate are consequently also perceived as being credible and legitimate. This holds especially true for the participants involved in various sustainable initiatives and governments that include various stakeholders in the process of developing regulations and policies (Leeb & Rudeberg, 2014).

### *Improve image*

According to Van Huijste et al. (2007), Woodland & Hutton (2012) one of the main motivating factors for businesses to form collaboration is to improve their own image. Leeb and Rudeberg (2014) confirm this statement in their research and add that this is even more the case for organizations with negative image or for those who are trying to promote themselves. Furthermore, the above-mentioned authors imply the connection between legitimacy, credibility and improved image (Leeb & Rudeberg, 2014).

The review of the literature showed that only Leeb and Rudeberg (2014) include the following factors to the list of essential motivation factors for stakeholder collaboration.

### *Access to political power*

Access to political power is a motivation factor that is according to Leeb and Rudeberg (2014) relying on the contextual situation every individual city. The researchers explain this factor in a way that “in order to influence political decision makers to support sustainable development policies, the organization needs to identify relevant individuals who possess political power and who can help in influencing political decisions” (Leeb & Rudeberg, 2014, p. 86). In addition, this factor might be a motivation for the stakeholders that aim to change or improve certain regulations or policies (related to sustainable development) (Leeb & Rudeberg, 2014).

### *Achieve mission*

For some stakeholders the collaboration with others in an initiative or a project is important to the degree they implement it into own mission. Consequently, if stakeholders actually want to achieve their mission it is necessary for them to collaborate with others (Leeb & Rudeberg, 2014).

### *Education*

Leeb and Rudeberg (2014) identified education as motivating factor for stakeholder collaboration in a sustainable city. It has been reported that in order for the change to occur, citizens have to be educated about the issues and possible solutions first. Nevertheless, the education alone does not automatically lead to change (Leeb & Rudeberg, 2014).

## **2.3.9 Success factors influencing stakeholder collaboration**

In the section below, the eight success factors that influence stakeholder collaboration are listed and explained in more details.

### *Collaborate with the right people*

The first success factor presented refers to the importance that stakeholders collaborate with the right people (Van Huijstee et al., 2007; Tholke, 2003). It is suggested that when deciding upon with whom to collaborate thinking about qualities and competences of potential partners is essential (Leeb & Rudeberg, 2014). Additionally, the research of Leeb and Rudeberg (2014) revealed that attractive attributes of potential partners also contribute to the successful collaboration. The attributes identified are collaborative skills, similar vision and possession of power. The possession of collaborative skills means that stakeholders have to be able to collaborate with others. Common vision and values of stakeholders contribute to a simpler and smoother collaboration. At this point it is necessary to mention that partners with too similar ways of thinking can suffer from groupthink. For that reason it might be better that the visions and values of various stakeholders rather complement each other. The last desirable attribute of potential partners mentioned in the study is the possession of power to influence political decisions. Moreover, the collaboration of diverse people, with their different views, can lead to new and creative ideas and consequently to solutions (Leeb & Rudeberg, 2014). Similarly, McQuaid (2010) suggests that relevant power, skills and influence of stakeholders advance the collaborative behaviour. Also, according to Poncelet (2010) it is beneficial that there exists a

mix of stakeholders, such as including both experienced and inexperienced when forming collaboration.

#### *Set direction for collaboration*

The direction for collaboration should be decided as early on as possible. Additionally, the choice of a subject, shared purpose and stakeholder's expectations, as well as set common goals are further points that need to be considered for a successful collaboration process (Van Huijstee et al., 2007; McQuaid, 2010). When talking about the right choice of a subject it is referred to the belief that stakeholders need to collaborate on an issue that is close to their company's mission. If this is the case, there exists a higher likelihood that stakeholders in question will actually have the competencies to contribute to the solution, and also, the collaboration might even be prioritized. However, it has been further reported that if the subject does not fit the stakeholder's mission, the whole collaborative process might be seen as a learning experience from the stakeholder's side. On the contrary, if the participant's mission and the subject happen to be very similar, the participant might feel it is capable enough to reach the solution for the issue on its own (Leeb & Rudeberg, 2014).

Furthermore, the choice of a subject should be realistic; otherwise the whole collaboration process can turn into a hopeless case. However, the realism might discourage innovation and creativity. Further, a single stakeholder should only work on certain amount of carefully chosen matters (Leeb & Rudeberg, 2014).

A shared purpose is important for successful collaboration insomuch that everyone is on the same page regarding the whole process. The lack of it can lead to confusion and subsequently to conflicts among stakeholders. Additionally, if a group of participants already has comparable opinions and interests, the shared purpose is not crucial. Shared expectation is an important factor for successful collaboration as it helps everyone involved to stay on the same page and aware of the direction of the participation. Additionally, the agreed-upon expectations are necessary since they represent the needs and requirements of all of the stakeholders concerned. Lastly, the successful collaboration process should include clear and agreed-upon goals and a determined plan of how to reach the goals (Leeb & Rudeberg, 2014).

#### *Make sure sufficient capacity is available*

Stakeholder's capacity in terms of money, people and time is an important factor in order for the collaboration to succeed. Often the participating organizations do not prioritize the work

that needs to be done for collaboration, and as a result the whole projects or initiatives are affected. It has been further reported that the interest and commitment to the initiative can overcome the limited resources issues. However, this is most often not the case, hence the stakeholders either have to have enough disposable resources or they absolutely have to prioritize the collaboration process (Leeb & Rudeberg, 2014).

### *Build relationships*

The core idea behind collaboration is that people work together, hence for a successful collaboration these people need to build relationships. The main elements of good relationships are respect and trust (Mohr & Speckman, 1994). The collaboration process runs smoother, parties reach compromises and agreements faster if stakeholders respect the work and roles of others. The element of respect is particularly important when stakeholders are in conflict or cannot reach an agreement. However, too much respect of one partner towards the other one can contribute to the feeling that one is superior (has more power) to the other one. Trust is a fundament for collaboration. It means that stakeholders need to know what to expect of each other and that they all have each other's best interest in mind. In the absence of contractual agreements or other controllable settings between stakeholders trust plays a key role for successful collaboration (Leeb & Rudeberg, 2014).

### *Communicate*

Communication of stakeholders is another vital factor for successful collaboration. Leeb and Rudeberg (2014, p. 93) defined good communication as: "having the opportunity to share one's opinion and perspective, and to be able to do this in an open and free way". Frequent communication between the participating parties helps avoid misunderstandings, clarifies objectives, facilitates brainstorming, fosters encouragements, develops shared language and enhances trust (Mohr & Speckman, 1994). Additionally, through communication stakeholders follow the same direction what leads to more effective collaboration. Also, good communication is related to respect. Most desirable form of communication is face-to-face. Moreover, non-communication between stakeholders can be perceived as refusal to commitment and interest and can as well lead to confusion and misunderstandings (Leeb & Rudeberg, 2014).

### *Ensure mutual interest, commitment and action*

The empirical findings of the study completed by Leeb and Rudeberg (2014) show that mutual commitment, interest and action are important factors for stakeholder collaboration and that

they should be incorporated into the process from the beginning. Furthermore, it has been identified that high levels of interest contribute to a happy mood of all participating. Mutual action of stakeholders is reportedly leading to good results (Wood & Gray, 1991). Additionally, stakeholders who do not fully commit to the collaboration oftentimes do not deliver the best results. Moreover, collaboration process runs smoother whenever stakeholders are motivated, willing to take action, contribute and deliver their work (Leeb & Rudeberg, 2014).

#### *Provide skilled facilitator*

According to Leeb and Rudeberg (2014) the presence of a skilled facilitator can largely contribute to the success of the stakeholder collaboration. A facilitator is defined as: “someone who manages the collaboration process and ensures that progress is being made” (Leeb & Rudeberg, 2014, p. 98). The coordinating person needs to stand on the neutral ground, as well as it has to know the subject of collaboration well. The advantages of involving a facilitator into projects or initiatives are the following: enhanced organization, communication and problem solving. Furthermore, the presence of a facilitator in stakeholder meetings can lead to smoother progress. Additionally, initiatives with high number or very diverse stakeholders with differing opinions consider the involvement of a facilitator in the collaboration process as even more crucial (Leeb & Rudeberg, 2014).

#### *Create benefits*

Various other refer to the great significance for the prosperity of collaboration process that engaging stakeholders obtain certain benefits out of it (McQuaid, 2010; Khare et al., 2011; Wood & Gray, 1991). Benefits are by most stakeholders perceived as encouragement for current and future collaborations (Leeb & Rudeberg, 2014). Moreover, Leeb and Rudeberg (2014) suggest that all of the participants should receive a benefit. However, as long as stakeholders believe their time collaborating in the initiative is not unnecessarily spent, equal distribution of the benefits does not play an important role. The benefits identified include enhanced credibility, learning opportunities, financial benefits, expanded customer base and improved image (Leeb & Rudeberg, 2014).

The following chapter presents the case study of Maribor.

### 3 CASE STUDY MARIBOR

The following section begins by providing an introduction with regards to the city of Maribor today, by briefly discussing the history of the city and elaborating on the current pressing problems that the city is facing. Furthermore, a short overview of the smart city initiative Maribor is presented. The second part of the chapter gives a detailed description of the initiative, starting with the structure and organization of the initiative, followed by the presentation of funding possibilities, ranking of the city among other European smart cities, overview of the initiative's implemented and ongoing projects and conclusion with the initiative's future priorities.

#### 3.1 Introduction of Maribor and smart city initiative

Maribor is Slovenia's second largest city (Radovanovič & Tomažič, 2007). In January 2016, the city counted 111,832 inhabitants (Statistical Office, 2016), this makes Maribor the most populous city in the northeastern part of Slovenia, also called Lower Styria. The city is located (see Figure 2) at the crossroads of Slovenske hills, Kozjak hills, the Drava Valley, Pohorje hill and the Drava field (Radovanovič & Tomažič, 2007).

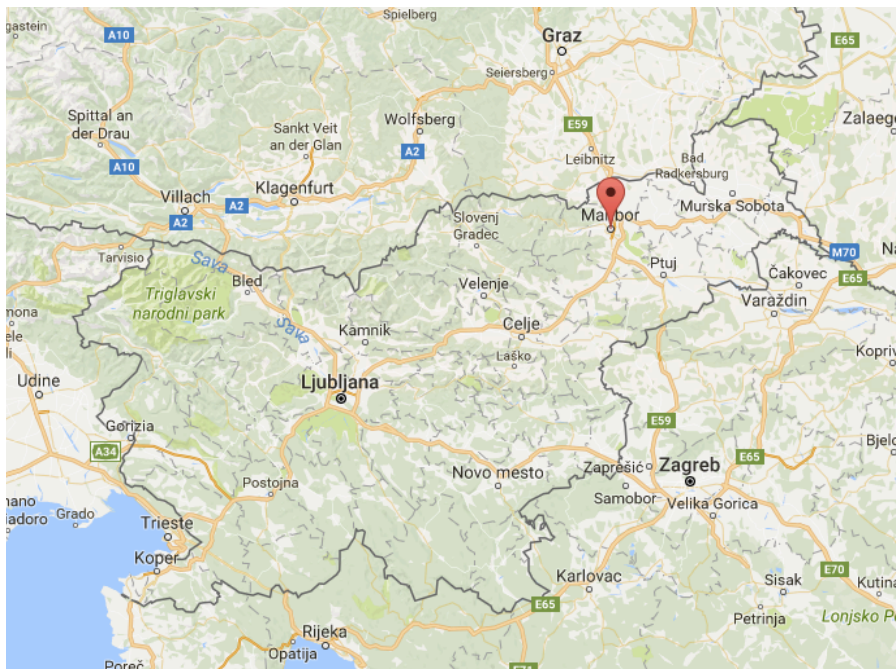


FIGURE 3: GEOGRAPHICAL LOCATION OF MARIBOR (GOOGLE, N.D.)

Maribor's geographical location has been perceived as advantageous both in the past as well as today. In Roman times an important trade route that connected Leibnitz, Carinthia and



Poetovio ran through the city (Radovanovič & Tomažič, 2007). Presently, Maribor, with its railway and highway, connects central with southeastern Europe (Mestna občina Maribor, n.d.).

The inclusion of Maribor to Austria followed the end of the World War I. The inclusion has been proclaimed by the German council of Maribor. This was, however, only for a short period of time. Already in the same year, Slovenes, under the lead of major Maister, were able to regain power over the city as well as the national border. The German council was dismissed in 1919. Later that year, after the Treaty of Saint Germain has been signed, Maribor officially became part of the Kingdom of Serbs, Croats and Slovenes. Further, most of the Austrian Germans living in Maribor left. Between the two world wars Maribor's economy has been struggling at first (Radovanovič & Tomažič, 2007). Scarcity of raw materials led to fall into decay of trade and industrial production in the city. Nevertheless, the electrification of Maribor opened new and modern manufacturing opportunities. Additionally, Maribor started consciously planning and developing tourism in the area. During the World War II the entire manufacturing in the city concentrated on producing for the German military. Furthermore, Maribor was bombed twice amid the mentioned period and has been heavily damaged. As a consequence the economic activities and the social life in the city barely existed. In the socialist era, growth in economy could be observed again (Radovanovič & Tomažič, 2007). The aim of the city was to build strong industry, which soon became one of the leading industries in Yugoslavia (Kordiš, 2015). Maribor specialized mostly on the metal, textile and electro technical industry. Moreover, new rising industry sectors were developed, namely the non-ferrous metal, building-material and production of petroleum products (Horvat, 2012). Furthermore, in the mid 1970s the University has been established in the city with the goal to foster the economic progress (Kordiš, 2015). Maribor once again took advantage of the convenient geographical location and became transit and cultural center of northeastern Slovenia (Mestna občina Maribor, n.d.).

At the end of the 1980s Maribor's industry and consequently the entire city started once again to collapse. The reasons for the aforementioned were rising-inflation, growing unemployment and corruption in politics as well as economy. People began rejecting socialism (Kordiš, 2015). In 1991, Slovenia became an independent country (Radovanovič & Tomažič, 2007). Due to the fact that Maribor was only developing industry that was majorly dependent on the Yugoslav market a prolonged crisis was inevitable when the mentioned market recoiled. Metal and textile industry that employed nearly 40% of Maribor citizens suffered the most. Larger businesses shut down and consequently Maribor's unemployment rate reached 25%. In the mid 1990s

small and medium sized businesses and industry arose what helped to boost city's economy (Horvat, 2012). However, it was not until after the year 2002 when the economic situation of Maribor started to recover. However, according to Lorber (2006, p. 5) the recovery has been "still too slow to have significant influence on the improvement of socio-economic circumstances in the Maribor municipality". From 2006 until 2012 city's populist new mayor planned to realize large-scale public projects with the aim to improve the local economy and boost development of Maribor. One of the aforementioned projects has been European Capital of Culture 2012 (ECC) that was introduced in 2006 to the people of Maribor. Citizens hoped that ECC would majorly contribute to the development of the city and subsequently lead to a brighter future. Nevertheless, with the global economic crisis coming in 2008 and consequently stringent austerity measures introduced in 2011 Maribor's economy crashed once again. The city did become European Capital of Culture in 2012, however, the hope of a brighter future vanished, as the unemployment rate in Maribor reached nearly 18% in the same year (Kordiš, 2015).

Today, Maribor is perceived as economic, cultural, educational, research and transportation center (Radovanovič & Tomažič, 2007) (see Figure 3). The main economic activities in Maribor are service industries, trade and financial sector. The University clinic is currently the largest company as it employs the most people in the city. Additionally, the Post of Slovenia opened its headquarters at the outskirts of the city center. For this reason the city is perceived as an essential logistic center. Being located at the intersection of the 5<sup>th</sup> and 10<sup>th</sup> European corridor Maribor is also known as a transportation center. The city's University is the second largest in Slovenia and with many other schools Maribor, is seen as an educational and research center. Also, tourism plays an increasingly more important role as the city offers rich history (e.g. world's oldest grapevine), cultural events (e.g. yearly music festival Lent), sports events (e.g. women's skiing championship "Golden Fox"), business and conference events and entertainment (Horvat, 2012). According to Trček, 2014, "Nevertheless, Maribor remains an industrial center once again suffering developmental pains, much like those of twenty years ago" (p. 169). The main challenge that Maribor is facing today is the downturn of economic development and consequently unemployment (11.8% as of March 2017; ZRSZZ, n.d.). In addition, as many other cities worldwide, Maribor is also facing multiple urban problems, such as pollution and scarcity of resources (SCMI, n.d.).



FIGURE 4: MARIBOR TODAY (LEVA, N.D.)

One possible solution proposed to tackle the above-mentioned persisting current and future problems, is the development of Maribor into a smart city. The idea of the implementation of the Smart City Initiative Maribor (SCMI) was firstly proposed by various stakeholders of the city. In 2011, Municipality of Maribor (MOM) decided to officially start the SCMI. The initiative was granted funding of the 7<sup>th</sup> EU research framework program and also became part of the UPSIDE project (SCMI, n.d.). The UPSIDE project acts as a support system to MOM, as it unites different smart cities across Europe. Furthermore, the UPSIDE project helps the cities to develop long-term economic growth and to foster societal benefits (UPSIDE, n.d.). The main purpose of the SCMI initiative is to develop projects that encourage long-term sustainable development, technological, social and organizational innovation, to tackle urban challenges in the city and its broader region in order to improve the quality of life of its citizens. Today, the SCMI is still in the primary phase of operation. Therefore, at the moment, its main focus is to establish multiple problem-based pilot projects where hypothetical solutions can be tested (SCMI, n.d.).

### 3.2 Detailed description of the initiative

The formation of the smart city initiative is based on a “triple- helix” partnership. However, the actual structure of the initiative is organized in clusters (see Figure 4): Municipality of Maribor acts as a coordinator, e-Institute manages the stakeholder network, stakeholders who have signed the memorandum to join the initiative form the stakeholder network and the last part of the cluster is the chairmanship of the stakeholder network (SCMI, n.d.).

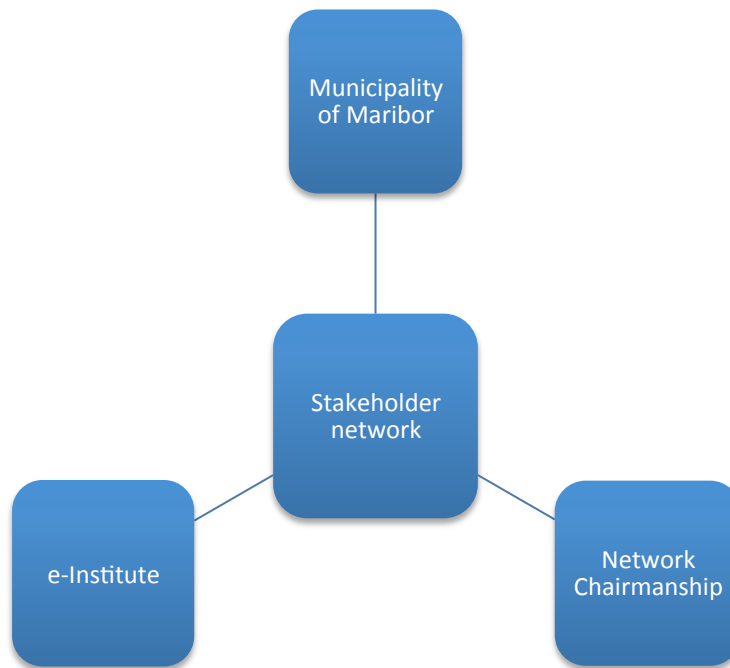


FIGURE 5: THE STRUCTURE OF THE SMART CITY INITIATIVE MARIBOR

Currently, there are 27 partners involved in the initiative. In addition to the municipality, e-Institute and University, other stakeholders are various regional development institutions and businesses from the industry. These businesses have expertise in different areas, such as urban utility, ICT, communication, sustainable building and urban solutions or play a role of suppliers of resources, for example water, electrical and thermal energy. It is further necessary to mention that until today only nine stakeholders have actively collaborated in the projects of the initiative (SCMI, n.d.).

Presently, the smart city initiative Maribor is being funded by various EU grants. The UPSIDE project is co-funding the formation of the cluster that has been mentioned above and the management of the collaborating stakeholders. Additionally, the stakeholders of the initiative together with the other partners of the UPSIDE project have recently applied for the European Regional Development fund in order to receive funding for various projects of the smart city initiatives. Moreover, Urban Innovative Actions initiative of the European Commission is another possible source of financing. Maribor has already filed an application on the topic of energy transition. Also, the initiative is forming Public Private Partnerships to fund certain projects, and in doing so it shifts the long-term risk in the private sector (SCMI, n.d.).

In 2014, Giffinger et al. ranked 77 European mid-sized smart cities based on the six dimensions proposed by the author in 2007. The dimensions include smart economy, smart people, smart

governance, smart environment, smart mobility and smart living. In the overall assessment Maribor reached 40<sup>th</sup> place. Maribor's 'city's smart environment' was with the 15<sup>th</sup> rank the highest assessment out of the six dimensions, whereas the 'smart living' dimension was the lowest, reaching 51<sup>st</sup> place. Furthermore, Figure 5 shows the comparison of the best-ranked city, Luxembourg, to Maribor and to the average of all cities. It can be seen that Maribor is performing as well as Luxembourg in the dimensions of smart people and smart environment. In the dimension of smart governance, Maribor is performing even slightly better. In the dimensions smart mobility, smart living and smart economy Maribor is lagging far behind Luxembourg. This study helps Maribor assess its strengths and weaknesses, pointing out where the focus of future development needs to be.

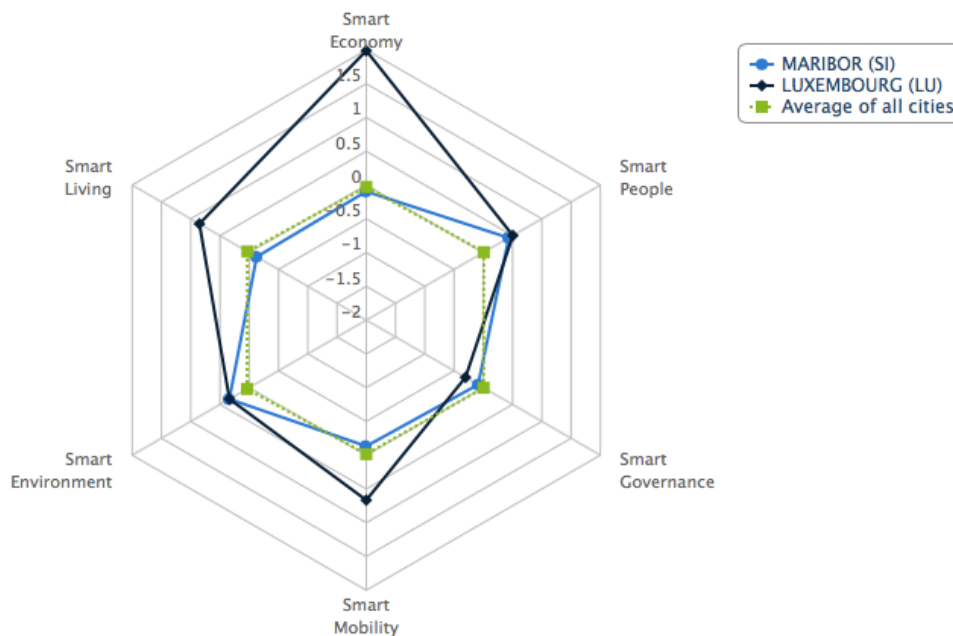


FIGURE 6: BENCHMARKING MARIBOR VS. LUXEMBOURG (GIFFINGER ET AL., 2014)

SCMI is currently developing projects that have been divided in four main categories, namely *Smart Mobility, Smart Environment and Energy, Smart Living and Urban Planning and Smart Economy and Cooperation*. These four categories include six dimensions of a smart city as proposed by Giffinger et al. (2007). The SCMI platform presents a total of 22 projects that are, however, in different project phases. Overall, 17 projects from each category have been implemented until today. Four projects are ongoing and one is for now just an idea.

Projects in the "Smart Mobility" category are contributing towards a goal of reaching sustainable mobility in the city. The main tasks include improvement of the cycling routes, development of a cycling network, reduction of air and noise pollution by traffic, renovation of frag-

mented pedestrian walkways, replacement of old buses, improvement of quality of access of public transportation, increase in public transportation use and increase in bicycle and pedestrian traffic. The already implemented projects include free WIFI internet access on all city buses, “Kolesodvor” (protected bicycle storage room at the main train station), RentingE (renting and charging the electric cars at the main train station), center for sustainable mobility (promotes, coordinates and popularizes sustainable mobility), promotion of sustainable mobility in large institutions (i.e. promotion of the efficient use of transportation around the city, such as public transport, company busses for employees, carpooling, cycling and management of parking spaces) and planning and construction of new cycling routes in the city. The currently ongoing project is the implementation of the RTPi system (real time passenger information displays on the bus stations) throughout the city (SCMI, n.d.).

The “Smart Environment and Energy” category is aiming to reduce the environmental challenges of Maribor. These include light pollution, degradation of the old town, global threats connected to the climate change, economic challenges that are correlated to the economic and social activities and the impacts of rapid social and economic changes. Additionally, the projects in the mentioned category are working toward the increase of local self-sufficiency in food, energy renovation of residential, commercial and public buildings and promotion of new social, spatial and economic role of city’s green spaces. The projects that have already been realized include “Eco city Maribor” (the use of reusable and environmentally friendly drinking cups at all public events in the city) and “My water at glance” (web app that allows citizens to enter own water meter information, review accounts and report inconveniences). The installation of remote water meters is currently an ongoing project that started in 2016. At the moment 66% of the mentioned meters have already been implemented, allowing citizens to pay for the water they actually consumed. “Maribor’s Smart Neighborhood” is presently only at the stage of an idea. This project is planning to find solution for a smart neighborhood that would include: “a system for advanced local control of electricity production from renewable energy sources and a system for advanced local control of electricity consumption in accordance with the postulates of systemic energy efficiency, energy self-sufficiency, smart electricity grid concepts, and by taking into account the individual requirements of advanced active users in private households” (SCMI, n.d.).

The category of “Smart Living and Urban Planning” focuses on enhancing the sustainable urban strategy of Maribor, better use of cultural and touristic potential of the city and promotion of collaboration between research, industry and the municipality in order to offer better services

to the citizens. The projects that have been implemented include “Let’s improve Maribor” (interactive web service where citizens can suggest ideas and raise concerns to the municipality of Maribor), free wireless internet access in the city, “Application Maribor tour” (app that offers tourists three different experiences of Maribor, namely taste the city, explore the city and experience the city), Maribor city card for tourists, interactive information point display in the city center and an app for a water distribution system in Maribor (citizens can access to see own balance of water meters and find locations of drinkable water fountains). At the moment, “Common urban ECO garden” is an ongoing project that is expanding to different city districts. As the name already suggests the idea behind this project is to plant organic community gardens all around Maribor where citizens can voluntarily participate (SCMI, n.d.).

The projects of the “Smart Economy and Cooperation” category mainly aim to encourage collaboration between the industry, research and community and to attract foreign investors. Implemented projects involve “Pilot model of the participatory budget of municipality of Maribor” (portion of the budget of one district in Maribor is allocated by the citizens according to their wishes), “Weaver” (a co-working space for tourist development firms, social enterprises and firms developing social innovation), “Web platform Podravje” (platform including information regarding the business properties, national legislation and administrative procedures with the aim to attract foreign investors to the area. “Demola” is currently an ongoing international project that encourages collaboration and co-creation between the students and the industry (SCMI, n.d.).

Future priorities of the smart city initiative Maribor include: “setting up a business environment that would attract and leverage more venture capital investments”, “setting up a sustainable financial model that would allow substantial investments in key areas”, promoting the initiative’s cluster at a national level, “overcoming barriers related to poor knowledge of global market trends and needs”, “internationalizing regional companies and the activities of the smart city initiative” and lastly “continuing building and strengthening of set-up collaboration among the stakeholders of the smart city initiative Maribor” (SCMI, n.d.).

After having discussed the case study in-depth, the next section will introduce the methodology applied in this thesis.

## 4 METHODOLOGY

In this section the research design is introduced. Given that the purpose of this master thesis is to explore which factors play a critical role for stakeholders to engage and subsequently collaborate in smart city initiatives, the thesis takes a qualitative research design. In doing so, semi-structured interviews were chosen. Therefore, this chapter firstly defines the concept of qualitative research. Next, the sample of the study is presented and the design of the interview is described. Lastly, the data collection process and the method for presentation of results and analysis are elaborated.

### 4.1 Definition of the method

Qualitative research is applied in two different scenarios. Firstly, the researcher is curious about why participants act and behave as they do. This further allows the researcher to obtain an in-depth insight into the motivations, reasons, and attitudes towards underlying actions and behaviors of participants. Secondly, the mentioned method is applied when researcher desires to know participants' viewpoint on a topic in order to be able to later perform a more generalized survey (Rosenthal, 2016).

The right choice of a qualitative methodology should be based upon the fact if the research question anticipates perceptions of an individual or a group. There exist observations, interviews and focus groups (Rosenthal, 2016). As mentioned above, the master thesis in question applies semi-structured interviews. The next section will so introduce different kinds of interviews and a detailed explanation of the semi-structured interview itself. The literature identifies various forms of interviews: semi-structured, focused, problem-centered, expert and ethnographic. Semi-structured interviews are based on the formerly prepared questions (Flick, 2006). Moreover, it attempts to get the in-depth information about the experiences, perceptions, opinions, feelings and knowledge of participants (Rosenthal, 2016). This form of interviews does not require interviewers to follow the exact order of the questions. Additionally, the formulation of the questions at the interview does not need to be exactly the same as the prepared questions. The questions rather help interviewer to establish a dialogue with the interviewee. When conducting a semi-structured interview, the possible answers are not suggested to the interviewee, these should rather be answered "as freely and as extensively as wished" (Flick, 2006, p. 112). According to Flick (2006) the questions can range from open (answers are explained in own words and are not influenced by the interviewer), theory-driven



(based on literature or researcher's assumptions) or confrontational (as the name suggests, the interviewee is confronted again with his previous answers with other alternatives or criticism).

## **4.2 Sample**

The sample of the research is represented by all 27 official stakeholders of the Smart city initiative Maribor. As it has already been described in the chapter "Case study of Maribor" the group of stakeholders includes local government (the Municipality of Maribor), University of Maribor, regional support organizations and institutions and the industry. Regional support organizations and institutions consist of various development agencies, research and development centers, chamber of commerce and chamber of craft. Businesses from the industry represent some of the key players in various sectors, such as ICT, communications, sustainable building and urban solutions, urban utility and supply companies.

## **4.3 Design of the interview**

Given the various parties involved in the initiative, three different interviews guides were developed. The first interview was designed for the coordinator of the initiative, Municipality of Maribor and the stakeholder network manager, e-Institute. The second one was developed for the stakeholders, who have actively participated in the projects of the initiative. The third interview was prepared for the stakeholders who have only signed the memorandum for collaboration, but have not yet actively participated in any projects yet. The questions and topics covered in the interviews are based on the literature review, this will be discussed in more details in the next section. Furthermore, questions raised during the interviews were open-ended, meaning the answers were not influenced by the interviewer. Semi-structured interviews gives space for the respondents to answer without restrictions and gives them a chance to possibly contribute to new knowledge that has not been mentioned in the literature.

The interview guided included questions that are allocated in six categories, namely about the *smart city initiative, stakeholders, stakeholder collaboration, motivation factors, success factors and conclusion*. However, the questions of the categories have been slightly adapted for each of the three interviews settings.

The first part of the interview was focused on the smart city initiative Maribor. It gathered information about the respondents' perceptions of the smart city initiatives in general and the smart city initiative Maribor, the significance of stakeholder collaboration in the initiative, the

degree of involvement of stakeholders in the initiative and how did the stakeholders get involved in the initiative. The interview for stakeholders, who do not actively collaborate in the initiative, included somewhat different questions in the first part. The questions focused on how familiar participants are with the initiative Maribor, why collaboration among stakeholders important in such initiatives, and if they consider Maribor as a smart city. The questions in the mentioned category were asked with the purpose to get an understanding about the image stakeholders have about the initiative and Maribor. In addition, the answers to these questions reveal if the respondents have similar or different perceptions of the smart city initiative, compared to the other two stakeholder groups. The purpose of the question about why is stakeholder collaboration important in smart city initiatives can support the reasons mentioned in the literature and/or adds new reasons.

The second part of the interview identified how the stakeholders are represented in the initiative and their positioning in the initiative. The interview for the municipality and e-Institute additionally inquires how they attract new partners for collaboration. This set of questions aimed to assess the stakeholders' perceptions about their positions in the initiative in order to provide recommendations for the coordinators and managers of such initiatives. The stakeholder collaboration category of the interviews for municipality and stakeholders, who do collaborate deals with the nature of the stakeholder collaboration in the initiative and the potential challenges that stakeholders might encounter. The answers to these questions can also provide an idea of how stakeholders in the initiative really collaborate, and how they manage uprising challenges.

The interviews of the stakeholders, who do not collaborate, identifies category of stakeholder collaboration category, the reasons why stakeholders do not actively participate in the initiative and if they plan to become more involved. The responses to these questions can help understand the real reasons stakeholders are not interested in being actively involved and what might need to be improved in order for them to start participating.

The next two categories include the questions based on the literature review regarding the stakeholders' motivating and success factors for collaboration. These answers represent the essential part of this thesis as they help answer the research question and additionally provide the recommendations for other smart city initiative coordinators and managers.

The concluding questions of the three interviews focused on the possible downsides as well as benefits of the collaboration in the initiative. These answers can provide insights into differ-

ences or similarities between the three stakeholders groups. The interviews guides for the three stakeholders groups can be found in Appendix A.

#### **4.4 Data collection process**

Data collection process took place from the 29<sup>th</sup> March until 20<sup>th</sup> April 2017. All 27 stakeholders of the initiative were contacted via e-mail. The Municipality of Maribor, who acts as a coordinator of the initiative and the e-Institute, who plays a role of a network manager offered to send another round of e-mails to the stakeholders in order to increase the response rate. In total, 18 interviews were conducted out of which 17 were conducted in person at the respondent's office. The mentioned interview modality leads to easier and quicker answers (Rosenthal, 2016) and misunderstandings can easier be avoided. Further, because semi-structured questionnaire has been be applied, additional questions by the researcher could easier be raised when needed. The interviews took from 15-50 minutes and were recorded in order to facilitate the analysis of the answers. One respondent asked to fill out the questionnaire via e-mail due to his lack of time. Additionally, all of the interviews were conducted in Slovene language. The reason for this is that the interviewed partners might not be proficient in English language and might so have troubles explaining themselves extensively or might not be using the right terminology.

#### **4.5 Method for presentation of results and analysis**

The interview recordings have been transcribed and translated in English in order to compile empirical findings. The results of each type of the interview are presented under a separate sub-chapter to avoid confusion. Additionally, the presentation of the results is captured by key points, either as quotes or rendition of these to support the statements. The analysis of the findings elaborates on the prominent information, similarities and dissimilarities of the literature review and the findings as well as similarities and dissimilarities between different types of interviews.

The following chapter presents and elaborates on the empirical findings of the study.

## 5 RESULTS AND DISCUSSION

First part of the following chapter presents the empirical findings of the three types of interviews conducted with the municipality of Maribor and e-Institute, stakeholders, who do collaborate in the initiative and the stakeholders, who do not collaborate in the initiative. The second part of the chapter discusses and analyses the empirical findings and connects them to the literature.

### 5.1 Municipality of Maribor and e-Institute

#### 5.1.1 Smart city initiative

##### Perception of the smart city initiatives

The smart city initiatives are according to the coordinator of the smart city initiative Maribor, Municipality of Maribor and the stakeholder manager, e-Institute perceived as an essential element for the further development of the cities. The reason for the afore-mentioned is that they are seen as a solution for the ever-pressing urbanization problems.

*“We believe that smart city initiatives can come up with new innovative solutions based on technology for the problems that cities face today.” (Municipality of Maribor)*

##### Smart city Maribor?

Both respondents agree that Maribor is a smart city. Many smart systems have already been implemented in the city, such as free Wi-Fi on public transportation and real time passenger information displays on the bus stations. However, these are rather contributing to smaller changes and not to the drastic ones.

*“Maribor is first and foremost a smart city because the connection with the partners or better said the local community has been established and because we are constantly trying to engage locals to start collaborating in the mentioned initiative in order to find common solutions to our problems.” (e-Institute)*

### Involvement

The municipality of Maribor became involved with the initiative when some of the businesses in Maribor expressed the interest for establishing a smart city initiative with the goal to boost the development of the city. The municipality acted on this proposal and has therefore founded the initiative. The e-Institute was invited to become a manager of the stakeholder network of the initiative.

### Goals of the involvement

The municipality of Maribor and e-Institute are with their involvement in the initiative aiming to reach the following set goals:

*“...find solutions for the problems Maribor is facing on day-to-day basis, establish new business opportunities, promote innovative thinking and attain resources, mostly financial, in order to increase the development of the city.” (e-Institute)*

### Results of the involvement

The respondents report that the results of their involvement until today are that the connection with the partners as well as the local community has been established.

## **5.1.2 Stakeholders**

### Attracting stakeholders

The coordinator and the network manager of the initiative are not trying to find new potential stakeholders to collaborate in the initiative, as they do not advertise the initiative. From time to time they send news and information about the developments regarding the initiative to the stakeholders who have already signed the memorandum of collaboration.

*“Mostly, we do not advertise the initiative, neither are we actively trying to attract new stakeholders.” (Municipality of Maribor)*

### Positioning of the stakeholders in the network

According to the Municipality of Maribor and e-Institute, the positioning of the stakeholders of the initiative is not equal. Some companies from the industry, especially the larger ones, have a superior position in the network due to the fact that *“they want to collaborate more and they also initiate different projects much more.” (e-Institute)*

### Self-perception

The respondents do not perceive themselves as “*real*” partners of the initiative and the network. They rather describe their role as “*only being coordinator or network manager*”, however, they wish to have a more proactive role in the future.

#### **5.1.3 Stakeholder collaboration**

##### Significance of stakeholder collaboration

The interviewees find stakeholder collaboration very important for successful smart city initiatives, as cities are complex systems and no one stakeholder can solely contribute to change. In addition, the respondents emphasize the collaboration of various stakeholders, larger and smaller businesses specializing in different areas of the industry and also research organizations.

*“The complex urbanization problems cannot be solved solely by the municipalities because they just do not have enough knowledge, skills and resources.” (Municipality of Maribor)*

##### Collaboration practices

Municipality and the e-institute are not actively involved in the collaboration. They contact the stakeholders when they have new ideas about the next projects that could be implemented. The respondents organize meetings on an irregular basis where the topics and projects that could be realized next are discussed. Furthermore, they describe the collaboration with the stakeholders as informal, without having set any formal goals they want to achieve. Nevertheless, the municipality and e-Institute describe the collaboration with the stakeholders of the initiative as a long-term one.

##### Challenges of collaboration

Both interviewees agree that the biggest challenges when collaborating with other stakeholders of the initiative are their unresponsiveness and non-collaboration that make working on projects and their completion rather difficult, if not impossible. The reason for the aforementioned is according to the respondents also their own fault, as they do not promote the collaboration in the initiative enough. This is mainly due to the shortage of the municipality’s resources (time, money and people) and their lack of interesting projects.

*“Stakeholders don't have enough time, they don't find the suggested projects interesting, and so they don't collaborate.” (e-Institute)*

The municipality and e-Institute identified further problems regarding the collaboration in the initiative, such as difficult collaboration with the public institutions. Public institutions are organized in a way that they only concentrate on one task or a problem at a time. This makes the collaboration in the initiative rather challenging as the proposed projects concern many topics at once.

*“An Additional problem is that public institutions aren't used to collaborating on the projects like the smart city initiative.” (Municipality of Maribor)*

Last challenge identified by the respondents is the difficulty to identify common goals of the projects with the stakeholders. Both municipality and e-Institute suggest this is again something they can be blamed for. Once again, they emphasized this is probably due to the lack of communication with the stakeholders, as the municipality simply does not have enough resources to be able to become more involved with the initiative.

*“...we coordinators are not active enough, because we don't have enough resources.” (Municipality of Maribor)*

These challenges are still persisting due to the fact that they have not been handled by either of the respondents.

#### **5.1.4 Motivation factors**

The municipality of Maribor and e-Institute affirm that the main motivation for their collaboration is to find solutions for the city's urbanization problems, as this is also the main reason why the initiative has been established. Furthermore, the collaboration with many different key stakeholders in the area can lead to new business opportunities and interesting projects that can be implemented outside of the scope of the initiative. Lastly, the respondents identified the possibility to ensure the resources for the development of the city as another motivation factor. The projects of the initiative are funded mostly by the European Union. Without the initiative these alternative ways of funding would not be possible to attain. The Table 4 below gives an overview of the motivation factors proposed by the municipality and e-Institute.

### Motivation factors

Find solutions for city's urbanization problems      New business opportunities

Attain the financial resources for the development of the city

TABLE 4: MOTIVATION FACTORS PROPOSED BY THE MUNICIPALITY OF MARIBOR AND E-INSTITUTE

### 5.1.5 Success factors

The respondents suggest the factors presented in the Table 5 contribute to successful collaboration of stakeholders in the smart city initiatives. They also emphasize that all of the factors have to be present and are equally important for the success.

#### Good personal relationships, communication and trust

The municipality of Maribor and e-Institute suggest that good personal relationships, communication and trust all lead to successful collaboration, as they are all connected to each other. Good personal relationships of stakeholders can help avoid misunderstandings, increase trust between stakeholders and lead to more regular communication practices. Additionally, all of these contribute to more efficient collaboration and to new innovative ideas.

*"Good personal relationships, communication and trust are a base for any kind of collaboration." (Municipality of Maribor)*

#### Ability to identify common goals

According to the municipality the stakeholders of the initiative of Maribor find it very difficult to identify and set common goals. This leads to misunderstandings, confusion of the stakeholders and consequently to the demotivation and lack of collaboration of stakeholders. Therefore, the ability to identify common goals is an important factor for successful collaboration.

*"The initiative has difficulties identifying common goals what leads to lack of collaboration of the stakeholders as they do not know what is the focus and the plan of the initiative and what is it trying to achieve." (e-Institute)*



### Presence of a skilled coordinator

Presence of a skilled coordinator is essential for successful collaboration, especially at the beginning of the collaboration where stakeholder roles are not defined and developed yet. The coordinator has the role of organizer of meetings, connector of stakeholders, leader, initiator, promoter of the initiative and also mediator, contributing to the efficient operation of the initiative.

*“We are aware that our inaction leads to lowered motivation of the stakeholders to collaborate and consequently to the stagnation of the initiative.” (Municipality of Maribor)*

Success factors	
Good personal relationships	Communication
Trust	Ability to identify common goals
Presence of a skilled coordinator	

TABLE 5: SUCCESS FACTORS PROPOSED BY THE MUNICIPALITY OF MARIBOR AND E-INSTITUTE

### **5.1.6 Conclusion**

#### Downsides and benefits of the collaboration

The municipality of Maribor and e-Institute agree that there are no downsides of the collaboration in the initiative neither for the city of Maribor nor for their organizations. The respondents, however, agree that there exist many benefits, such as:

*“...increased recognizability of the city and improved image of Maribor and collaborating stakeholders as well as improved possibilities for city's economy. Furthermore, that local community learns about the smart city projects that are happening in Maribor what consequently leads to promotion of future collaboration and education of the community about the projects. Another benefit is also improvement of local policies and regulations.” (Municipality of Maribor and e-Institute)*

## 5.2 Stakeholders, who do collaborate

### 5.2.1 Smart city initiative

#### Perception of the smart city initiatives

All of the stakeholders, who do actively collaborate in the initiative, perceive such smart city initiatives as a great idea and as an essential element for the future development of the cities. Moreover, the respondents agree that the smart city initiatives can actually contribute to change, as they with their projects help tackle urbanization problems and increase the quality of life of its citizens.

*“Smart cities are a new trend now that is absolutely necessary and that dictates the development of the cities, but not just cities, entire regions.” (respondent 1)*

*“This idea of smartness can help cities to save money, reduce CO<sub>2</sub> emissions, ensure a comfort and quality of life for its citizens.” (respondent 2)*

#### Smart city Maribor?

The majority of the respondents do not perceive Maribor as a smart city. However, it has been agreed upon that the city is definitely working on becoming smart and that it is slowly approaching this goal. One stakeholder would say that Maribor already is a smart city due to the many implemented projects on this topic as well as hard work of the initiative. Moreover, all of the respondents acknowledge that in order for Maribor to become a smart city that can compete with other smart cities in Europe stakeholders need to become more active, think of strategic plans and set long-term goals.

*“Maribor is trying to become a smart city, however, it could be better, considering all the unused potential.” (respondent 2)*

*“But now, it is on all of us stakeholders that we start working and realizing the plans.” (respondent 3)*

#### Involvement

All of the stakeholders became involved with the initiative at the invitation of the municipality of Maribor.

### Goals of the involvement

The respondents listed matching goals they want to achieve through their collaboration in the initiative. The stakeholders plan to contribute to the development of the city and help increase the quality of life of the citizens of Maribor and the environmental responsibility.

*“The goal is to ensure better quality of life for us all, the citizens of Maribor.” (respondent 2)*

## **5.2.2 Stakeholders**

### Positioning of the stakeholders in the network

Overall, the stakeholders suggest that larger and more active private or public companies are perceived to have a more important role in the network. Additionally, the more active the stakeholders in the initiative, the more important they are. Moreover, one stakeholder perceives the municipality and e-Institute to have a more important role, other stakeholders are equal. Also, only one respondent, a larger public company, disagrees with the statement above and rather implies that the stakeholders are all equal in the network.

*“Some partners definitely are more important, these are mainly larger and more influential companies.” (respondent 5)*

*“It cannot be said that some stakeholders are more important than others.” (respondent 1)*

### Self-perception

The interviewees did not elaborate on this question much. They perceive their own position in the stakeholder network as “*active stakeholders*” that from time to time collaborate on the projects of the initiative.

### Representation of the network

When asked how is the network of the stakeholders represented in the initiative all of the respondents did not have an answer. Few of them additionally responded that there does not exist a real stakeholder network of the initiative as most of the stakeholders are not active and those who are only collaborate on few projects every now and again.

### 5.2.3 Stakeholder collaboration

#### Significance of stakeholder collaboration

All of the respondents agree that the stakeholder collaboration is essential element or a base for the successful smart city initiatives. It has been suggested that one stakeholder on its own simply cannot improve and change the whole city as it does not have the resources, the knowledge and the expertise to do so.

*“The knowledge and experiences of different partners complement each other and so they can together come to the solutions and successfully finish the projects.” (respondent 5)*

*“Everyone, the municipality, the industry, research institutions and the locals, involved in our community can only in collaboration make this city smart.” (respondent 2)*

#### Collaboration practices

The interviewees perceive the collaboration in the initiative as a long-term. The phrase long-term does not mean the next five years, neither does it mean the next ten years, but for a much more extended period of time. Stakeholders very rarely attend meetings where the projects and the future of the initiative are discussed. Instead they reportedly only work on a single project and then they move to the next one.

#### Challenges of collaboration

Most of the respondents have not encountered any challenges while collaborating with other stakeholders. Additionally, it has been said that there should not have come to any challenges as each stakeholder plays a different role in the project. Only one respondent reported that challenges do arise as this happens with every collaboration. This is due to many different interests that are represented in the initiative as well as the need to show off who has more power.

*“There exist many reasons why it comes to challenges in the initiative, however, it is mainly the case that the personal reasons are above the interests of the initiative.” (respondent 6)*

### 5.2.4 Motivation factors

The motivation factors mentioned most often are contribution to the development of the city and the entire region, improvement of the quality of life of the citizens, combining resources,

knowledge and expertise and innovation. Other factors have been referred to only once. The Table 6 below provides an overview of the reported motivation factors.

#### Contribute to development of the city and the entire region

The respondents most often referred to the contribution to development of the city and the entire region as the motivation factor. This is mainly due to the fact that the companies feel the responsibility that they should help develop the city.

*"We've always felt that it is our responsibility, as a large company, to help develop the city."*  
(respondent 1)

*"We want something better for the city."* (respondent 2)

#### Improve of the quality of life of citizens

Contribution to the development of the city and the entire region goes hand in hand with the improvement of the quality of life of the citizens. Similarly, the respondents feel the responsibility to improve the quality of life of the citizens and therefore, this is perceived as one of the main motivating factors for the collaboration in the initiative.

*"We feel motivated to work on the projects that help improve the quality of life of the citizens."*  
(respondent 5)

#### Innovation

Stakeholders refer to the innovation as another motivation factor. Moreover, they are driven to foster innovation and consequently come to the innovative solutions for urbanization problems of the hometown.

*"Our motivation is to implement the innovative ideas in the hometown."* (respondent 6)

#### Combined resources, knowledge and expertise

The respondents additionally report about the chance to combine the resources, knowledge and the expertise with other stakeholders as a motivation factor. The integration of the above mentioned elements could lead to better results in- and outside of the initiative, especially when compared to the results of one single stakeholder.

*"We are motivated to collaborate with other stakeholders as this can lead to combining the resources, knowledge and the expertise with them." (respondent 3)*

#### Improved image of the organization

One respondent is motivated to collaborate in the initiative as this can lead to the improved image of the organization. Smart city initiatives are considered as something positive among the broader population and the organizations involved can experience a greater acceptance, promotion and recognition among the customers.

*"The collaboration in the smart city initiatives can contribute to the improved image of the organizations and this is also our motivation." (respondent 4)*

*"We want to be known as an organization that is active and contributes to improving and developing the city." (respondent 2)*

#### Educate locals

Educating locals about smart cities is another motivation factor that has been proposed by a single organization. The aim here is to achieve greater awareness of the of urbanization challenges what can consequently lead to an increased participation in the initiative by the local community.

*"If the locals are aware about the initiative this might help to convince more people to start collaborating in the initiative." (respondent 3)*

#### Financial benefits

For one stakeholder financial benefits represent motivation for collaboration in the smart city initiative. The organization does not have the financial resources for the projects of the smart city initiative. Therefore in case the financial benefits would be available this would majorly motivate the organization to collaborate.

*"We are a public company that simply does not have money for that kind of projects." (respondent 2)*

Access to new markets

Stakeholders collaborating in the smart city initiatives include the companies of different sectors of the industry, research organizations and various public and private institutions. Therefore, individual stakeholders have a chance to connect with other organization through the collaboration in the initiative and can so access new markets for further projects or even outside of the scope of the initiative.

*“Our motivation is to access the new markets, even the foreign ones.” (respondent 6)*

Projects that align with the expertise and activities of the organization

The respondents are not motivated to collaborate on the projects that do not align with organization’s expertise or activities. The reason for this is that they feel they do not possess the knowledge on other areas and would therefore not be able to contribute to the projects. Additionally, collaborating on projects that do not align with the organization’s activities would be perceived as a waste of resources.

*“We are not interested on working on projects that have nothing to do with our sector, because we just don’t have the knowledge or the expertise and wouldn’t be able to actually help.” (respondent 5)*

Motivation factors	
Contribute to development of the city and the entire region	Improve of the quality of life of citizens
Innovation	Combined resources, knowledge and expertise
Improved image of the organization	Projects that align with the expertise and activities of the organization
Educate locals	Financial benefits
Access to new markets	

TABLE 6: MOTIVATION FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO COLLABORATE

### 5.2.5 Success factors

The success factors mentioned most often are trust, communication, common goals/shared vision, respect and mutual commitment. The rest of the factors have been referred to only once. The Table 7 below provides an overview of the reported success factors.

#### Trust

Trust is for the majority of respondents perceived as a base for successful collaboration. Stakeholders need to trust that partners will complete the assigned tasks, that they will complete the tasks on time, that they will follow the previously agreed-upon rules and that during the collaboration process their best interest will be considered.

*“Trust is for sure crucial for collaboration between stakeholders.” (respondent 6)*

#### Communication

Communication is another factor that is perceived as necessary for successful collaboration. With the regular communication misunderstandings can be avoided, other partners are informed about the progress of one’s work, new ideas are shared contributing to the effective collaboration.

*“In order to successfully complete a project partners have to communicate with each other in order to avoid misunderstandings, to stay on the same page regarding the developments of the project.” (respondent 1)*

#### Common goals/ Shared vision

Without a common goal and a shared vision the projects cannot be successfully completed or it takes much longer to complete them. This further leads to the unnecessary use of resources. Additionally, the arguments and frustration can arise, as the stakeholders do not know what are they aiming for. Consequently the stakeholders might lose interest collaborating in the initiative.

*“If each partner does their own thing, they also waste the unnecessary time, energy and money.” (respondent 1)*

*“It is necessary to know in what direction we are moving, are working toward and what is our goal.” (respondent 2)*



### Respect

Similarly as with good personal relationships and trust, respect is another success factor identified by the stakeholders. It is suggested that respect helps to avoid misunderstandings, contributes to good personal relationships and trust, increases fair collaboration and helps appreciate the work of other participants.

*“Trust goes hand in hand with good personal relationships and trust.” (respondent 4)*

### Mutual commitment to projects

When talking about mutual commitment the stakeholders refer to the fact that collaborating partners should be motivated to collaborate and should also desire to complete the project successfully. Furthermore, mutual commitment also means that the tasks are equally distributed among the stakeholders. The mutual commitment where stakeholders honestly want to participate and are ambitious makes the whole process much more efficient and the collaboration easier.

*“All of the partners of the initiative that work on the same project actually have to do their part.” (respondent 3)*

### Good personal relationships

Good personal relationships play an important role for successful collaboration. It has been reported that good relationships of participating stakeholders lead to better communication, misunderstandings can easier be avoided or these do not even occur, the common goals can easier be identified and reached and trust and respect are enhanced.

*“The whole collaborating process is much more pleasant and enjoyable if collaborating partners have a good relationships.” (respondent 1)*

### Presence of a coordinator

Only one interviewee mentioned presence of a collaborator as a factor that can contribute to the successful collaboration. It has been implied that partners of the initiative come from various backgrounds. Therefore, presence of a coordinator that would connect and lead the stakeholders or even act as a mediator is essential.

*“Without a coordinator there is just chaos.” (respondent 5)*

Success factors	
Trust	Communication
Common goals/ Shared vision	Respect
Presence of a coordinator	Mutual commitment to projects
Good personal relationships	

TABLE 7: SUCCESS FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO COLLABORATE

### 5.2.6 Conclusion

#### Downsides and benefits of the collaboration

The stakeholders do not report about any possible downsides of the collaboration in the smart city initiative.

*“Only positive things can come out of such a wonderful initiative.” (respondent 3)*

When asked about the benefits of the collaboration the respondents suggest that the successfully implemented projects benefit the whole community. The quality of life of the locals is improved, the long-term solutions for urbanization problems are developed and the image of the city is increased.

*“Everyone in Maribor benefits from the projects of the smart initiative as the projects that we work on contribute to the development of the city, there is less pollution, the mobility of the city is improved, there are less traffic jams etc.” (respondent 5)*

#### Additional comments

The respondents of the group of stakeholders, who do collaborate in the initiative, expressed additional concerns and wishes regarding the initiative. Firstly, the municipality and the e-Institute should become more active in regards to the initiative. Next, there should also be more resources available for the projects of the initiative. It is necessary to emphasize here that one person working full-time on the initiative is especially desired. Lastly, the long-term strategic plans regarding the projects of the initiative and the development of the city need to be implemented. Overall, however, the respondents are satisfied with the initiative and its coordinator and network manager.

## 5.3 Stakeholders, who do not collaborate

### 5.3.1 Smart city initiative

#### Perception of the smart city initiatives

All of the respondents perceive the smart city initiatives as something positive, due to the fact that they might help increase city's development and the quality of life of its citizens and additionally, help to tackle urbanization problems.

*"The smart city initiatives are in my opinion a propulsive new idea that can succeed and that could actually contribute to change." (respondent 10)*

*"Smart city initiatives are definitely a great first step for cities to become smart." (respondent 12)*

#### Definition of a smart city

All stakeholders interviewed define the smart city in a similar way. Smart city is a city that with the help of new technologies improves the quality of life of its citizens, tackles the urbanization problems and contributes to the development of a city.

*"The idea of a smart city is to improve the quality of life of its citizens using technology as an instrument to reach this." (respondent 13)*

#### Becoming a smart city

When asked what do a city needs to do in order to become a smart city the respondents agree that firstly, a clear vision, long-term plan and common goals should be determined. Next, stakeholders of a city should collaborate on projects especially designed to reach a goal of becoming a smart city, i.e. projects that tackle urbanization problems and improve the quality of the citizens' lives using new technologies.

*"First step is for leaders of the city to have a clear vision, meaning to know what they want to do with our city." (respondent 12)*

*"It should use the new, available technology in a way that it would ensure or increase the quality of life of its citizens." (respondent 15)*

### Smart city Maribor?

The stakeholders of the initiative do not perceive Maribor as a smart city. However, all except for one are convinced that the city is definitely going in the right direction with the initiative and its implemented and ongoing projects. One respondent implies that Maribor is not a smart city, as it does not do anything towards becoming one. Furthermore, approximately half of the respondents are informed about the work of the initiative, they follow the projects on the web site of the initiative.

*“The city is currently still lacking the attributes or characteristics of a smart city.” (respondent 14)*

*“The first steps have been made in this direction through different projects, but Maribor still has a long way ahead to become a smart city.” (respondent 15)*

### Involvement

All of the stakeholders became involved with the initiative at the invitation of the municipality of Maribor.

### Goals of the involvement

Most of the respondents' goals when they signed the memorandum of collaboration were to contribute to change in Maribor, especially in regards to the quality of life of locals. Additionally, the respondents report about having set goal to support the initiative with the knowledge and expertise. Moreover, few stakeholders signed the memorandum of collaboration with the aim to learn something new from other participating stakeholders. Only one respondent answered that it did not have any goals in mind when the memorandum was signed.

*“We wanted to be one of the stakeholders of the initiative as we thought we have certain knowledge and expertise with which we could also contribute to a better Maribor.” (respondent 9)*

*“Our goal was to contribute to change in Maribor.” (respondent 8)*

### 5.3.2 Stakeholder collaboration

#### Significance of stakeholder collaboration

Interviewees suggest that cities today are complex systems. Therefore, stakeholder collaboration is an integral part of the smart cities. Stakeholders from different industries complement each other and can only together try to tackle all of the pressing problems of cities as well as contribute to the development of the cities.

*“Only all of us together, private and public companies, research institutions and locals, can contribute to a better city. This task is a bit too big for only one or few individuals to tackle.” (respondent 7)*

*“Only a small group of stakeholders does not have enough knowledge on all of the areas of the city as this is very multidisciplinary.” (respondent 9)*

#### Reasons for the lack of collaboration

The respondents identify various reasons explaining why do they not actively collaborate in the initiative. Firstly, the coordinator is not proactive enough; the stakeholders however, do not have the time to be the initiators of the projects. Next, the stakeholders mention that the goals of the initiative are not set and the long-term strategy is also not developed. For these reasons they do not feel motivated to collaborate. Thirdly, the respondents imply that they do not have the financial resources to be able to actively participate in the initiative. Further, there are no current ongoing projects that would align with the activities, knowledge and expertise of the organization. Lastly, it has been mentioned by one respondent that its does not know how to start actively collaborating in the initiative, this is how to start projects and who to contact.

*“We do not want to work just on any projects that have nothing to do with our organization’s business.” (respondent 12)*

*“If we, stakeholders, would see some enthusiasm about the initiative we would also become more motivated.” (respondent 15)*

#### Challenges of collaboration

Overall, the stakeholders do not consider they would encounter any problems when collaborating with other stakeholders. Few respondents suggest that jealousy or competitiveness

could lead to some issues between the stakeholders, however, they are convinced that this would not lead to any real challenges. One respondent thinks that problems could occur as there are many different stakeholders collaborating in the initiative.

*“On all of the projects we work we collaborate with different stakeholders so we are used to collaborate. And we never have any problems when we collaborate with others.” (respondent 14)*

#### Positioning of the stakeholders in the network

All respondents agree that there has been no stakeholder network established at this phase of the initiative. When asked where do they position themselves, everyone answered that they in fact do not have a certain position in the network; they are the stakeholders who signed the memorandum. Additionally, in regards to the stakeholder hierarchy in the initiative the majority responded saying they simply do not know enough about the initiative. Few stakeholders imply that some partners are definitely more powerful, probably larger companies with more experiences. One interviewee suggests that in this phase of collaboration there is no stakeholder hierarchy developed, everyone is probably equal.

#### Considering active collaboration?

All the interviewees would want to become more proactively involved in the initiative. However, the majority of stakeholders suggest that this will only happen if the coordinators will become more active, i.e. initiating more projects, organizing meetings... Furthermore, some of the stakeholders responded that their active collaboration in the initiative heavily depends on the projects that would align with the activities of their organization, as they would only collaborate on those. One respondent stated that it would become actively involved under the conditions that politics is excluded and the experts get the priority.

*“We would work on projects that concern topics that are interesting for us, we have know-how and can actually contribute something.” (respondent 7)*

*“We are waiting with open arms to start contributing to the projects that would help develop this city we live in. However, it is not our job to be the initiators here.” (respondent 15)*

### 5.3.3 Suggestions for the coordinator

The respondents agree that the municipality should become a more active coordinator that would actually promote the collaboration and lead and connect the stakeholders of the initiative. Furthermore, it has been suggested that the initiative should become a much more prioritized project of the municipality. A budget should be allocated to the initiative in order to finance the resources needed for successful completion of the projects. Moreover, the vision, and a long-term plan for the initiative need to be developed and common goals need to be set. The respondents propose that many more meetings should be organized where the stakeholders would do the above mentioned. The majority of interviewees imply that one person should work full-time on the initiative. Additionally, the initiative needs professionals with vision and ideas, whereas the politicians need to take a step back. Also, the municipality should tackle the bureaucratic hurdles of Maribor concerning the stakeholder collaboration. Lastly, few respondents suggest that the coordinator should facilitate the collaboration by providing financial benefits, as many projects are not financially feasible and without these many stakeholders cannot afford to collaborate. Nevertheless, these respondents agree that active involvement of the municipality is a more important way of facilitation than any financial resources at the current stage of the initiative.

*“As mentioned before it should allocate certain resources, such as time, money and people to the initiative. It should also develop a long-term plan regarding what the initiatives wants to achieve and how will it do it.” (respondent 9)*

*“I do not perceive municipality as a proactive partner in this initiative, but should have been exactly that.” (respondent 10)*

*“The municipality should in the phase of planning the projects or activities include and ask the stakeholders about their ideas, what projects would they like to work on.” (respondent 11)*

### 5.3.4 Motivation factors

#### Shared knowledge and the expertise

The mostly mentioned motivation factor by the respondents is that they would be highly motivated to participate on the projects where they could share their own knowledge and expertise with everyone in the community. The respondents are convinced that their shared knowledge would contribute to successful completion of the projects and would therefore benefit the whole city

*"We would be very motivated if we could share our knowledge with others through the projects contributing to the successful completion of the projects of the initiative." (respondent 13)*

#### Improved quality of life of citizens

Further, the same number of stakeholders stated that for them the driving force for collaboration would be projects that in their opinion help improve the quality of life of the people of Maribor.

*"It is important to us that this company helps improve the quality of life in Maribor." (respondent 14)*

#### Financial benefits

Thirdly, for some interviewees the main driving factor for collaboration would be the financial benefits received for successfully completed projects. This is especially the case for the companies from the industry that do not have resources available for collaboration and for the institutions that are funded solely when working on projects.

*"Financial benefits would motivate us as we cannot afford to work on the initiative without being funded." (respondent 14)*

#### Projects that align with the expertise and activities of the organization

The stakeholders report that the motivation for the collaboration would also be the projects that align with the expertise and activities of the organization. The respondents feel that they are not able to contribute to the projects that are out of their scope.

*"Projects from our field of expertise would of course interest and motivate us. We do not think we can help or collaborate on any other projects that are out of the scope of our knowledge and expertise." (respondent 8)*

#### Access to new business opportunities

It has been reported that the motivation for collaboration in the initiative would be to work with the stakeholders from different backgrounds with the aim to access the new business opportunities.



*"We also want to get to know other stakeholders in the city so that we could maybe collaborate on other projects as well." (respondent 15)*

#### Access to new knowledge

Moreover, interviewees imply that access to new knowledge that is otherwise rather difficult to acquire is another motivation factor for the collaboration.

*"We would also like to learn something new from other stakeholders." (respondent 9)*

#### Increased activity of the initiative

Two respondents would feel more motivated for collaboration if the initiative would have been more active. This is largely due to the fact that *"the companies are very busy and simply do not have the resources available for stagnant projects"*.

#### Contribute to development of the city and the entire region

Few stakeholders imply that their main driving force for the collaboration would be the ability to contribute to the development of the city and the entire region. It has been reported that for the current projects the respondents do not feel they actually contribute to the development of the city.

*"We genuinely want to help improve the city, so this would be our main motivation." (respondent 13)*

#### Improved image of the organization

Only one respondent would feel motivated to collaborate in the initiative for the reasons of the improved image of the company as it is in the company's interest that the customers are aware of the fact that they help to improve the city.

*"The improved image of the organization would definitely motivate us. It is important to us that this company helps improve the quality of life in Maribor and that our customers also know about it." (respondent 12)*

The Table 8 below provides an overview of the reported motivation factors.

Motivation factors	
Shared knowledge and the expertise	Improved quality of life of citizens
Financial benefits	Projects that align with the expertise and activities of the organization
Access to new business opportunities	Access to new knowledge
Increased activity of the initiative	Contribute to development of the city and the entire region
Improved image of the organization	

TABLE 8: MOTIVATION FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO NOT COLLABORATE

### 5.3.5 Success factors

The success factors mentioned most often are presence of a coordinator, trust, common goals, financial benefits and mutual commitment. The rest of the factors have been referred to only once. The Table 9 below provides an overview of the reported success factors.

#### Presence of a coordinator

The stakeholders perceive the presence of a coordinator as an essential factor for successful smart city initiative. The coordinator should be active, seriously and fully committed, connect and stimulate the stakeholders, organize meetings and promote the initiative.

*“At the stage where the smart city initiative is now, the most important factor for success is a good, active and motivated coordinator that would only and seriously work on the mentioned initiative.” (respondent 7)*

#### Trust

The respondents suggest that trust is a base for successful collaboration as they need to be able to trust the partners that they will complete their tasks, that they will follow the plan and lastly that they will share the benefits of the collaboration.

*“Of course in every partnership you have to trust the other parties.” (respondent 7)*

### Common goals/ Shared vision

The common goals and a shared vision have been identified as other essential factors contributing to the successful collaboration of stakeholders. The goals and the vision have to be clearly defined and also followed. In addition, it has been mentioned that the common goals are necessary in order for everyone involved to know what they are working for.

*“Vision is the alpha and omega of the success of this initiative.” (respondent 13)*

### Financial benefits

According to the respondents, the financial benefits would lead to successfully completed projects due to the fact that the organizations would spend more time and energy collaborating on the projects. Moreover, it has been emphasized that everyone involved with the project needs to receive a benefit. In case that some partners do not receive benefits, this might lead to an unsuccessful collaboration, as these partners will not be motivated as much as everyone else and will so not contribute as much.

*“The idea about receiving financial benefits leads to successful projects as everyone is much more motivated and takes more time to work on the project.” (respondent 12)*

### Mutual commitment

When talking about mutual commitment the stakeholders refer to the fact that collaborating partners should be motivated to collaborate and should also desire to complete the project successfully. The mutual commitment where stakeholders honestly want to participate makes the whole process much more efficient and the collaboration easier.

### Excellence

One respondent implied that excellence of stakeholders is additional success factor. This means that partners collaborating in the projects of the initiative have to possess excellence, meaning they have to be “great” at their job. Only stakeholders that are excellent in what they do can jointly find solutions for the complex and multidisciplinary problems of the cities today.

### Teamwork

Stakeholders usually collaborate on projects in a team. Only if all of them contribute, this is sharing knowledge, actively participating etc., the project can be successfully completed. As

one responded stated: *“Teamwork does not mean that you have 5 people collaborating on a project, but one actually does the job”*.

#### Claiming responsibility for own actions

Collaborating stakeholders also have to be responsible and be able to make decisions and stand behind these decisions in order to be able to contribute to successful completion of the projects.

*“I hate to collaborate with people that cannot decide or do not take the responsibility for own decisions.” (respondent 8)*

#### Creativity

When it comes to the projects of the smart city initiatives creative thinking of the stakeholders is one of the factors that lead to successful completion. According to the respondent, smart cities are complex systems, with many pressing problems, that require everyone involved to *“think outside of the box”* in order to find new solutions.

#### Sufficient resources available to the municipality

Another factor that can contribute to the successful collaboration in the smart city initiatives is that the municipality has sufficient resources available for the projects of the initiative. The availability of resources means time, money and people. The lack of these can contribute stagnation of projects or initiatives and lack of motivation for collaboration.

#### Good personal relationships

A good personal relationship of the collaborating stakeholders is another factor needed for successful collaboration. Good relationships can contribute to improved communication and decreased amount of arguments, making it easier for everyone involved to complete own tasks.

#### Communication

Communication between the stakeholders helps to avoid misunderstandings and confusion regarding the progress of the projects and common goals, enables partners to share knowledge and expertise and enables partners to jointly think of new and innovative ideas.

Success factors	
Presence of a coordinator	Trust
Common goals/ Shared vision	Financial benefits
Mutual commitment	Communication
Excellence	Teamwork
Claiming responsibility for own actions	Creativity
Sufficient resources available to the municipality	Good personal relationships

TABLE 9: SUCCESS FACTORS PROPOSED BY THE STAKEHOLDERS, WHO DO NOT COLLABORATE

### 5.3.6 Conclusion

#### Future of the city and the initiative

Overall the respondents agree that the future of the initiative and consequently of Maribor majorly depends on the coordinator of the initiative, i.e. if the coordinators will be able to revive the initiative. Furthermore, it is suggested that the future can look bright for both the city and the initiative. However, firstly, long-term goals and strategy need to be set and developed and secondly, the coordinators and the stakeholders of the city have to start actively collaborating on the projects of the initiative.

*“If we will only occupy ourselves with football then there is no bright future for us. We need a focused strategy for the next 20 years where we will make a plan what we want to do with Maribor.” (respondent 8)*

*“Things will not change on its own. Also, if the ideas are written on a piece of paper this will not lead to change either.” (respondent 9)*

## 5.4 Discussion

Smart city initiatives are perceived as something positive and essential for the future of the cities according to the interviewed stakeholders of the smart city initiative Maribor. Furthermore, the respondents are convinced that with the help of such initiatives the cities' development can be fostered, the quality of life of its citizens can be improved and the solutions for

the pressing urbanization problems can be found. Additionally, the interviewees agree that there do not exist downsides of such initiatives, only benefits. The benefits proposed include the improved quality of life of the locals, found solutions for urbanization problems and the improved image of the city.

All of the respondents suggest that the collaboration of stakeholders in smart city initiatives is an integral part for successful collaboration in the initiatives and consequently for successful smart cities. The reason for this is that the stakeholders from different industries complement each other and can only together try to tackle all of the pressing problems of cities as well as contribute to the development of the cities. These findings also support the findings of various other researchers, for example Bakici et al. (2012, p. 13): “cities need to proactively engage and collaborate with public and private organizations as well as knowledge institutions in order to run the smart city model successfully”.

Nevertheless, out of 27 stakeholders that signed memorandum of collaboration of the smart city initiative Maribor, only nine have been actively involved in the projects of the initiative. All of the stakeholders have been invited to sign the memorandum and the majority of them had certain goals in mind when they agreed to collaborate. The goals included the desire to contribute to the development of the city of Maribor, to help improve quality of life of citizens, to support the initiative with their knowledge and expertise and to learn something new from other participants.

However, since the beginning of the initiative the behavior of most of the stakeholders changed, as they did not become actively involved in the initiative. The respondents of the group of stakeholders, who do not collaborate, named several reasons for their lack of collaboration in the initiative. These include the fact that the coordinator is not proactive enough and the stakeholders, however, do not have the time to be the initiators of the projects. Next, the stakeholders mention that the goals of the initiative are not set and the long-term strategy is also not developed. For these reasons they do not feel motivated to collaborate. Thirdly, the respondents imply that they do not have the financial resources to be able to actively participate in the initiative. Further, there are no current ongoing projects that would align with the activities, knowledge and expertise of the organization. Similarly, the stakeholders, who do collaborate in the initiative report that they rarely attend meetings where the projects and the future of the initiative are discussed, as there are none organized. Additionally, the municipality of Maribor and e-Institute identified unresponsiveness and non-collaboration of stakeholders as the biggest challenges of the initiative. The above-described behavior can also be identi-

fied in the literature. According to Baccarne et al. (2014) many smart city initiatives face the challenge where stakeholders are not participating. Furthermore, McQuaid (2010) identified several similar problems of the stakeholder collaboration, such as conflicts over goals and objectives, organizational difficulties and cost of resources. Nevertheless, the municipality of Maribor and e-Institute imply that the reason for the unresponsiveness and non-collaboration of stakeholders is also their own fault, as they do not promote the collaboration in the initiative enough and are not actively involved in the initiative. They only contact the stakeholders when they have new ideas about the next projects that could be implemented. The respondents organize meetings on an irregular basis where the topics and projects that could be realized next are discussed. Furthermore, they describe the collaboration with the stakeholders as informal, without having set any formal goals they want to achieve. This is mainly due to the shortage of the municipality's resources (time, money and people) and their lack of interesting projects. Also, the respondents of the group of stakeholders, who do collaborate, agree that the municipality and e-Institute should become more actively involved in the initiative in order for the initiative to have a greater progress.

All of the interviewees of the group of stakeholders, who do not collaborate, would, however, want to become more proactively involved in the initiative. The research produced a list of motivation factors, which could increase the participation rate of active stakeholders and reinforce the involvement of stakeholders, who do not collaborate (see Table 10).

Motivation factors	
Contribute to the development of the city and the entire region	Improve the quality of life of citizens
Find solutions for city's urbanization problems	Improved image of the organization
Combine resources, knowledge and expertise	Financial benefits
Projects that align with the expertise and activities of the organization	Access to new business opportunities and new markets
Innovation	Increased activity of the initiative
Education of locals	

TABLE 10: MOTIVATION FACTORS FOR COLLABORATION

The respondents referred to the contribution to development of the city and the entire region, improvement of the quality of life of citizens and finding solutions for city's urbanization problems as main motivation factors. This is mainly due to the fact that the companies feel the responsibility that they can with their knowledge and expertise contribute to the above-mentioned areas of the city and that changes in the complex above-mentioned areas require the knowledge and expertise of more than only one stakeholder. Similar findings have also been found in the literature. According to Leeb and Rudeberg (2014), Austin (2000) and Van Huijstee et al. (2007) social, environmental and economic issues are very complex and the solutions for just these are barely impossible to find by an individual.

Smart city initiatives are considered as something positive among the broader population and the organizations involved can experience a greater acceptance, promotion and recognition among the customers what leads to the improved image of the entire organization. This has also been found in the studies of Van Huijstee et al. (2007), Leeb and Rudeberg (2014) and Woodland and Hutton (2012).

The chance to combine resources, knowledge and expertise is another factor proposed by all stakeholder groups. The integration of the above mentioned elements could lead to better results in- and outside of the initiative, especially when compared to the results of one single



stakeholder what consequently leads to successful completion of the projects and could therefore benefit the whole city. Bendell (2000) as well as Leeb and Rudeberg (2014) also came to this conclusion stating that collaboration with others can contribute to creation of something superior to what stakeholders could have achieved individually.

Stakeholders collaborating in the smart city initiatives include the companies of different sectors of the industry, research organizations and various public and private institutions. Therefore, individual stakeholders have a chance to connect with other organization through the collaboration in the initiative and can so access new markets or business opportunities for further projects or even outside of the scope of the initiative. Also, Leeb and Rudeberg (2014) confirm this statement by adding that stakeholders individually might not get an access to the new markets.

Stakeholders refer to the innovation as another motivation factor. Moreover, they are driven to foster innovation and consequently come to the innovative solutions for urbanization problems of the hometown. Leeb and Rudeberg (2014) came to the same conclusion in their study of stakeholder collaboration in a sustainable city.

Educating locals about smart cities is another motivation factor that has been proposed by stakeholders. The aim here is to achieve greater awareness of the of urbanization challenges what can consequently lead to an increased participation in the initiative by the local community. These empirical findings are conforming to the ones of Leeb and Rudeberg (2014). The authors additionally imply that only education does not lead to change, action is also required.

The following factors have not been previously proposed by the literature.

The respondents would reportedly feel more motivated for collaboration if the initiative would have been more active. This is largely due to the fact that companies do not have the resources available for stagnant projects.

The stakeholders report that the motivation for the collaboration would also be the projects that align with the expertise and activities of the organization. The respondents feel that they are not able to contribute to the projects that are out of their scope. Additionally, collaborating on projects that do not align with the organization's activities would be perceived as a waste of resources.

Another motivation factor suggested are financial benefits. This is especially the case for the companies from the industry that do not have resources available for collaboration and for the institutions that are funded solely when working on projects.

Additionally, factors that are essential for successful collaboration in smart city initiatives proposed by all of the stakeholder groups are discussed below (see Table 11).

Success factors	
Good personal relationships	Communication
Trust	Common goals/shared value
Presence of a coordinator	Mutual commitment
Financial benefits	Sufficient resources available to the municipality
Creativity	Excellence
Respect	

TABLE 11: SUCCESS FACTORS FOR COLLABORATION

Good personal relationships play an important role for successful collaboration. This is also proposed by Mohr and Speckman (1994). It has been reported that good relationships of participating stakeholders lead to improved communication, misunderstandings can easier be avoided or these do not occur, the common goals can easier be identified and reached, trust and respect are enhanced, making it easier for everyone involved to complete own tasks.

Communication is another factor that is perceived as necessary for successful collaboration. With the regular communication misunderstandings can be avoided, other partners are informed about the progress of one's work and knowledge and expertise are shared enabling partners to jointly think of new and innovative ideas. Furthermore, Leeb and Rudeberg (2014) suggest that non-communication between stakeholders can be perceived as refusal to commitment and interest and can as well lead to confusion and misunderstandings.

Trust is according to respondents perceived as a base for successful collaboration. Stakeholders need to trust that partners will complete the assigned tasks, that they will complete the tasks on time, that they will follow the previously agreed-upon rules, that they will share the

benefits of the collaboration and that during the collaboration process their best interest will be considered. The empirical findings of this study confirm the research by Mohr and Spekman (1994).

Similarly as with good personal relationships and trust, respect is another success factor identified by the stakeholders. It is suggested that respect helps to avoid misunderstandings, contributes to good personal relationships and trust, increases fair collaboration and helps appreciate the work of other participants. The literature further suggests that too much respect of one partner towards the other can contribute to the feeling that one is superior to the other one (Leeb & Rudeberg, 2014).

Without a common goal and a shared vision the projects cannot be successfully completed or it takes much longer to complete them. This further leads to the unnecessary use of resources. Additionally, the arguments and frustration can arise, as the stakeholders do not know what are they aiming for. Consequently the stakeholders might lose interest collaborating in the initiative. McQuaid (2010), Van Huijstee et al. (2007) and Leeb and Rudeberg (2014) also identified common goals as success factors for collaboration. Leeb and Rudeberg (2014) added that a plan should be determined of how to reach the identified common goals.

The stakeholders perceive the presence of a coordinator as an essential factor for successful smart city initiative. The coordinator should be active, seriously and fully committed, should connect, lead and stimulate the stakeholders, organize meetings, promote the initiative or even act as a mediator. Furthermore, Leeb and Rudeberg (2014) suggest that the coordinator is a neutral person and that is very well familiar with the collaboration. Additionally, the authors propose that the coordinator should be present when there are many stakeholders collaborating or these come from very different backgrounds (Leeb & Rudeberg, 2014).

When talking about mutual commitment the stakeholders refer to the fact that collaborating partners should be motivated to collaborate and should also desire to complete the project successfully. Furthermore, mutual commitment also means that the tasks are equally distributed among the stakeholders. The mutual commitment where stakeholders honestly want to participate and are ambitious makes the whole process much more efficient and the collaboration easier. According to Wood and Gray (1991) the mutual commitment of stakeholders leads to positive results of collaboration. Leeb and Rudeberg (2014) additionally imply that stakeholders that are not committed to collaboration also do not deliver the best work.

Another factor that can contribute to the successful collaboration in the smart city initiatives is that the municipality has sufficient resources available for the projects of the initiative. The availability of resources means time, money and people. The lack of these can contribute stagnation of projects or initiatives and lack of motivation for collaboration. According to Leeb and Rudeberg (2014), the stakeholders have to have enough disposable resources for the collaboration in the initiative or they have to prioritize the collaboration process.

The following factors have not been previously proposed by the literature.

Respondents implied that excellence of stakeholders is additional success factor. This means that partners collaborating in the projects of the initiative have to possess excellence, meaning they have to be key actors in their area of expertise. Only stakeholders that are excellent in what they do can jointly find solutions for the complex and multidisciplinary problems of the cities today.

When it comes to the projects of the smart city initiatives creative thinking of the stakeholders is one of the factors that lead to successful completion. According to the respondents, smart cities are complex systems, with many pressing problems, that require everyone involved thinking outside of the box in order to find new solutions.

According to the respondents, the financial benefits would lead to successfully completed projects due to the fact that the organizations would spend more time and energy collaborating on the projects. Moreover, it has been emphasized that everyone involved with the project needs to receive a benefit. In case that some partners do not receive benefits, this might lead to an unsuccessful collaboration, as these partners will not be motivated as much as everyone else and will so not contribute as much.

To conclude, Maribor is according to the stakeholders of the initiative not yet a smart city. However, it has been agreed upon that the city is definitely going in the right direction with the initiative and its implemented and ongoing projects. The future of the initiative and consequently of Maribor majorly depends on the coordinator of the initiative, i.e. if the coordinator will be able to revive the initiative. Therefore, a set of suggestions, included from both groups of stakeholders, has been made for the coordinator implying how to increase stakeholder collaboration. The respondents agree that the municipality should become a more active coordinator that would actually promote the collaboration and lead and connect the stakeholders of the initiative. Furthermore, it has been suggested that the initiative should become a much more prioritized project of the municipality. A budget should be allocated to the initiative in

order to finance the resources needed for successful completion of the projects. Moreover, the vision, and a long-term plan for the initiative need to be developed and common goals need to be set. The respondents propose that many more meetings should be organized where the stakeholders would do the above mentioned. The majority of interviewees imply that one person should work full-time on the initiative. Additionally, the initiative needs professionals with vision and ideas, whereas the politicians need to take a step back. Also, the municipality should tackle the bureaucratic hurdles of Maribor concerning the stakeholder collaboration. Lastly, few respondents suggest that the coordinator should facilitate the collaboration by providing financial benefits, as many projects are not financially feasible and without these many stakeholders cannot afford to collaborate. Nevertheless, these respondents agree that active involvement of the municipality is a more important way of facilitation than any financial resources at the current stage of the initiative.

## 6 CONCLUSION

### 6.1 Final Remarks

This study was conducted with the aim to answer the following research question: “Which factors play a critical role for stakeholders to engage and subsequently collaborate in the smart city initiatives?”

To be able to do so the relevant literature has been reviewed including topics about smart cities, stakeholders, stakeholder networks, challenges of stakeholder collaboration in smart city initiatives, significance for stakeholder collaboration in smart city initiatives and motivation and success factors. Next, the smart city initiative Maribor has been researched in order to better understand the scope, the background and the projects of the initiative. After conducting primary research, secondary research followed.

Overall, the study identified 11 factors that would according to the respondents motivate them to start participating in the initiative more actively. Motivation factors that have been discussed in the results chapter of this thesis include contribution to the development of the city and the entire region, improve the quality of life of citizens, find solutions for city’s urbanization problems, improve image of the organization, combine resources, knowledge and expertise, financial benefits, projects that align with the expertise and activities of the organization and access to new business opportunities and new markets. Similarly, 11 factors were identified that lead to successful stakeholder collaboration in the smart city initiatives: good personal relationships, communication, trust, common goals/shared value, presence of a coordinator, mutual commitment, financial benefits, sufficient resources available to the municipality, creativity, excellence of partners and respect.

### 6.2 Recommendations

By identifying these factors, the thesis is able to provide recommendations for project initiators with similar challenges smart city initiative Maribor is facing on how to attract and engage essential stakeholders, subsequently leading to successful initiatives. Therefore, a set of suggestions, included from both groups of stakeholders, has been made for the coordinator implying how to increase stakeholder collaboration. The respondents agree that the municipality should become a more active coordinator that would actually promote the collaboration and

lead and connect the stakeholders of the initiative. Furthermore, it has been suggested that the initiative should become a much more prioritized project of the municipality. A budget should be allocated to the initiative in order to finance the resources needed for successful completion of the projects. Moreover, the vision, and a long-term plan for the initiative need to be developed and common goals need to be set. The respondents propose that many more meetings should be organized where the stakeholders would do the above mentioned. The majority of interviewees imply that one person should work full-time on the initiative. Additionally, the initiative needs professionals with vision and ideas, whereas the politicians need to take a step back. Also, the municipality should tackle the bureaucratic hurdles of Maribor concerning the stakeholder collaboration. Lastly, few respondents suggest that the coordinator should facilitate the collaboration by providing financial benefits, as many projects are not financially feasible and without these many stakeholders cannot afford to collaborate. Nevertheless, these respondents agree that active involvement of the municipality is a more important way of facilitation than any financial resources at the current stage of the initiative.

### **6.3 Contribution to the knowledge**

The theory has thus far identified stakeholder collaboration as an essential element of successful smart city initiatives. Furthermore, it can be found in the research that stakeholder collaboration is a major challenge of smart city initiatives across Europe. However, there exists a lack of knowledge on how to engage and involve stakeholders in such initiatives and what factors lead to successful stakeholder collaborations in the mentioned initiatives. This study does exactly that as it identifies motivation and success factors of the stakeholder collaboration in smart city initiatives. The majority of these have only been identified by Leeb and Rudeberg (2014) in a study on sustainable cities. Additionally, the following motivation factors, increased activity of the initiative, projects that align with the expertise and activities of the organization and financial benefits and success factors, excellence of stakeholders, financial benefits and creative thinking have not been previously identified in the literature. Furthermore, this thesis provides the governments and coordinators of smart city initiatives with the useful recommendations for successful initiatives as proposed by the stakeholders.

### **6.4 Limitations of the study and future research**

Several limitations of the study have been observed. Firstly, the interviews have been conducted solely with the stakeholders of the smart city initiative Maribor. Therefore, the empirical findings cannot be generalized for all of the smart city initiatives. Secondly, a rather small

sample has been interviewed, total of 18 out of 27 stakeholders of the initiative. Further, the interviews were conducted in Slovene language and the responses were translated in English language for the purpose of this thesis. The author of the thesis is not a professional translator; therefore, meanings of different phrases or words might have been lost through translation. Lastly, the smart city initiative Maribor is a rather new initiative where majority of stakeholders are not collaborating. Therefore, many interviewees kept their answers rather short or did not know the answers to some of the questions.

Future research should test the empirical results of this study on other smart city initiatives, including a higher amount of stakeholders in order to be able to compare the results.



## 7 BIBLIOGRAPHY

- Albino, V., Berardi, U. & Dangelico, R. M. (2015). Smart Cities: Definitions, Dimensions, Performance, and Initiatives. *Journal of Urban Technology*, 22(1), 321. doi: 10.1080/10630732.2014.942092
- Albrecht, J. N. (2013). Networking For Sustainable Tourism- Towards A Research Agenda. *Journal of Sustainable Tourism*, 21(5), 639–657. doi: 10.1080/09669582.2012.721788
- Auci, S. & Mundula, L. (2012). Smart Cities and a Stochastic Frontier Analysis: A Comparison among European Cities. Available: [http://aisre.it/images/old\\_papers/Auci\\_Mundula\\_AISRe\\_Roma\\_2012\\_paper.pdf](http://aisre.it/images/old_papers/Auci_Mundula_AISRe_Roma_2012_paper.pdf) [retrieved on 11 November]
- Austin, J. (2000). *The Collaboration Challenge*, San Francisco: Jossey-Bass.
- Bakici, Y. T., Almirall, E. & Wareham, J. (2012). A Smart City Initiative: The Case of Barcelona. doi: 10.1007/s13132-012-0084-9
- Batty, M., Axhausen, K. W., Giannotti, F., Pozdnoukhov, A., Bazzani, A., Wachowicz, M., Ouzounis, G. & Portugali, Y. (2012). Smart Cities Of The Future. *The European Physical Journal Special Topics*, 214, 481–518. doi: 10.1140/epjst/e2012-01703-3
- Bendell, J. (2000). Introduction: Working With Stakeholder Pressure For Sustainable Development, in J. Bendell, (Eds.), *Terms For Endearment: Business, NGOs and Sustainable Development*. Sheffield: Greenleaf Publishing Limited.
- Beritelli, P. (2011). Cooperation Among Prominent Actors in a Tourist Destination. *Annals of Tourism Research*, 38(2), 607–629. doi: 10.1016/j.annals.2010.11.015
- Berry, C. R. & Glaeser, E. (2005). The Divergence of Human Capital Levels Across Cities. *Papers in Regional Science*. doi: 10.2139/ssrn.794551
- Breuer, L. (2014). Smart City- Planning for Energy, Transportation and Sustainability of the Urban System. *Journal of Land Use, Mobility and Environment*.
- Buhalis, D., Boes, K., & Inversini, A. (2015). Conceptualising Smart Tourism Destination Dimensions. *Information and Communication Technologies in Tourism*, 391–403. doi: 10.1007/978-3-319-14343-9\_29

- Byrd, E. T. (2007). Stakeholders In Sustainable Tourism Development And Their Roles: Applying Stakeholder Theory To Sustainable Tourism Development. *Tourism Review*, 62(2), 6–13. doi: 10.1108/16605370780000309
- Calton, J. & Kurland, N. (1996). A Theory of Stakeholder Enabling: Giving Voice to an Emerging Postmodern Praxis of Organizational Discourse, in D. Boje, R. Gephart & T-J. Thatchenkery, (Eds.), *Postmodern Management And Organization Theory*. Thousand Oaks: Sage Publications, Inc.
- Caragliu, A., Del Bo, C. & Nijkamp, P. (2011). Smart Cities in Europe. *Journal of Urban Technology*, 18(48). doi: 10.1080/10630732.2011.601117
- Carley, M. and Jenkins, P. & Small, H. (2001). *Urban Development and Civil Society: The Role of Communities in Sustainable Cities*. London: Earthscan.
- Cooke, P. & De Propriis, L. 2011. A policy agenda for EU smart growth: the role of creative and cultural industries. *Policy Studies*, 32, 365–375. doi: 10.1080/01442872.2011.571852
- Cretu, L-G. (2012). Smart Cities Design Using Event-driven Paradigm and Semantic Web. *Informatica Economica*, 16(4). Available: <http://www.revistaie.ase.ro/content/64/07%20-%20Cretu.pdf> [retrieved on 4 January]
- Dameri, R. P. (2014). *Comparing smart and digital city: Initiatives and strategies in Amsterdam and Genoa*. Are they digital and/or smart? In R. P. Dameri & C. Rosenthal-Sabroux (Eds.), *Smart city*, 45–88. Berlin: Springer.
- Dameri, R. P. & Rosenthal-Sabroux, C. (2014). *How to Create Public and Economic Value with High Technology in Urban Space*. Switzerland: Springer. doi: 10.1007/978-3-319-06160-3
- Dirks, S., & Keeling, M. (2009). A Vision of Smarter Cities: How Cities Can Lead the Way into a Prosperous and Sustainable Future. *IBM Global Business Services*. Available: [http://www-03.ibm.com/press/attachments/IBV\\_Smarter\\_Cities\\_-\\_Final.pdf](http://www-03.ibm.com/press/attachments/IBV_Smarter_Cities_-_Final.pdf) [retrieved on 4 January]
- Eger, J. M. (2009). Smart Growth, Smart Cities, and The Crisis at The Pimp A Worldwide Phenomenon. *I-Ways*, 32(1), 47–53.
- EU Parliament. (2014). *Mapping Smart Cities in the EU*. Policy Department A. Available: <http://www.europarl.europa.eu/studies> [retrieved on 20 October 2016]
- Fathimath, A. (2015). The Role of Stakeholder Collaboration in Sustainable Tourism Competitiveness: The Case of Auckland, New Zealand. A thesis submitted to Auckland University of Technology in fulfillment of the requirements for the degree of Doctor of Philosophy in Tourism Management.

- Flick, U. (2006). *An Introduction to Qualitative Research*. SAGE Publications: London (3<sup>rd</sup> ed).
- Franco, L. A. (2008). Facilitating Collaboration With Problem Structuring Methods: A Case Study Of An Inter-Organizational Construction Partnership. *Group Decis Negot*, 17, 267–286. doi: 10.1007/s10726-007-9093-7
- Frooman, J. (1999). Stakeholder Influence Strategies. *The Academy of Management Review*, 24(2), 191–205. Available: [https://www.jstor.org/stable/259074?seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/259074?seq=1#page_scan_tab_contents) [retrieved on 25 March 2017]
- Giffinger, R., Fertner, C., Kalasek, R. & Meijers, E. (2007). *Smart Cities- Ranking of European Medium Sized Cities* [online]. Vienna University of Technology. Available: [https://www.researchgate.net/publication/261367640\\_Smart\\_cities\\_-\\_Ranking\\_of\\_European\\_medium-sized\\_cities](https://www.researchgate.net/publication/261367640_Smart_cities_-_Ranking_of_European_medium-sized_cities) [retrieved on 20 October 2016]
- Google. (n.d.). Available: <http://goo.gl/maps/>
- Gray, B. (1989). *Negotiations: Arenas for reconstructing meaning*. Unpublished working paper. Pennsylvania State University, Center for Research in Conflict and Negotiation. University Park, PA.
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart Tourism: Foundations and Developments. *Electronic Markets*, 25(3), 179–188. doi: 10.1007/s12525-015-0196-8
- Gulati, R. (1998). Alliances And Networks. *Strategic Management Journal*, 19(4), 293–317. doi: 10.1002/(SICI)1097-0266(199804)19:4<293::AID-SMJ982>3.0.CO;2-M
- Gulati, R., Wohlgezogen, F., & Zhelyazkov, P. (2012). The Two Facets Of Collaboration: Cooperation and Coordination In Strategic Alliances. *The Academy of Management Annals*, 6(1), 531–583. doi: 10.1080/19416520.2012.691646
- Guo, Y., Liu, H., & Chai, Y. (2014). The embedding convergence of smart cities and tourism internet of things in China: An advance perspective. *Advances in Hospitality and Tourism Research*, 2(1), 54–69. Available: [http://www.ahtrjournal.org/admin/dosyalar/6/54\\_69.pdf](http://www.ahtrjournal.org/admin/dosyalar/6/54_69.pdf) [retrieved on 25 March 2017]
- Gursoy, D., Saayman, M., & Sotiriadis, M. (2015). Introduction In D. Gursoy, M. Saayman, & M. Sotiriadis (Eds.), *Collaboration in Tourism Business and Destinations: A handbook*, pp. xv–xxvi. Bingley, UK: Emerald Group Publishing Limited.

- Hall, R. E. (2000). The Vision of a Smart City. 2<sup>nd</sup> *International Life Extension Technology Workshop*. Available: <https://www.osti.gov/scitech/servlets/purl/773961> [retrieved on 4 January 2017]
- Harrison, C., Eckman, B., Hamilton, R., Hartswick, P., Kalagnanam, J., Paraszczak, J. & Williams, P. (2010). Foundations For Smarter Cities. *IBM J. RES. & DEV.*, 54(4). doi: 10.1147/JRD.2010.2048257
- Horvat, U. (2012). Transformation of The Tourist Infrastructure and Tourist Arrivals in Maribor in The Last Two Decades. *Journal for Geography*, 7, 2, 127138.
- Khare , A., Beckman, T. & Crouse N. (2011). Cities Addressing Climate Change: Introducing a Tripartite Model for Sustainable Partnership. *Sustainable Cities and Society*, 1, pp. 227235. doi: 10.1016/j.scs.2011.07.010
- Kordiš, M. (2015). The 1980s and Present in Maribor- Creativity and Deja vu: Between Ethnography and the Construction of Heritage. *Anthropological Journal of European Cultures*, 24, 2, pp. 5575. doi: 10.3167/ajec.2015.240205
- Lindskog, H. (2004). Smart communities initiatives. In *Proceedings of the 3rd ISOneWorld Conference* (Las Vegas, NV, Apr 14-16). Available: [https://www.researchgate.net/publication/228371789\\_Smart\\_communities\\_initiatives](https://www.researchgate.net/publication/228371789_Smart_communities_initiatives) [retrieved on 20 March 2017]
- Leeb, S. & Rudeberg, C. (2014). Stakeholder Collaboration in a Sustainable City- A Case Study of San Francisco. Department of Business Administration, Lund University.
- Leydesdorf, L. & Deakin, M. (2011). The Triple Helix Model of Smart Cities: a neo-evolutionary perspective. Available: <http://www.leydesdorff.net> [retrieved on 20 March 2017]
- Lombardi, P., Giordano, S., Farouh, H. & Wael, Y. (2012). Modelling The Smart City Performance. *Innovation: The European Journal of Social Science Research*, 25(2), 137–149. doi: 10.1080/13511610.2012.660325
- Lorber, L. (2006). Development of the Industrial areas of Maribor and Change of Their Intended Function. *Arbeitsmaterialien zur Raumordnung und Raumplanung*, 250, pp. 35-48.
- Mayangsari, L. & Novani, S. (2015). Multi-stakeholder co-creation analysis in smart city management: an experience from Bandung, Indonesia. *Procedia Manufacturing*, 4, 315–321. doi: 10.1016/j.promfg.2015.11.046

- McQuaid, R.W. (2010). Theory of Organisational Partnerships- partnership advantages, disadvantages and success factors. *The New Public Governance: Critical Perspectives and Future Directions*, pp. 125-146. Available: <http://www.paecon.net/PAEReview/> [retrieved on 4 January 2017]
- Merilien, K. & Lemmetyinen, A. (2011). Destination Network Management: A Conceptual Analysis. *Tourism Review*, 66, 3, pp. 253-1. doi: 10.1108/16605371111175302
- Mestna občina Maribor. (n.d.). Available: <http://maribor.si> [retrieved on 5 May 2016]
- Mitchell, W. J. (2007). Intelligent cities. *UOC Papers*, 5. Available: <http://www.uoc.edu/uocpapers/5/dt/eng/mitchell.pdf> [retrieved on 4 January 2017]
- Mohr, J. & Speckman, R. (1994). Characteristic of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques. *Strategic Management Journal*, 15, 2, pp. 135–152. Available: <http://links.jstor.org/sici?sici=0143-2095%28199402%2915%3A2%3C135%3ACOPSPA%3E2.0.CO%3B2-H> [retrieved on 25 March 2017]
- Möller, K. & Rajala, A. (2007). Rise of Strategic Nets- New Models of Value Creation. *Industrial Marketing Management*, 36(7), 895–908. doi: 10.1016/j.indmarman.2007.05.016
- Nam, T. & Pardo, T. A. (2011). Conceptualizing Smart City with Dimensions of Technology, People, and Institutions. *The Proceedings of the 12<sup>th</sup> Annual International Conference on Digital Government Research*. Available: [https://inta-aijn.org/images/cc/Urbanism/background%20documents/dgo\\_2011\\_smartcity.pdf](https://inta-aijn.org/images/cc/Urbanism/background%20documents/dgo_2011_smartcity.pdf) [retrieved on 11 November 2016]
- Neville, B.A. & Menguc, B. (2006). Stakeholders Multiplicity: Toward an Understanding of the Interactions between Stakeholders. *Journal of Business Ethics*, 66, 4, pp. 377-391. Available: <http://www.jstor.org/stable/25123842> [retrieved on 25 March 2017]
- Newell, P. (2000). Globalisation and the New Politics of Sustainable Development, in J. Bendell, (Eds.), *Terms of Endearment: Business, NGOs and sustainable development*. Sheffield: Greenleaf Publishing Limited.
- Ojo, A., Curry, E. & Janowski, T. (2014). Designing Next Generation Smart City Initiatives- Harnessing Findings and Lessons From a Study of Ten Smart City Programs. Proceedings of the European Conference on Information Systems (ECIS) 2014. Tel Aviv, Israel. Available: <http://aisel.aisnet.org/ecis2014/proceedings/track15/12> [retrieved on 25 March 2017]
- Poncelet, EC. (2001). Personal transformation in multistakeholder environmental partnerships. *Policy Sci*, 34, 273–301. Available:

[https://books.google.si/books?id=a\\_Kk2nEDziQC&pg=PA169&lpg=PA169&dq=Personal+transfor-  
mation+in+multistakeholder+environmental+partnerships&source=bl&ots=Ta71KFY\\_m&  
sig=Votv7\\_Rja6eywXVd311omRXDX8Y&hl=en&sa=X&ved=0ahUKEwjzJTt\\_fbSAhVkdZoKH  
QygA7sQ6AEIJDA#v=onepage&q=Personal%20transformation%20in%20multistakeholde  
r%20environmental%20partnerships&f=false](https://books.google.si/books?id=a_Kk2nEDziQC&pg=PA169&lpg=PA169&dq=Personal+transfor-<br/>mation+in+multistakeholder+environmental+partnerships&source=bl&ots=Ta71KFY_m&<br/>sig=Votv7_Rja6eywXVd311omRXDX8Y&hl=en&sa=X&ved=0ahUKEwjzJTt_fbSAhVkdZoKH<br/>QygA7sQ6AEIJDA#v=onepage&q=Personal%20transformation%20in%20multistakeholde<br/>r%20environmental%20partnerships&f=false) [retrieved on 25 March 2017]

Post, J., Preston, L. & Sachs, S. (2002). Managing The Extended Enterprise: The New Stakeholder View. *California Management Review*, 45, 6. doi: 10.2307/41166151

PWC. (2014). Barcelona as a smart city lessons learned from the evolution of the concept and the influence in the city attractiveness. Available:  
[http://www.economistasmadeira.org/images/documentos/eventos/1-Barcelona\\_like\\_a\\_Smart\\_City\\_v6\\_03042014.pdf](http://www.economistasmadeira.org/images/documentos/eventos/1-Barcelona_like_a_Smart_City_v6_03042014.pdf) [retrieved on 7 February 2017]

Radovanovič, S. & Tomažič, D. (2007). *Vodnik po Mariboru*. Maribor: Kapital.

Roberts, N.C. & Bradley, R.T. (1991). Stakeholder Collaboration and Innovation: A Study of Public Policy Initiation at the State Level. *Journal of Applied Behavioral Science*, 27, 2, 209-227. doi: 10.1177/0021886391272004

Rodgers, C. (2000). Making it legit: New ways of generating corporate legitimacy in a globalizing world, in J. Bendell, (ed), *Terms for Endearment: Business, NGOs and sustainable development*, Sheffield: Greenleaf Publishing Limited.

Roloff, J. (2008). A Lifecycle Model of Multi-stakeholder Networks. *Business Ethics A European Review*, 17(3), 311–325. doi: 10.1111/j.1467-8608.2008.00537.x

Rosenthal, M. (2016). Qualitative Research Methods: Why, When and How to conduct interviews and focus groups in pharmacy research. *Currents in Pharmacy Teaching and Learning*, 8, 509-516. doi: 10.1016/j.cptl.2016.03.021

Rowley, J.T. (1997). Moving beyond Dyadic Ties: A Network Theory of Stakeholder Influences. *The Academy of Management Review*, 22, 4, 887–910. Available:  
<http://www.jstor.org/stable/259248> [retrieved on 15 March 2017]

SCMI. ( n.d.). Available: [smartcitymaribor.si](http://smartcitymaribor.si) [retrieved on 15 March 2017]

Shapiro, J.M. (2006). Smart Cities: Quality of Life, Productivity, and the Growth Effects of Human Capital. *Review of Economics and Statistics*, 88 (2), 324–335. Available:  
<https://www.brown.edu/Research/Shapiro/pdfs/history.pdf> [retrieved on 15 March 2017]

- Suyata, J., Saksham, S., Tanvi, G., & Shreya. (2016). Developing Smart Cities: An Integrated Framework. *Procedia Computer Science*, 93, 902–909. doi: 10.1016/j.procs.2016.07.258
- Tholke, M. (2003). Collaboration for a change. A practitioner's guide to environmental non-profit–industry partnerships. Erb Environmental Management Institute, Green Business Network. Available: <http://www.resourcesaver.org/file/toolmanager/CustomO16C45F43021.pdf> [retrieved on 15 March 2017]
- Thuzar, M. (2011). Urbanization in Southeast Asia: Developing Smart Cities for The Future?. *Regional Outlook*, 96–100.
- Toppeta, D. (2010). The Smart City Vision: How Innovation and ICT Can Build Smart, “Liveable”, Sustainable Cities. *Think! Report*, 005. Available: [http://intaai.vn.org/images/cc/Urbanism/background%20documents/Toppeta\\_Report\\_005\\_2010.pdf](http://intaai.vn.org/images/cc/Urbanism/background%20documents/Toppeta_Report_005_2010.pdf) [retrieved on 4 January 2017]
- Trček, F. (2014). Other And Different: Maribor In Search Of Its New (Hi)story. *The Central and Eastern European Online Library*. doi: 10.2298/SOC1402167T
- United Nations. (2011). *World Urbanization Prospects*. United Nations, Department of Economic and Social Affairs, Population Division: the 2011 Revision. Available: [http://www.un.org/en/development/desa/population/publications/pdf/urbanization/WUP2011\\_Report.pdf](http://www.un.org/en/development/desa/population/publications/pdf/urbanization/WUP2011_Report.pdf) [retrieved on 4 January 2017]
- UPSIDE. (n.d.). Available: [www.upside-project.eu](http://www.upside-project.eu) [retrieved on 9 May 2017]
- Van Huijstee, M.M., Francken, M. & Leroy, P. (2007). Partnerships For Sustainable Development: A Review of Current Literature. *Environmental Sciences*. doi: 10.1080/15693430701526336
- Washburn, D., Sindhu, U., Balaouras, S., Dines, R. A., Hayes, N. M. & Nelson, L. E. (2010). Helping CIOs Understand “Smart City” Initiatives. *Forrester Research*. Available: [http://public.dhe.ibm.com/partnerworld/pub/smb/smarterplanet/forr\\_help\\_cios\\_and\\_smart\\_city\\_initiatives.pdf](http://public.dhe.ibm.com/partnerworld/pub/smb/smarterplanet/forr_help_cios_and_smart_city_initiatives.pdf) [retrieved on 4 January 2017]
- Weisbrod, B. (1997). The Future of the Nonprofit Sector: Its Entwinning with Private Enterprise and government. *Journal of Policy Analysis and Management*, 16, 4, 541–555. doi: 10.1002/(SICI)1520-6688(199723)16:4<541::AID-PAM2>3.0.CO;2-G
- Winters, J. V. (2011). Why are Smart Cities Growing? Who Moves and Who Stays. *Journal of Regional Science*. doi: 10.1111/j.1467-9787.2010.00693

- Wood, D.J. & Gray, B. (1991). Collaborative Alliances: Moving From Practice to Theory. *The Journal of Applied Behavioral Science*. doi: 10.1177/0021886391272001
- Woodland, R. & Hutton, M. (2012). Evaluating Organizational Collaborations: Suggested Entry Points and Strategies. *American Journal of Evaluation*, 33(3), 366–383. doi: 10.1177/1098214012440028
- World Health Organization. (2013). *World Health Statistics 2012*. WHO Press: Italy. Available: [http://www.who.int/gho/publications/world\\_health\\_statistics/EN\\_WHS2013\\_Full.pdf](http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Full.pdf) [retrieved on 4 January 2017]
- Yigitcanlar, T., & Velibeyoglu, K. (2008). Knowledge-based urban development: The local economic development path of Brisbane, Australia. *Local Economy*, 23(3), 195-207. Available: [https://www.researchgate.net/publication/24085548\\_Knowledge-Based\\_Urban\\_Development\\_The\\_Local\\_Economic\\_Development\\_Path\\_of\\_Brisbane\\_Australia](https://www.researchgate.net/publication/24085548_Knowledge-Based_Urban_Development_The_Local_Economic_Development_Path_of_Brisbane_Australia) [retrieved on 7 February 2017]
- ZRSZZ. (n.d.). Stopnja registrirane brezposelnosti. Available: [https://www.ess.gov.si/trg\\_dela/trg\\_dela\\_v\\_stevilkah/stopnja\\_registrirane\\_brezposelnosti](https://www.ess.gov.si/trg_dela/trg_dela_v_stevilkah/stopnja_registrirane_brezposelnosti) [retrieved on 10 May 2017]



## 8 APPENDICES

### 8.1 Appendix A: Interview guide

#### 8.1.1 Municipality and e-Institute

##### **Smart city initiative Maribor**

1. Do you consider Maribor to be a smart city?
  - 1.1. Why yes/no?
2. How do you perceive the smart initiatives?
3. Why is collaboration significant for a smart city initiative?
4. How is municipality/e-Institute involved in the smart city initiative of Maribor?
  - 4.1. What are goals of this involvement?
  - 4.2. Specific results of your involvement?
5. How did you become involved in the smart city initiative Maribor?
  - 5.1. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

##### **Stakeholders**

6. How do you perceive yourself as a stakeholder in the initiative and in the network?
7. How are you attracting stakeholders to collaborate with?
8. How is the positioning of stakeholders in the initiative?

##### **Stakeholder collaboration**

9. How do you collaborate with other stakeholders?
  - 9.1. Short-term /Long-term collaboration? Type of interactions?
10. Can you tell me about challenges you have encountered when collaborating with others?
  - 10.1. What do you believe the reasons are for this?
11. How did you handle the challenge?

##### **Motivation factors**

12. What is the municipality/university's motivation for collaboration in the smart city initiative Maribor?
  - 12.1. Macro/Micro?
  - 12.2. Some more important than others?

##### **Success factors**

13. Can you tell me about the success of these collaborations?
14. Can you tell us about important factors of successful collaboration?
  - 14.1. Some more important than others?

### **Conclusion**

15. Are there any downsides of the collaboration (for your organization, for Maribor)?
16. What do you consider to be the benefits of such collaboration (for your organization, for Maribor)?

## **8.1.2 Stakeholders, who do collaborate**

### **Smart city initiative Maribor**

1. In which way do you consider Maribor to be a smart city?
2. How do you perceive the smart initiatives?
3. Why is collaboration significant for a smart city initiative?
4. If you would describe your position in network and in the initiative how would that be?
5. How is your organization involved in the smart city initiative of Maribor?
  - 5.1. What are goals of this involvement?
  - 5.2. Specific results of your involvement?
6. How did you become involved in the smart city initiative Maribor?
  - 6.1. (Did someone invite you? Self-initiative? Advertisement/word-of-mouth?)

### **Stakeholders**

7. How is the network of stakeholders represented in this initiative?
8. How is the positioning of stakeholders (i.e. are some stakeholder groups more important than others)?

### **Stakeholder collaboration**

9. Do you collaborate with other stakeholders in the smart city initiative Maribor?
  - 9.1. Who?
10. How do you collaborate with other stakeholders?
  - 10.1. (Common goals? short-term /long-term collaboration? Type of interactions?)
11. Can you tell me about challenges you have encountered when collaborating with others?
  - 11.1. What do you believe the reasons are for this?
12. How did/ are you handling these challenges?

### **Motivation factors**

13. What is your organization's motivation for collaboration in the smart city initiative Maribor?

13.1. Macro/Micro?

13.2. Some motives more important than others?

#### **Success factors**

14. Can you tell us about the success of these collaborations?

15. Can you tell us about important factors of successful collaboration?

15.1. Do you feel there are some more important than others?

#### **Conclusion**

16. If you would refer to any downsides of the collaboration what would that be (for your organization, city or network)?

17. What do you consider to be the benefits of such collaboration (for your organization, city or network)?

### **8.1.3 Stakeholders, who do not collaborate**

#### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this? What is their goal?

2. To what degree are you informed about the work of the smart city initiative Maribor?

3. What is a smart city in your opinion?

4. In which way do you consider Maribor to be a smart city?

5. And what does the city needs to do to become more of a smart city?

6. How do you perceive the smart initiatives in Slovenia, in Europe?

7. How did you become involved in the smart city initiative Maribor?

7.1. (Did someone invite you? Self-initiative? Advertisement/word-of-mouth?)

8. What were your collaboration goals when you became partner of the smart city initiative Maribor?

#### **Stakeholder collaboration**

9. Why is collaboration significant for a smart city initiative?

10. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

12. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

12.1. If yes, to what degree?

13. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

13.1. Possible solutions for potential problems?

#### **About the coordinator**

14. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

14.1. Please elaborate on this.

15. How is the city promoting or inviting stakeholders? How is the city facilitating the collaboration (i.e., providing resources?)

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

16.1. How would the municipality, in the role of a coordinator, need to change its behavior?

#### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

17.1. Some motives more important than others?

#### **Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

18.1. Some success factors more important than others?

#### **Conclusion**

19. How would the future look like for the city and the initiative?

20. Are there any other issues you want to mention?

## 8.2 Appendix B: Interview transcripts

### 8.2.1 Municipality and e-Institute

#### Smart city initiative Maribor

1. Do you consider Maribor to be a smart city?

1.1. Why yes/no?

Yes. In the time of the existence of the smart city initiative Maribor many smart systems have been implemented in the city. We cannot talk about drastic changes here, but rather about small steps into the right direction. Maribor is first and foremost smart city because the connection with the partners or better said the local community has been established. Additionally, Maribor is smart city because we are constantly trying to engage locals to start collaborating in the mentioned initiative in order to find common solutions to our problems.

2. How do you perceive the smart initiatives?

Smart city concept is essential both in Slovenia as well as in other European countries. Cities are confronted with various urbanization problems. We believe that smart city initiatives can come up with new innovative solutions for the problems. Also, cities are everyday more automated, using more and more technology. Consequently, human capital is less responsible for different tasks. Cities and its citizens will sooner or later need to adapt to this new way of how things work. In Maribor, the smart city initiative works as an umbrella for smart city projects and at the same time as a brand for promotion of Maribor in the world.

3. Why is collaboration significant for a smart city initiative?

Stakeholder collaboration is very important when it comes to the mentioned initiatives, as this is the only way the initiatives can be successful. Problems cannot be solved solely by the municipalities because they just do not have enough knowledge, skills and resources. For these reasons the local community has to collaborate as well. It is further important that larger well as smaller local businesses collaborate.

4. How is municipality/e-Institute involved in the smart city initiative of Maribor?

4.1. What are goals of this involvement?

4.2. Specific results of your involvement?

The municipality of Maribor has together with the e-Institute role of a network manager or better said network coordinator that coordinates, promotes and stimulates the initiative. Of course we wish for municipality to have a more proactive role in the future. Our goals of the

involvement in the initiative are to find solutions for the problems that Maribor is facing on a daily basis, to find new business opportunities, innovation and to bring resources, in the first instance money, to the city. Established connection with the partners and local community.

5. How did you become involved in the smart city initiative Maribor?

5.1. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

The mentioned initiative was developed as an idea of many stakeholders. Few larger businesses in Maribor showed interest for collaboration in order to improve city of Maribor. When talking about the collaboration between different partners the term smart city has been mentioned. The municipality acted on this need for collaboration. And just like that the smart city initiative was established. Another reason for the establishment of the smart city initiative is Slovenia's 2020 Strategy. One of the goals of the mentioned strategy is also the development of smart cities across Slovenia.

### **Stakeholders**

6. How do you perceive yourself as a stakeholder in the initiative and in the network?/

7. How are you attracting stakeholders to collaborate with?

We don't attract them. Every now and again we send e-mails with news and interesting developments of the initiative to those partners who signed the memorandum. Mostly, however, we don't advertise the initiative.

8. How is the positioning of stakeholders in the initiative?

Some partners, especially larger companies play a more important role, because they want to collaborate more and they also initiate different projects much more.

### **Stakeholder collaboration**

9. How do you collaborate with other stakeholders?

9.1. Short-term /Long-term collaboration? Type of interactions?

We don't actively collaborate in the initiative. For this reason we collaborate with partners on concrete projects or activities. We call them when we have a project. We collaborate informally, without any formal goals. We organize meetings, where we discuss topics or projects that could be realized and then we set common goals.

10. Can you tell me about challenges you have encountered when collaborating with others?

10.1. What do you believe the reasons are for this?

The biggest challenge of the collaboration in the smart city initiative Maribor is the unresponsiveness and non-collaboration of partners. They don't have enough time, they don't find the suggested projects interesting, and so they don't collaborate. Of course this non-participation is also our fault, because we don't promote the initiative well enough. Unfortunately we don't have enough resources and interesting projects. Additional problem is that public institutions aren't used to collaborating on the projects like smart city initiative. These projects cover many different problems and topics, public institutions, however, are concentrated on only one problem at a time. These institutions have an organizational problem, they will have to adapt and change in the future. Next, it is difficult for us to identify a common goal with the stakeholders. Also, we coordinators are not active enough, because we don't have enough resources (money, time and people). We would need one competent person that would only work on the smart city initiative, but if there are no resources available this isn't possible. Also non-collaboration. And again we would need someone who would organize meetings etc.

11. How did you handle the challenge?

We didn't.

### **Motivation factors**

12. What is the municipality/university's motivation for collaboration in the smart city initiative Maribor?

12.1. Macro/Micro?

12.2. Some more important than others?

To find a solution for the problems that Maribor faces on regular basis, new business opportunities, attaining the resources for the development of the city.

### **Success factors**

13. Can you tell me about the success of these collaborations?

14. Can you tell us about important factors of successful collaboration?

14.1. Some more important than others?

Good personal relationships, communication, trust, ability to identify common goals and presence of a skilled coordinator

### **Conclusion**

15. Are there any downsides of the collaboration (for your organization, for Maribor)?

No. We are convinced that smart city initiatives can only bring benefits to our city.

16. What do you consider to be the benefits of such collaboration (for your organization, for Maribor)?

The benefits include the increased recognisability and image of Maribor and collaborating stakeholders, improved possibilities for city's economy. Furthermore, that local community learns about the smart city projects that are happening in Maribor what consequently leads to promotion of future collaboration and education of the community about the projects. Another benefit is also improvement of local policies and regulations.

## **8.2.2 Stakeholders, who do collaborate**

### **8.2.2.1 Respondent #1**

#### **Smart city initiative Maribor**

1. In which way do you consider Maribor to be a smart city?

It is slowly becoming a smart city, too slowly. With some of the projects the initiative has successfully completed and implemented until now, it can be said that Maribor is working toward becoming a smart city.

2. How do you perceive the smart initiatives?

These are absolutely necessary in today's world. It is essential that we introduce new technologies in the city's infrastructure, not just in Maribor, but overall in the Europe- actually everywhere in the world. This idea of smartness can help cities to save money, reduce CO2 emissions, ensure a comfort and quality of life for its citizens. Smart cities are a new trend now that is absolutely necessary and that dictates the development of the cities, but not just cities, entire regions.

3. Why is collaboration significant for a smart city initiative?

Smart cities are not a responsibility of just one organization, everyone needs to contribute. Also, one organization alone does not have the resources, the knowledge and the expertise to improve a whole city. But if different partners with different areas of expertise step together, there is a good chance that things will start moving in the right direction and a goal of becoming a smart city can be reached.

4. If you would describe your position in network and in the initiative how would that be?/

We are just one of the active stakeholders that work on the projects of the initiative.

5. How is your organization involved in the smart city initiative of Maribor?



5.1. What are goals of this involvement?

5.2. Specific results of your involvement?

Throughout the history of the existence of this company we co-created life in Maribor. We feel obliged and that it is our responsibility that we contribute to the further development of the city.

6. How did you become involved in the smart city initiative Maribor?

6.1. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

At that time when the Municipality started talking about setting up the initiative we were very actively involved in the projects of e-mobility. We were implementing the charging infrastructure for e-cars. Based on our work the Municipality of Maribor invited us to sign the memorandum of collaboration.

### **Stakeholders**

7. How is the network of stakeholders represented in this initiative? /

8. How is the positioning of stakeholders (i.e., are some stakeholder groups more important than others?)

Every collaborating partner of the initiative contributes something with its knowledge to the initiative. It cannot be said that some are more important than others.

### **Stakeholder collaboration**

9. Do you collaborate with other stakeholders in the smart city initiative Maribor?

9.1. Who?

Yes. University of Maribor, other stakeholders from the industry with whom we work on projects.

10. How do you collaborate with other stakeholders?

10.1. (common goals? short-term /long-term collaboration? Type of interactions?)

This is absolutely a long-term collaboration. The smart city initiative is not a short-term project, not even a project for only the next ten years, but for a much longer period.

11. Can you tell me about challenges you have encountered when collaborating with others?

11.1. What do you believe the reasons are for this?

There are no problems. It takes time before things move forward, but this is not a problem or a challenge. We accepted that this is just the way it is. We only had good experiences with everyone we collaborated with, especially the municipality.

12. How did/ are you handling these challenges?/

### **Motivation factors**

13. What is your organization's motivation for collaboration in the smart city initiative Mari-bor?

13.1. Macro/Micro?

13.2. Some motives more important than others? (rank them according to the importance level?)

The development of the city. We've always felt that it is our responsibility, as a large company, to help develop the city and improve the lives of its citizens.

### **Success factors**

14. Can you tell us about the success of these collaborations?

15. Can you tell us about important factors of successful collaboration?

15.1. Do you feel there are some more important than others?

15.2. (If necessary ask as a closed question)

In order to successfully complete a project partners have to communicate with each other in order to avoid misunderstandings, to stay on the same page regarding the developments of the project. Also, good relationships, trust and common goals of everyone involved in a project are important. Actually, good relationships go hand in hand with trust and respect. These three success factors contribute to better communication, the misunderstandings can easier be avoided, it is easier for everyone to reach a common goal. The whole collaborating process is much more pleasant and enjoyable if collaborating partners have good relationships. Additionally, without a common goal the project cannot be successfully completed or it takes much longer to complete them. If each partner does their own thing, they also waste the unnecessary time, energy and money. Also, the arguments can arise, everyone is frustrated and probably want to quit. It might happen that they do not want to participate in any other projects of the initiative in the future, because of this bad experience.

### **Conclusion**

16. If you would refer to any downsides of the collaboration (for your organization, city or network ) what would that be?

No.

17. What do you consider to be the benefits of such collaboration?

- 17.1. For your organization?
- 17.2. For Maribor?
- 17.3. For the network

The ongoing projects that are trying to contribute to the development of the city are difficult to become a success if stakeholders do not collaborate. As it has been mentioned before, various stakeholders complement each other with the knowledge and expertise, one person just cannot do it all. If stakeholders step together, the projects are successfully completed and so the whole community of Maribor benefits.

18. Are there any other issue you want to mention?

We would wish that MoM would become more active, when it comes to engaging stakeholders in projects or ensuring more money for the projects. The initiative should also have many more projects going on, especially now that new (foreign) industry is coming to the city. Otherwise the municipality is doing a good job, they are communicating with us.

#### **8.2.2.2 Respondent #2**

##### **Smart city initiative Maribor**

1. In which way do you consider Maribor to be a smart city?

It is trying. It could be better, considering all the unused potential. There are simply not enough projects regarding the smart city going on. There are maybe one or two project a year that the initiative is organizing. This is not enough. And without projects you also cannot get funding from various European institutions. Consequently, without money it is much more difficult to work on any smart city projects. Maribor needs a long-term strategy regarding the initiative and the smart city. The coordinators of the initiative need to ask themselves in what direction are we going? What do we want to achieve?

2. How do you perceive the smart initiatives?

We have visited a smart city conference in Barcelona last year, where different smart cities of the world presented itself. We became quite a good idea about what smart city actually means, what smart city initiatives are trying to do. Our organization thinks that the mentioned initiatives are a great idea, especially for Maribor. The city has been struggling for quite some

time now when it comes to the development and we feel that such an initiative could make a change. Also, smart cities are cities of future.

3. Why is collaboration significant for a smart city initiative?

Only one stakeholder simply cannot improve the city alone. For example the municipality, the coordinator, cannot come up with new innovative ideas on its own and implement the projects. They do not have the knowledge, any kind of resources. And this is where we, the industry and research institutions come in. Everyone involved in our community together can make this city smart.

4. If you would describe your position in network and in the initiative how would that be?

We are an active stakeholder.

5. How is your organization involved in the smart city initiative of Maribor?

5.1. What are goals of this involvement?

5.2. Specific results of your involvement?

We are a stakeholder that participates in the projects where we can actually offer our expertise and services. The goals are to ensure better quality of life for us all, the citizens of Maribor.

6. How did you become involved in the smart city initiative Maribor?

6.1. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

Municipality of Maribor invited us.

### **Stakeholders**

7. How is the network of stakeholders represented in this initiative? /

8. How is the positioning of stakeholders (i.e., are some stakeholder groups more important than others?)

Some are more active. Those who are

### **Stakeholder collaboration**

9. Do you collaborate with other stakeholders in the smart city initiative Maribor?

9.1. Who?

Yes. With the municipality, other active partners.

10. How do you collaborate with other stakeholders?

10.1. (common goals? short-term /long-term collaboration? Type of interactions?)

This is a long-term collaboration where we collaborate on different projects.

11. Can you tell me about challenges you have encountered when collaborating with others?

11.1. What do you believe the reasons are for this?

No challenges arose.

12. How did/ are you handling these challenges?/

### **Motivation factors**

13. What is your organization's motivation for collaboration in the smart city initiative Maribor?

13.1. Macro/Micro?

13.2. Some motives more important than others? (rank them according to the importance level?)

We, as a large public company of Maribor, feel that we have the responsibility to work on the projects that can contribute to the development of the city and consequently to the improved life of its citizens. We want something better for the city. And we want to be known as an organization that is active and contributes to improving and developing the city. Additionally, we are a public company that simply does not have money for that kind of projects. In case we do not get any financial resources we do not have much motivation for collaboration on projects.

### **Success factors**

14. Can you tell us about the success of these collaborations?

There are many successful smart city projects that we successfully completed or are working on presented on the smart city initiative platform. But for example, My water at glance, we collaborate with students on many projects...

15. Can you tell us about important factors of successful collaboration?

15.1. Do you feel there are some more important than others?

15.2. (If necessary ask as a closed question)

When it comes to this initiative this would definitely be shared vision. It is necessary to know in what direction we are moving, are working toward and what is our goal. If there is no shared vision or a long-term plan and set goals this can be very discouraging and demotivating for stakeholders, as we do not know what we are working for. Consequently the stakeholders can lose interest collaborating in the initiative.

**Conclusion**

16. If you would refer to any downsides of the collaboration (for your organization, city or network ) what would that be?

No.

17. What do you consider to be the benefits of such collaboration?

17.1. For your organization?

17.2. For Maribor?

17.3. For the network

This has been mentioned before. But shortly said the improved quality of life of citizens of Maribor.

Are there any other issue you want to mention?

MoM as a coordinator is not doing enough. The one or two meetings per year are just not enough. Also, the break between the meetings is too long. We always plan some projects and talk about what are we going to do next, but then we do not meet for a long time. We also do not get any information about what is going to happen with the suggestions and if they are organizing any new projects... MoM also needs one person that would constantly work on this initiative. This person should act as a coordinator that would be in constant contact with us, that would organize meetings more often, that would prepare the documents regarding the projects of the initiative... The energy and the drive have to come from the municipality. We can initiate the projects, but the drive and the effort have to come from the municipality. If the municipality is not active we, all the stakeholders step back and wait. If we, the stakeholders, are not proactive then just nothing happens. Furthermore, if we would get any monetary resources we could spend more of our time and energy on the smart projects.

**8.2.2.3 Respondents #3 and 4****Smart city initiative Maribor**

1. In which way do you consider Maribor to be a smart city?

Yes, in a way Maribor is smart city. There have been made few strategic plans for various smart city projects and smart solutions. Also, some projects have already been implemented and the Municipality has already connected quite a group of stakeholders. But now, it is on all of us stakeholders that we start working and realizing the plans.

2. How do you perceive the smart initiatives?

Smart city initiatives are relatively new concepts, which can in my opinion really contribute to the improvement of the quality of life of the citizens.

3. Why is collaboration significant for a smart city initiative?

Each partner of the initiative plays a different role as it has different knowledge and expertise. Municipality cannot do everything alone, for this reason it needs partners that are specialized in different fields of the industry that can help with various projects and consequently contribute to the development of Maribor.

4. If you would describe your position in network and in the initiative how would that be?

We don't have any special position in the network or the initiative. We simply collaborate on the projects where we feel we can contribute something.

5. How is your organization involved in the smart city initiative of Maribor?

5.1. What are goals of this involvement?

5.2. Specific results of your involvement?

The goals of our involvement are to help as many companies as possible to sign the memorandum and to start collaborating on the projects of the smart city initiative, to start developing new and innovative ideas that could improve Maribor and could lead to a better quality of life of the city.

6. How did you become involved in the smart city initiative Maribor?

6.1. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We were invited by the municipality.

### **Stakeholders**

7. How is the network of stakeholders represented in this initiative?/

8. How is the positioning of stakeholders (i.e., are some stakeholder groups more important than others?)

Difficult to say. In my opinion only the municipality and e-Institute have a more important role or a special position in the network. All of the other stakeholders are just partners that collaborate on the projects.

### **Stakeholder collaboration**

9. Do you collaborate with other stakeholders in the smart city initiative Maribor?

9.1. Who?

Yes. With everyone.

10. How do you collaborate with other stakeholders?

10.1. (common goals? short-term /long-term collaboration? Type of interactions?)

This is a long-term collaboration. Or at least this is what it should be. Now it depends on the municipality how this will continue in the future.

11. Can you tell me about challenges you have encountered when collaborating with others?

11.1. What do you believe the reasons are for this?

We haven't faced any challenges yet. But there also shouldn't be any challenges with other stakeholders. We all play different roles when we collaborate and each of us knows what we are working on.

12. How did/ are you handling these challenges?/

### **Motivation factors**

13. What is your organization's motivation for collaboration in the smart city initiative Maribor?

13.1. Macro/Micro?

13.2. Some motives more important than others? (rank them according to the importance level?)

There exist many motivation factors for us. For example innovation, improved image of the organization, access to new markets and knowledge and access to the political power. The collaboration in the smart city initiatives can contribute to the improved image of the organizations and this is also our motivation. Additionally, we want to promote the mentioned initiative among the locals. If the locals are aware about the initiative this might help to convince more people to start collaborating in the initiative. Also, the collaboration with other stakeholders can lead to combining resources and knowledge and expertise with them. To make it clear, of course the main motivation factors for our organization are those which benefit the organization itself. But this is what we do and we also have to survive. However, we do honestly want to contribute something to the city, to boost the development of the city, to make citizens and other companies aware of the initiative and to help improve the quality of life for the people of Maribor.

### **Success factors**

14. Can you tell us about the success of these collaborations?

15. Can you tell us about important factors of successful collaboration?



- 15.1. Do you feel there are some more important than others?
- 15.2. (If necessary ask as a closed question)

Definitely respect, trust and communication. This is the basis for any collaboration. Trust goes hand in hand with good personal relationships and trust. Also, that all of the partners of the initiative that work on the same project actually do their part and that the work is evenly distributed between everyone. Without that projects simply cannot be successfully completed, because none of us has enough time and energy to be able to complete certain project on its own, without the help of others. Furthermore, positive energy and ambition of the stakeholders lead to the successful collaboration. Without ambition, the goals are not set high enough and partners give up too quickly. Positive energy is needed when it comes to the collaboration on such initiatives. Changes do not happen overnight and there are many challenges on the road to success. If partners have positive energy, it is less likely to have arguments and more likely to successfully complete a project.

### **Conclusion**

- 16. If you would refer to any downsides of the collaboration (for your organization, city or network ) what would that be?

No. Only positive things can come out of such a wonderful initiative.

- 17. What do you consider to be the benefits of such collaboration?

- 17.1. For your organization?
- 17.2. For Maribor?
- 17.3. For the network

The same as what we have already mentioned in the motivation factors. For Maribor there are many benefits, for example long-term solutions for some of the urbanization problems, increased quality of life, increased image of the city...

Are there any other issue you want to mention?/

### **8.2.2.4 Respondent #5**

#### **Smart city initiative Maribor**

- 1. In which way do you consider Maribor to be a smart city?

Maribor has started working on projects of the smart city initiative, so this is the first step. Now it needs to do more. The city definitely wishes to become a smart city.

2. How do you perceive the smart initiatives?

We definitively support these kinds of initiatives. All that smart city initiatives stand for is in accordance with what our organization stands for.

3. Why is collaboration significant for a smart city initiative?

Different partners have different experiences and knowledge that they can share with others. The knowledge and experiences of different partners complement each other and so they can together come to the solutions and successfully finish the projects. None of the partners knows everything, one company or organization alone can so not change and improve city. Only we, the industry, municipality, local community, all together can improve our city.

4. If you would describe your position in network and in the initiative how would that be?

We don't have a special position. We simply work on those projects where, with what we do, can contribute.

5. How is your organization involved in the smart city initiative of Maribor?

5.1. What are goals of this involvement?

To develop green, sustainable mobility in the city.

5.2. Specific results of your involvement?

6. How did you become involved in the smart city initiative Maribor?

6.1. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

The municipality invited us.

## **Stakeholders**

7. How is the network of stakeholders represented in this initiative?

I do not know.

8. How is the positioning of stakeholders (i.e., are some stakeholder groups more important than others?)

Some partners definitely are more important, these are mainly larger and more influential companies.

## **Stakeholder collaboration**

9. Do you collaborate with other stakeholders in the smart city initiative Maribor?

9.1. Who?

Yes, with those that we did some projects together.

10. How do you collaborate with other stakeholders?

10.1. (common goals? short-term /long-term collaboration? Type of interactions?)

Long-term.

11. Can you tell me about challenges you have encountered when collaborating with others?

11.1. What do you believe the reasons are for this?

No challenges.

12. How did/ are you handling these challenges?/

### **Motivation factors**

13. What is your organization's motivation for collaboration in the smart city initiative Mari-bor?

13.1. Macro/Micro?

13.2. Some motives more important than others? (rank them according to the importance level?)

To work on projects that specialize on what we do and so help to improve our city. We are not interested on working on projects that have nothing to do with our sector, because we just don't have the knowledge or the expertise and wouldn't be able to actually help.

### **Success factors**

14. Can you tell us about the success of these collaborations?

15. Can you tell us about important factors of successful collaboration?

15.1. Do you feel there are some more important than others?

15.2. (If necessary ask as a closed question)

Communication, trust, presence of a coordinator and common goals of the partners are essential for collaboration in the smart city initiative. Without these four factors it is not possible to complete a project, even less to complete it successfully. People need to communicate with each other about the progress of what they are doing, everyone needs to be on the same page and if we communicate with each other we can successfully avoid misunderstandings. Of course we need to trust people that we work with- that they'll finish their part of the project on time and that they'll stick to the rules that have been previously determined. Without a coordinator there is just chaos. The partners of the initiative come from so many different backgrounds so we need some one who connects us and leads us. Or acts even as a mediator.

**Conclusion**

16. If you would refer to any downsides of the collaboration (for your organization, city or network ) what would that be?

There are no downsides of the smart city initiative.

17. What do you consider to be the benefits of such collaboration?

17.1. For your organization?

17.2. For Maribor?

17.3. For the network

Everyone in Maribor benefits from the projects of the smart initiative. The projects that we work on contribute to the development of Maribor as a city, there is less pollution, the mobility of the city is improved, there are less traffic jams etc. All of that leads to improved quality of life for the whole community of Maribor. The benefits specific to our organization are that we can offer our services that are better in quality to the locals as we work with other stakeholders with different expertise on some of the smart city projects.

Are there any other issue you want to mention?

MoM should make more (financial, personal) resources available for the projects of the initiative . MoM should make a more concrete long-term and strategic plan about the projects of the initiative and consequently about the developments of the city.

**8.2.2.5 Respondent #6****Smart city initiative Maribor**

1. Why is collaboration significant for a smart city initiative?

Companies are an important part of every city or region. They employ people that live in these cities. For this reason the employees do not only wish to have good jobs, but also that the companies where they work act socially responsible. For the companies to become socially or even environmentally responsible it is necessary that they connect and collaborate with other companies from the city or a region.

2. In which way do you consider Maribor to be a smart city?

In my opinion Maribor is not yet a smart city, but can definitely become one. In order for this to happen the strategic collaboration of the municipality of Maribor, university and industry and the people who live in the community is necessary. However, the initial step towards connecting the stakeholders and starting the projects has been done.

Now, the stakeholders of the initiative need to make concrete propositions of the projects, long-term goals, new collaborations.

3. How did you become involved in the smart city initiative Maribor?
  - a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We were invited to become partners of the initiative by the municipality. However, we have suggested that Maribor needs to start a smart city initiative years ago.

4. How is your organization involved in the smart city initiative of Maribor?

We play an important role when it comes to connectivity. We work on technical innovation, such as sensors etc. and other new technologies that can be used by broader public.

5. What are goals of this involvement?

To become socially responsible, meaning that we would contribute to the development of Maribor and to find new business opportunities. Because the smart city initiatives offer many business opportunities, what leads to better business results of the companies and at the same time something positive is done for the community.

### **Stakeholders**

6. How is the network of stakeholders represented in this initiative? /
7. How is the positioning of stakeholders in the initiative?
  - a. Are some more important than others?

In such an initiative the more important, larger organizations as well as smaller ones need to be involved and collaborate. It is highly important that the partnership is based on the triple-helix model where municipality, university and the industry collaborate. If any one of the mentioned partners does not collaborate then the initiative cannot be successful.

### **Stakeholder collaboration.**

8. How do you collaborate with other stakeholders?

We participate in various projects and business ideas of the initiative.

9. Can you tell me about challenges you have encountered when collaborating with others?

The challenges in such initiatives do arise. This is mainly due to the fact that there are many different interests represented in the smart city initiatives. At the same time there is also the need to show who has more power among the stakeholders. This is also the case for Maribor.

There exist many reasons why it comes to challenges in the initiative; however, it is mainly the case that the personal reasons are above the interests of the initiative. The partners collaborating in the initiative should have the same long-term goal and should jointly work on reaching that goal.

### **Motivation factors**

10. What is your organization's motivation for collaboration in the smart city initiative Maribor? Our motivation is to implement the innovative ideas in the hometown. Also, new business opportunities, even such in foreign markets, the development of the region and an increased quality of life of everyone living in Maribor.

### **Success factors**

11. Can you tell us about important factors of successful collaboration?

Trust is for sure crucial for collaboration between stakeholders. It is also essential that everyone involved in the initiative has common goals that they try to reach, even though, they are very often conflicting.

### **Conclusion**

12. If you would refer to any downsides of the collaboration (for your organization, city or network) what would that be?

Can't think of any.

13. What do you consider to be the benefits of such collaboration?

See above

## **8.2.3 Stakeholders, who do not collaborate**

### **8.2.3.1 Respondent #7**

#### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this?

Yes. We signed the memorandum were however, not active at all since then. It seems like an interesting initiative that could bring some improvements to the city.

2. To what degree are you informed about the work of the smart city initiative Maribor?

Not informed at all. Do not know what are they their goals, what do they currently work on, what they have worked on...

3. What is a smart city in your opinion?

A city that ensures quality of life to its citizens. A city that is comfortable as it uses and implements new technologies. A city that is self-sufficient.

4. And what does the city needs to do to become more of a smart city?

All stakeholders as well as local community need to step together and collaborate on projects especially designed to reach a goal of becoming a smart city.

5. In which way do you consider Maribor to be a smart city?

It is going in that direction. However, in comparison with other European cities, I would say that probably not. We would need to do an analysis of Maribor.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

I do not know any other smart cities. But these initiatives could definitely be seen as something positive as they help increase city's development and quality of life of its citizens. Additionally, they might even help tackle some of the great urbanization problems, such as pollution, scarcity of resources, traffic congestions...

### **Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?

a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We were invited by the municipality. We signed the memorandum because we thought that we could also contribute something to the initiative with our expertise and knowledge.

8. Why is collaboration significant for a smart city initiative?

Only all of us together, private and public companies, research institutions and locals, can contribute to a better city. This task is a bit too big for only one or few individuals to tackle. Big changes need everyone involved, meaning the knowledge and expertise from different organizations; locals also have to get actively involved.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself? /

10. How should the city facilitate the collaboration (i.e., providing resources?)

The financial resources are for sure facilitating the collaboration, especially when it comes to larger projects. Projects that concentrate on the sustainability are not economically very profitable. For that reason many private companies, whose goal is to earn money, would not simply collaborate on such projects.

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

We work on so many other projects, the company's collective is rather small and so we just do not have the time to be the initiators of smart projects. If the coordinators would have been more proactive we would also probably actively collaborate.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

The signing of memorandum was done really quickly so we did not have any goals in mind when we did that. Later on we did not collaborate on any projects so we did not think to come up with any goals.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

- b. If yes, to what degree?

As said before, we would want to become more proactively involved. But this initiative needs an active collaborator that promotes the projects, manages the stakeholders, and connects the stakeholders...

We would work on projects that concern topics that are interesting for us, we have know-how and can actually contribute something. Also, it would really motivate us to collaborate, if we would receive a subsidy for our collaboration.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

- c. Possible solutions for potential problems?

Do not think it would come to any problems.

#### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor? 10

- d. Please elaborate on this.



MoM should have a look at how other cities are doing that and they could start doing something similar in Maribor as well.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

- e. How would the municipality, in the role of a coordinator, need to change its behaviour?

MoM as a coordinator of the initiative needs to become more active, lead and manage us stakeholders. To start with, there should be many more serious meetings organized where we would talk about actual goals we want to reach and projects we want to implement in the near future.

### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

- f. Some motives more important than others? (rank them according to the importance level?)

We work on so many other projects, the company's collective is rather small and so we just do not have the resources to be the initiators of the projects when it comes to the smart city initiative. Therefore, it would really motivate us to collaborate, if we would receive a subsidy for our collaboration.

### **Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

- g. Some success factors more important than others? (rank them according to the importance level?)

At the stage where the smart city initiative is now, the most important factor for success is a good, active and motivated coordinator that would only and seriously work on the mentioned initiative. This is the essential factor at the moment, others are not of primary concern. Of course in every partnership you have to trust the other parties. This is basis, because you have to be able to trust your partners that they will do the work, that they will stick to the plan, that they will share the benefits with you. Additionally, financial benefits would for sure lead to successfully completed projects, as we would take more time and energy for them.

## Conclusion

19. How would the future look like for the city and the initiative?

We will see. It depends on the coordinator of the initiative if it will be able to revive the initiative, set long-term goals and start actively working on projects.

20. Are there any other issue you want to mention?

We are aware that we have not been active at all until now. At the beginning we were motivated to be actively involved in the initiative, but somehow nothing really happened. It might be the case that the initiative has a planned long-term strategy and for this reason nothing was happening at the beginning. Also, there are so many stakeholders and maybe they have been active enough and so the coordinators of the initiative need more stakeholders to collaborate on their projects.

### 8.2.3.2 Respondent #8

#### Smart city initiative Maribor

1. Are you familiar with the smart city initiative Maribor? What do you think about this? What is their goal?

Yes. I have been on one meeting at the beginning.

2. To what degree are you informed about the work of the smart city initiative Maribor?

I barely know what is going on with the initiative.

3. What is a smart city in your opinion?

Smart city is one big pile of bureaucracy.

4. In which way do you consider Maribor to be a smart city?

Maribor is not a smart city, because the city does not do anything for the development of the city.

5. And what does the city needs to do to become more of a smart city?

A city can become smart with a clear vision, set goal and smart organization.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

I do not know any other smart cities so I cannot answer this question.

#### Stakeholder collaboration

7. How did you become involved in the smart city initiative Maribor?
- a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We were invited by the municipality. They probably saw on our web site what we do and that our expertise might help with the smart city projects and so they invited us.

8. Why is collaboration significant for a smart city initiative?

It is important that the stakeholders share knowledge and expertise. Also, without collaboration and teamwork you cannot change things today. Smart cities operate on so many different areas of the city, cities are multidisciplinary, and so collaboration is essential. The collaboration is integral part of smart cities.

9. Are there any power or hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself? /
10. How is the city promoting or inviting stakeholders? How is the city facilitating the collaboration (i.e, providing resources?)
11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

I think I have already answered this question.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

Our goals were to make change in Maribor, to share our knowledge with other stakeholders and the locals.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?
- a. If yes, to what degree?

Yes, but only under conditions that the politics is excluded and the profession gets the priority.

We would collaborate on projects that fit with what we do here, the energy. We would attend meetings and share our knowledge, but with the organizations that have good references and are serious about the projects. We have to complete projects that we can earn money with and pay our employees.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?
- a. Possible solutions for potential problems?

There might be some jealous companies, but I do not think there would be any real problems arising.

### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

a. Please elaborate on this.

The municipality is not actively enough promoting and integrating stakeholders into the initiative. They probably do not even know that there are some great businesses in this area. These companies are well known across the borders of Slovenia.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

With projects. The municipality should first of all make a vision for the development of Maribor. Then, this initiative needs professional people with vision and ideas; the politicians need to take a step back. A clear vision can help analyse what it is needed to be done in Maribor. Firstly, the economy of Maribor has to become live again. Then the bureaucratic hurdles need to be tackled and this is the task of the municipality. Next, groups of experts, such as architects, researchers, engineers etc need to be formed so that they could design a progressive Maribor that would attract start-ups, young people. The initiative has to have a strong plan and a strategy for a long-term, 25 years in the future. The strategy has to be set so that all of the further majors will follow it. The strategy for the next 4 years is nothing. The plan also has to be realistic. As said before, the politicians have to take step back. They are not experts, they do not know what the word energy means. Experts have a clear idea about how things can be developed, how we can save money, how things can be developed in an inexpensive way.

a. How would the municipality, in the role of a coordinator, need to change its behaviour?

The municipality should have been much more organized. We have been on few meetings and we immediately saw that the coordinator of the initiative do not have a clear plan, a strategy or any idea whatsoever. For these reasons we rather focus on other projects.

### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

- a. Some motives more important than others? (rank them according to the importance level?)

We would collaborate on projects that fit with what we do here, benefits

### **Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

- a. Some success factors more important than others? (rank them according to the importance level?)

Honesty, excellence (that people we collaborate with are good in what they do), teamwork. People we collaborate with also have to be responsible and be able to make decisions and stand behind these decisions. I hate to collaborate with people that cannot decide or do not take the responsibility for own decisions. Responsibility means that if you propose a project you have to know what do you want to achieve and what do you have to do. If all of the stakeholders act in this way, then the projects can be successfully completed. Teamwork does not mean that you have 5 people collaborating on a project, but one actually does the job. This does not work. Also, people need to be creative.

### **Conclusion**

19. How would the future look like for the city and the initiative?

If we will only occupy ourselves with football then there is no bright future for us. We need a focused strategy for the next 20 years what we want to do with Maribor. With the set clear goals also young people in Maribor will know how to follow and will see prosperity in the city and will so not leave.

20. Are there any other issue you want to mention?

### **8.2.3.3 Respondent #9**

#### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this? What is their goal?

Yes. The initiatives are a good idea.

2. To what degree are you informed about the work of the smart city initiative Maribor?

I am not informed about the work that the initiative has done so far.

### 3. What is a smart city in your opinion?

A smart city represents all aspects of a city that are connected with new technologies and make a city more efficient. As a result this improves the quality of life its citizens.

### 4. In which way do you consider Maribor to be a smart city?

Maribor is not a smart city, because the initiative does not include projects that would work on every segment of a smart city. There have been some projects done on the certain topics of a smart city, but we still have a lot to do to become a smart city.

### 5. And what does the city needs to do to become more of a smart city?

First of all a city needs to know what a smart city means today in 2017. Then it needs to make a plan of how the city can develop economy, sustainable environment, society and also culture. Additionally, it has to think about the organization of the smart city projects and initiatives and also how it will include organizations in this process from all of the above mentioned segments. Here it also needs to think about what are the EU and global smart city trends and should also include new technologies. After that comes implementation that has to be on going and should not stop after few projects have been implemented. Lastly, every now and again the city should analyse the success of the initiatives and see where improvements are needed.

### 6. How do you perceive the smart initiatives in Slovenia, in Europe?

We have heard about some other smart cities. In Slovenia these are still very limited in their actions. For the cities of Northern Europe it could be said that these are already good examples of smart cities. Also, the initiatives work very well, have clear vision what do they want to achieve and are very well organized. Only in this way a city can become smart.

## **Stakeholder collaboration**

### 7. How did you become involved in the smart city initiative Maribor?

a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

### 8. Why is collaboration significant for a smart city initiative?

The stakeholders of a city are part of the city, they live there. So it is incredibly important that they are involved in the stage of planning and that they have a power to decide what will happen in the city they call home. If stakeholders are included as early on as possible it is much more likely that it will come to consensus about how to develop the city and consequently to

successfully implemented ideas and completed projects. Only a small group of stakeholders does not have enough knowledge on all of the areas of the city as this is very multidisciplinary.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?
10. How should the city promote or invite stakeholders? How should the city facilitate the collaboration (i.e, providing resources?)

The municipality should involve partner on continuous basis, this is more than 1-2 times a year. Also, this initiative should become a much more important project- should have priority for the municipality. The municipality should also allocate certain resources, time, money and people, to the project.

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

No projects offered that would align with the activities of our organization.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

We wanted to be one of the stakeholders of the initiative as we thought we have certain knowledge and expertise with which we could also contribute to a better Maribor.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?
  - a. If yes, to what degree?

Yes of course. We would be really happy, if we could say that we are collaborating on such a great initiative.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?
  - a. Possible solutions for potential problems?

We are a public organization, so we think that there would not have come to any problems with others. We collaborate often with various companies and we never have any problems.

#### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?
  - a. Please elaborate on this.

The municipality does not actively promote the collaboration. They communicate with us 1-2 times a year when they invite us to a meeting. This is for us not active. However, if initiative is to become something serious this collaboration has to become a continuous process.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

The municipality should visit other European cities and should have look have they are reaching a higher degree of collaboration.

- a. How would the municipality, in the role of a coordinator, need to change its behavior?

The municipality should become a more active coordinator. As mentioned before it should allocate certain resources, such as time, money and people to the initiative. It should also develop a long-term plan regarding what the initiatives wants to achieve and how will it do it. Most of the stakeholders that have signed the memorandum are busy and hard working so they just do not have the time to work on projects that are not serious. The first 1-2 years were acceptable that the initiative has not been so organized, after that, however, this should change. For the first couple of years the stakeholders collaborated because of their personal interest and motivation, but when they saw that nothing is changing or developing they stopped collaborating. We have already talked about all of these topics that you are asking me today and nothing has changed. Or the municipality tries to prepare some documents with the information that has already been discussed years ago. It feels that the initiative is completely stuck. We understand that things cannot change in a year. But if you make a plan for the next 10 years, after 3 years there should have been some changes.

### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Mari-bor?
- a. Some motives more important than others? (Rank them according to the importance level?)

Our motivation is to find new partners for other projects that we work on (connections, net-working), to find new funding opportunities, to learn something new and to share knowledge, the improved image of the organization.

### **Success factors**



18. Can you tell me about important factors of successful collaboration for this initiative to be successful?
- a. Some success factors more important than others? (rank them according to the importance level?)

For this initiative the presence of an active coordinator is essential for successful collaboration, also that the municipality has sufficient resources available (time, money, people). This comes first and only when this is provided we can start talking about other factors such as trust, good relationships, communication, and common goals.

### **Conclusion**

19. How would the future look like for the city and the initiative?

Things will not change on its own. Also, if the ideas are written on a piece of paper this will not lead to change either.

20. Are there any other issues you want to mention?

### **8.2.3.4 Respondent #10**

#### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this? What is their goal?

Yes. We have signed the memorandum of collaboration. The smart city initiatives are in my opinion a propulsive new idea that can succeed and that could actually contribute to change.

2. To what degree are you informed about the work of the smart city initiative Maribor?

Every now and again I read something about the initiative on their web site.

3. What is a smart city in your opinion?

A city that is able to use new technologies in own advantage and consequently improve the quality of life of its citizens, come up with the solution of urbanization problems, help develop city's economy...

4. In which way do you consider Maribor to be a smart city?

Maribor is not really a smart city. But is on the way toward slowly becoming one.

5. And what does the city needs to do to become more of a smart city?

To come up with solutions with the help of new technologies in order to improve the lives of the local community.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

The same as what I have said about the smart city initiative Maribor.

### **Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?

a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We were invited by the municipality.

8. Why is collaboration significant for a smart city initiative?

Economic and other types of developments in a city cannot be improved by only one stakeholder. They are too complex. It needs many different experts from different areas that have to closely collaborate in order to achieve change. For example, we have a great university here in Maribor. But this happened because the university is connected to other organizations and the industry are involved as well. We in Maribor have so many beautiful opportunities that can be fully exploited if we step together and collaborate.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

The stakeholders of the initiative are more or less on the same levels, as far as I know. But of course there are some organizations that try to use the position of their company in Maribor to become more powerful.

10. How should the city promote or invite stakeholders to collaborate?

This municipality is not capable of managing and leading this initiative. Many people that work there are just not capable and simply work there because it sounds good if they say the work for the municipality and want to be in the middle of happenings. I do not perceive municipality as a proactive partner in this initiative, but should have been exactly that.

a. How is the city facilitating the collaboration (i.e, providing resources?)

The initiative should have talked to other partner cities or other smart cities and could have learned something from them and then started implementing these things in Maribor. The municipality should have listened to the ideas of smart and knowledgeable people, or better said stakeholders who have signed the memorandum.

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

See question 12.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

We are a public institution, financed by the state. We have set various tasks we have to do on daily basis and goals we have to reach. We do not search for business opportunities, because we do not need to, because we are financed by the state. So when we signed the memorandum for collaboration we were aware that we would not be able to actively participate in the projects of the initiative, because we do not have resources for it. However, as we are knowledge and research institution we would be able to support the initiative if it would need help in the fields we work on.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

- a. If yes, to what degree?

Yes. But we would only collaborate on the projects that are relevant for us. Also, we could support the initiative by sharing our knowledge, expertise and information. We have a lot of space here in our company so we would be prepared to rent or share this space with others when needed.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

- a. Possible solutions for potential problems?

We do not see any problems arising from our side. Because we are a public organization we are not representing a threat or competition to other stakeholders from the industry.

#### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

- a. Please elaborate on this.

I actually do not know. But I think the municipality is not active enough when it comes to promoting the collaboration.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

- a. How would the municipality, in the role of a coordinator, need to change its behaviour?

The municipality should have listened to the ideas of smart and knowledgeable people, or better said stakeholders who have signed the memorandum. Additionally, see question 10.

### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

- a. Some motives more important than others? (rank them according to the importance level?)

Increase quality of life for citizens of Maribor, sharing knowledge and expertise

### **Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

- a. Some success factors more important than others? (rank them according to the importance level?)

Common goals, trust, fair collaboration, presence of a coordinator

### **Conclusion**

19. How would the future look like for the city and the initiative?

The partners that have been actively involved in the initiative until now have been incredible and I am sure they will work on innovative and interesting further in the future what will bring the change. Regarding the initiative, I am scared that the whole thing became a bit stagnate. The spirit of the whole initiative needs to be raised.

20. Are there any other issues you want to mention?

We decided that we want to promote and present some of our projects to the initiative that we as the institution have worked on. We were too modest, thinking that we cannot contribute anything to the initiative. And we realized, that we could be a bit more proud of what we do and could have presented some of our projects that go hand in hand with the smart city initia-

tive. Additionally, we were too reserved thinking we cannot really contribute to the initiative. Bad PR of the initiative.

#### **8.2.3.5 Respondent #11**

##### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this?  
What is their goal?

Yes of course we are familiar with the initiative. We signed the memorandum. I think this is a great initiative that could bring change and a brighter future to the city.

2. To what degree are you informed about the work of the smart city initiative Maribor?

Before this interview I had a look at the web site of the initiative. Before that, I admit, I did not really know on what projects the initiative is currently working or what has been achieved until now.

3. What is a smart city in your opinion?

There exist different definitions about what smart city really is. I would say the implementation of IoT and other new technologies make a city smart.

4. In which way do you consider Maribor to be a smart city?

Maribor is not a smart city or better said not yet. There are so many things that Maribor is lacking and not using for its advantage... Do not want to comment any further.

5. And what does the city needs to do to become more of a smart city?

It needs to connect various elements in the city, such as public transportation, mobile phones, flats, houses, lights... On the one side such a city needs technology, on the other side users and in the middle there has to be someone that connects all of that together. This someone needs to have innovative ideas of how to connect everyone.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

##### **Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?
  - a. (Did someone invite you? Self-initiative? Advertisement/word-of-mouth?)

We were invited by the municipality. But we also wanted to collaborate because we felt we could actually contribute to the projects with our knowledge and consequently help improve our city.

8. Why is collaboration significant for a smart city initiative?

Every stakeholder can contribute something that other stakeholders do not have or do not know. One stakeholder does not know everything. Stakeholders from different industries complement each other and can only together try to tackle all of the pressing problems of Maribor. The collaboration is also significant so that the stakeholders get to know each other and maybe start collaborating on different projects as well.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

10. How is/should the city promoting or inviting stakeholders? How is the city facilitating the collaboration (i.e., providing resources?)

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

We signed the memorandum and since then we were on one meeting. Nothing is going on, no one contacts us or invites us to the collaboration. This is the job of the municipality; we for sure will not call them and ask if we can somehow participate.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

a. If yes, to what degree?

Yes, we would like to become more involved, especially if something would be going on more often. If the municipality would more actively work on it.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

a. Possible solutions for potential problems?

We do not think there would be any problems while collaborating with others. Even if there would have been some competitiveness between the stakeholders we would for sure manage to divide the work load and successfully complete the projects. There is enough to improve in Maribor, so everyone would have more than enough work.

**About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

a. Please elaborate on this.

The municipality is not actively involving the partners in the initiative. Maybe the organizations that are owned by the municipality collaborate more on the projects of the initiative, because they work together more on daily basis. If you look at who has until now collaborated on the projects, you can see that these were mostly organizations that are owned by the municipality. I do not recall that municipality is actively promoting the projects to any other partners.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

The municipality should in the phase of planning the projects or activities include and ask the stakeholders about what are their ideas, what projects would they like to work on. Also, the municipality should contact the stakeholders that might have worked on similar projects before, what would make the completion of the projects much easier.

a. How would the municipality, in the role of a coordinator, need to change its behaviour?

They have to become much more active. The municipality needs to approve budget for the initiative. With this money they would not finance us, but the resources that are needed for successful initiative. When I talk about the resources I mean people that would only work on the initiative. Every now and again the municipality should also do an analysis of the initiative, trying to figure out why there is a lack of collaboration, how and from where can it get fundings...But nothing is happening. We do not have any meetings...

**Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

a. Some motives more important than others? (rank them according to the importance level?)

Our main motivation for collaboration would be more active initiative. If a lot more would be going on with it, we would be much more motivated for collaboration. Also, that we would be able to present our products, what we work or have worked on, in our city, where the citizens would benefit something from them.

**Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?
  - a. Some success factors more important than others? (rank them according to the importance level?)

Clearly set common goals. So that all of the stakeholders know what are they trying to reach. Also, the responsiveness of the stakeholders is such a factor. The progress can be faster and you do not need to wait for a simple answer for two weeks. This waiting for the other party to respond is just a waste of time. Moreover, that you see that other partners are interested and motivated to work on a projects, because this makes the whole process much more efficient and it is easier to collaborate with people that honestly want to participate.

**Conclusion**

19. How would the future look like for the city and the initiative?

The city will sooner or later become smart. This is where the development in European cities is going. If we cannot be leaders when it comes to smart cities we are for sure going to be the followers. A lot also depends on the municipality. They need to start actively working on the smart city projects and should not be preoccupied with themselves so much.

Are there any other issues you want to mention?

It is not always everything about the money. We would collaborate on projects even if we would not get paid. We can share our know-how or offer some equipment for free. Otherwise, the municipality should organize meetings, they should also tell us what goals do they want to reach with the initiative, what would they wish to collaborate on...

**8.2.3.6 Respondent #12****Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this?

Yes. I think the idea behind the initiative is great. It has real potential that it could bring change to Maribor and its citizens if people will seriously work on it.

2. To what degree are you informed about the work of the smart city initiative Maribor?

Ever now and again I hear or read about the projects that the initiative is working on.



3. What is a smart city in your opinion?

A city, which uses new technologies to improve the quality of life of its citizens.

4. In which way do you consider Maribor to be a smart city?

No. Or not yet. We still have a long way to become a smart city. There is a lot of room for improvements left. It can be said that Maribor just started working on becoming a smart city. The progress can be seen, especially when we have a look at tourism or public transportations of the city. We, however, cannot talk about a smart city yet.

5. And what does the city need to do to become more of a smart city?

First step is leaders of the city to have a clear vision, meaning what do we want to do with our city. Second step is that research institutions, the municipality and any stakeholders from the industry connect and start collaborating on actual projects.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

I have heard few things about smart city Ljubljana and some other European cities; however, I do not have any specific knowledge about them. As it was mentioned before, smart city initiatives are definitely a great first step for cities to become smart.

### **Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?

a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We were invited by the municipality as we were collaborating on another project with other companies from the region.

8. Why is collaboration significant for a smart city initiative?

To learn what other organizations know, how can we help each other and to figure out so what we can do so that the city and its citizens would benefit the most of it.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

10. ? How is/should the city facilitating the collaboration (i.e, providing resources?)

The municipality should play a role of a moderator. The main task should be to connect all of the stakeholders, provide more information about the initiative and help with the bureaucracy. The bureaucracy in Slovenia is terrible. On the other hand the municipality should give us freedom to work on projects that are economically and financially feasible. Good ideas that do

not bring money are much more difficult to promote and so many of the companies are just not interested and motivated.

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

Things we do as a company are currently not needed from the side of the initiative, as there are no projects going on where our knowledge and expertise would be needed. We do not want to work just on any projects that have nothing to do with our organization's business.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

This company specializes on telecommunications technology that is one of the key elements when it comes to smart cities. The collaboration in the initiative would be a great way for us to share our knowledge. Also, we wanted to learn about what other companies in the region do and see what we can learn from them.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?
  - a. If yes, to what degree?

Absolutely. We would collaborate on concrete projects.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?
  - a. Possible solutions for potential problems?

Do not think there would be any problems.

### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor/ How is the city promoting or inviting stakeholders?
  - a. Please elaborate on this.

It is difficult to say as we only signed the memorandum of collaboration and have so not have been involved in the initiative since.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

The municipality would need to establish a clear vision and goals for what it wants to achieve. In this way every individual can decide if it even fits with the initiative with its knowledge, if this is something it wants to be involved in. A clear vision is a first step and the key.

- a. How would the municipality, in the role of a coordinator, need to change its behaviour?

### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Mari-bor?

- a. Some motives more important than others? (rank them according to the importance level?)

The motivation for us would be concrete projects we can collaborate on where we would need to use our knowledge and expertise. Furthermore, if we could learn something from other stakeholders, this would be additional motivation factor. Otherwise, financial benefits, that we would be able to access new markets, connection and partnerships with other stakeholders would motivate this organization. There are many factors that would motivate us.

### **Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

- a. Some success factors more important than others? (rank them according to the importance level?)

Partners collaborating need to want to collaborate in the project and also need to want to complete the projects successfully. Also, the idea about receiving (financial) benefits leads to successful projects as everyone is much more motivated and takes more time to work on the project. Furthermore, everyone collaborating on a project need to receive a benefit or an added value. If only one of the partners does not get that, the collaboration will not be successful, because that one partner will not be motivated as much as everyone else and would probably not work as hard on the tasks...

### **Conclusion**

19. How would the future look like for the city and the initiative?

The initiative could contribute to the development of the city. The few smart city projects that have already been implemented are a first step or a beginning towards a better future for the city. But there is still a lot of work to do. Things have to change drastically in Maribor in order to start the development process.

20. Are there any other issue you want to mention?

#### **8.2.3.7 Respondent #13**

##### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this?  
What is their goal?

Yes. I follow the initiative every now and then.

2. To what degree are you informed about the work of the smart city initiative Maribor?

I follow the projects that are presented on the web site of the initiative.

3. What is a smart city in your opinion?

This is a broad term. The idea of a smart city is to improve the quality of life of its citizens. The technology is an instrument to reach this. Only the technology on its own does not contribute to the quality of life.

4. In which way do you consider Maribor to be a smart city?

No. However, some attempts have been made. But it is very good that Maribor finally started such initiative. I really believe that it can lead to change in the city.

5. And what does the city needs to do to become more of a smart city?

Infrastructure, services and information need to be connected and serve the people that live in a city or are just visiting the city.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

I do not really follow any other smart cities. I know Vienna, Barcelona and Singapore. All of these cities are very successful smart cities.

##### **Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?
  - a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

Our vision is to follow paradigm of smart cities. The municipality invited us.

8. Why is collaboration significant for a smart city initiative?

Our lives are build of many elements. Our cities and municipalities are very complex systems and one organization, stakeholder or person cannot control or improve the entire city. There are so many different areas of the city such as transport, pollution, health, economic development... One organization simply does not have to knowledge about all of these areas.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

I do not know enough about the initiative so I could not elaborate on this question further.

10. How is the city promoting or inviting stakeholders? How is the city facilitating the collaboration (i.e, providing resources?)

Coordinator with a vision should come up with projects, should promote the initiative more. This should not be some kind of a closed group, but everyone with the new, innovative ideas should be invited to participate.

In the first phase the municipality needs to actively be involved in the initiative. It is not necessary that it needs to provide any kind of resources. If people are motivated to collaborate there are always ways to complete the projects.

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

We do not know how to start collaborating in the initiative, how to start projects, who to contact... They did not invite us in the beginning to a meeting where we could all together discuss the vision of the initiative.

12. What where your collaboration goals when you became partner of the smart city initiative Maribor?

To improve the quality of life of the citizens of Maribor.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

a. If yes, to what degree?

Yes. We would like to collaborate more actively.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

- a. Possible solutions for potential problems?

I do not know the initiative that well. Of course it is possible that the problems would occur. There are many different stakeholders collaborating in the initiative.

#### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

- a. Please elaborate on this.

I am not sure that the municipality is doing anything. This is not ok.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

- a. How would the municipality, in the role of a coordinator, need to change its behaviour?

They should better communicate. They should show a clear vision. I do not know what is their vision, it is also not clear on their web site. They just present some projects. It looks very confusing to me.

#### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

- a. Some motives more important than others? (rank them according to the importance level?)

Definitely the improved image of the organization. It is important to us that this company helps improve the quality of life in Maribor and that our customers also know about it. Also, we would be very motivated if we could share our knowledge with others through the projects contributing to the successful completion of the projects of the initiative. Further, we genuinely want to help improve the city.

#### **Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

- a. Some success factors more important than others? (rank them according to the importance level?)

Vision is the alpha and omega of the success of this initiative. Vision has to be clearly defined and also followed. Also, the active coordinator that would seriously work on the initiative and that would connect us, organize meetings... If this will not happen then the initiative will stay on the same level as it is now, namely there are barely working on any projects and barely any stakeholders are actively participating because they are not stimulated in the right way.

### **Conclusion**

19. How would the future look like for the city and the initiative?

Something will probably change, but the question is how fast. Things could be improved faster, if the initiative will start seriously working on the projects that would contribute to a better tomorrow of Maribor.

20. Are there any other issue you want to mention?

I do not see the vision of the initiative.

#### **8.2.3.8 Respondent #14**

##### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this?  
What is their goal?

Yes. We have signed the memorandum so we know what it is about.

2. To what degree are you informed about the work of the smart city initiative Maribor?

We follow the projects of the initiative. However, we do not collaborate in the initiative.

3. What is a smart city in your opinion?

The term smart city is perfectly defined by European Commission. Smart city is a city that uses new technologies in order to improve the quality of life of the locals living in the city.

4. In which way do you consider Maribor to be a smart city?

Maribor is not smart city yet. The city started working on becoming a smart city. The city is currently still lacking the attributes or characteristics of a smart city. Maribor is working on smaller projects right now, such as implementing Wi-Fi on all of the public buses. This is great, but it will take some time until we will be able to say that Maribor is a smart city.

5. And what does the city need to do to become more of a smart city?

A city can become smart through different projects and initiatives. This is a process that takes time.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

I do not know other initiatives. But smart city initiatives are great ideas of how to improve our cities and how to tackle the urbanization problems.

**Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?

- a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We are an organization that works on development of entrepreneurship in Maribor. We have been active for years in Maribor and of course we think that we should support the initiative with our knowledge. So we signed the memorandum. We cannot remember how exactly we got involved.

8. Why is collaboration significant for a smart city initiative?

Collaboration is significant because these initiatives concern so many different aspects of a city. One group of stakeholders cannot handle all of these aspects on its own. Only a limited group of stakeholders does not have enough knowledge and expertise to be able to improve the whole city and find solutions for all the problems. For that reason collaboration with many different stakeholders coming from different areas is essential.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

No, not in this faze of the collaboration. The stakeholders that are currently collaborating come from different backgrounds, some are public institutions, companies from different industry areas so they do not clash with each other. The initiative has not yet become a sort of a movement so stakeholders' roles have not yet been established. For now, the stakeholders simply collaborate on different projects.

10. How is the city promoting or inviting stakeholders? How is the city facilitating the collaboration (i.e., providing resources?)

MoM should not just provide resources, it should also play a role of an organizer, coordinator and should connect stakeholders. Financial resources are not the most important here as they can be acquired from somewhere else, not just the municipality.



11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

We are financed by various European institutions and so we collaborate with them on the projects. If we would want to collaborate in the initiative, the municipality would need to pay us. Also, we do not collaborate because the current projects of the initiative are not connected to what we do as a research organization.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

We are an organization that works on development of entrepreneurship in Maribor. We have been active for years in Maribor and of course we think that we should support the initiative with our knowledge.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

- a. If yes, to what degree?

Yes, absolutely. We would collaborate only and exclusively on projects.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

- a. Possible solutions for potential problems?

Definitely not. On all of the projects we work we collaborate with different stakeholders so we are used to collaborate. And we never have any problems when we collaborate with others.

#### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

- a. Please elaborate on this.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

You have to offer partners something what would intrigue their interest for collaboration. Additionally, the initiative should have been much more promoted. But when you do this promotion, you have to have a strong and clear strategy plan ready and you also have to know what do you want to achieve. Shortly said, the municipality needs to develop the organizational structure and content of the initiative and has to start communicating with the stakeholders.

- a. How would the municipality, in the role of a coordinator, need to change its behavior?

The initiative would need to evolve from being an initiative to a real long-term strategy that would make Maribor a smart city. Municipality does not have enough resources, meaning it does not have enough time, people or finance to be able to work actively on the initiative. It does not mean that municipality is a bad coordinator. But the initiative has not evolved in the years since it has been established. There is no set strategy or vision. The initiative should have one department working full time on the initiative. The municipality also does not have a set budget prepared for the initiative.

### **Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?
  - a. Some motives more important than others? (rank them according to the importance level?)

Financial benefits, as we cannot afford to work on the initiative without being funded. Projects from our field of expertise would of course interest and motivate us. We do not think we can help or collaborate on any other projects that are out of the scope of our knowledge and expertise. Additionally, we would want to contribute to the quality of life in Maribor.

### **Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?
  - a. Some success factors more important than others? (rank them according to the importance level?)

Communication is the most important, because without good communication the projects cannot function. No one knows what is going on, what are other stakeholders working on. All of this can lead to confusion, misunderstandings and consequently to the fail in completion the project. Secondly, that the collaboration is organized so that everyone knows what is there to do and that the tasks are clearly divided. Strategic plan for a project, so that everyone knows what is the goal of the collaboration.

### **Conclusion**

19. How would the future look like for the city and the initiative?

Maribor needs to develop economy. New technology is all nice and great. But if we will not develop economy, decrease unemployment rates and offer interesting job opportunities for young prosperous people, this city will be left with only old retiring people with millions of urbanization problems. These problems cannot simply be tackled with the new technologies.

20. Are there any other issues you want to mention?

The initiative should wake up the people of Maribor and should help to think about the future and opportunities of Maribor in a more positive way. In order to do so, the initiative should slowly come up with a strategy, management and financing. Also, the citizens should actively involve in the initiative.

#### **8.2.3.9 Respondent #15**

##### **Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this?  
What is their goal?

Yes, we are familiar with the initiative.

2. To what degree are you informed about the work of the smart city initiative Maribor?

I barely know anything about the projects of the initiative.

3. What is a smart city in your opinion?

This is a broad term. It includes build infrastructure that serves as a basis for the new technologies, which can contribute to the better life of everyone living in the city.

4. In which way do you consider Maribor to be a smart city?

Maribor is not a smart city. The first steps have been made in this direction through different projects, but Maribor still has a long way ahead to become a smart city. So many things can still be implemented and are not used enough to our favour when it comes to new technologies, e.g. smart football stadium...it should also promote the smart city initiative in Maribor more.

5. And what does the city needs to do to become more of a smart city?

It should use the new, available technology in a way that it would ensure or increase the quality of life of its citizens.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

Smart city initiatives are a great idea. They are quite developed in other cities, such as Ljubljana, Zagreb...

### **Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?
  - a. (Did someone invite you? Self-initiative? Advertisement/word-of-mouth?)
8. Why is collaboration significant for a smart city initiative?

Smart cities include many different areas, many complex areas that all have to be improved and developed. No one organization has the knowledge and the expertise to be able to cover all of the areas. This is why as many stakeholders in the area have to step together and collaborate.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

Some stakeholders are definitely more powerful. These are probably larger, older companies, as they have more experiences. And for that reason it might come to some problems. But I do not know that much about the initiative so I cannot tell.

10. How is the city promoting or inviting stakeholders? How is the city facilitating the collaboration (i.e, providing resources?)

The city is not promoting or involving the stakeholders. First and foremost the municipality should become more actively involved with the initiative. This is more important way of facilitation than any financial resources. It is not always about the money. If we, stakeholders, would see some enthusiasm about the initiative we would also become more motivated and would somehow find the resources needed to successfully contribute to Maribor's development.

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?
12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

Our organization works on wireless networks, energetics, smart grids... We felt that we have a certain knowledge that would help to successfully complete the smart city projects and would so consequently help to improve our city.

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

- a. If yes, to what degree?

Yes. We would really like to collaborate in the initiative. We are waiting with open arms to start contributing to the projects that would help develop this city we live in. However, it is not our job to be the initiators here. Municipality needs to do that. It needs to start actively promoting the initiative, organizing the meetings, collecting ideas, contact stakeholders...

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

- a. Possible solutions for potential problems?

There would not come to any problems.

#### **About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

- a. Please elaborate on this.

The municipality is not involving the stakeholders into initiative enough. There are no meetings organized. There should be some activity organized at the beginning when we signed the memorandum so that we, stakeholders, could at least get to know each other.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

Municipality should have a clear goal, a strategy what it wants to achieve. It should have a short-term, middle-term and a long-strategy.

- a. How would the municipality, in the role of a coordinator, need to change its behaviour?

It should actively involve stakeholders into the initiative. Municipality should communicate with us more often, organize meetings, and share its ideas with us... I also think that it should involve the university as a research institution more. I am sure that many academics, as well as students, would want to collaborate on different projects. Young people have many great ideas and are very motivated. Also, the municipality should reach out to the organizations that are experts on some of the areas that have worked on similar projects, as this would lead to more successful projects. Why start from scratch, if there are many companies in Maribor that have worked on similar projects abroad and would be a great help. Municipality just has to reach out.

**Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

- a. Some motives more important than others? (rank them according to the importance level?)

Mentioned it above when I talked about our goals of collaborating in the initiative.

Our organization works on wireless networks, energetics, smart grids... We felt that we have a certain knowledge that would help to successfully complete the smart city projects and would so consequently help to improve our city. We also want to get to know other stakeholders in the city so that we could maybe collaborate on other projects as well. Furthermore, we would also like to learn something new from other stakeholders.

**Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

- a. Some success factors more important than others? (rank them according to the importance level?)

Definitely trust and respect. And you trust someone, if they respect you. If you can trust your partners you are more relaxed, because you know you can rely on the others involved that they will do their share of work and that they will not let you down. You do not need to hide some information. If you can be transparent, sharing openly what you know with others collaborating then the success is also greater. You are not scared someone will misuse the information.

**Conclusion**

19. How would the future look like for the city and the initiative?

Maribor and the initiative for sure have a positive future. Maribor has a great location, it has a lot to offer, the city is big or small enough that it could be interesting for many successful Slovenian and foreign companies. We just have to take the advantage of these attributes. The municipality, however, needs to be an operator in all of this.

20. Are there any other issue you want to mention?

**8.2.3.10 Respondent #16****Smart city initiative Maribor**

1. Are you familiar with the smart city initiative Maribor? What do you think about this?  
What is their goal?

Yes. I do not know what are the goals of the initiative. The initiative is not very active or very well organized. In general, however, such initiatives are a great idea as this has been demonstrated in many European cities.

2. To what degree are you informed about the work of the smart city initiative Maribor?

I know what I read on the web site from time to time.

3. What is a smart city in your opinion?

Smart city includes few stages. The first stage is infrastructure and communication technologies that connect everything. The next stage is supply of electricity, water, heat, waste. The data of all of these things are collected and enable the higher stage. This is a stage of education, travel, industrial activities. So this is what I understand as a smart city. On the one hand we have information that is then processed. The information enables the users to comfortably and easier use and benefit from the infrastructure.

4. In which way do you consider Maribor to be a smart city?

I do not think Maribor is a smart city. I earlier described what is in my opinion smart city- this is definitely not Maribor. The infrastructure is definitely missing.

5. And what does the city need to do to become more of a smart city?

Everything I have mentioned above and smart city governance.

6. How do you perceive the smart initiatives in Slovenia, in Europe?

Smart city initiatives are a great idea. I have attended some of the seminars regarding the smart city Graz and also Vienna, Porto and Malaga. These initiatives definitely help improve cities and the quality of life for its citizens. That is to say if they are efficiently implemented.

**Stakeholder collaboration**

7. How did you become involved in the smart city initiative Maribor?
  - a. (Did someone invite you?, Self-initiative?, Advertisement/word-of-mouth?)

We were working on a project here in Maribor. The municipality was also involved to a certain extent and so they got to know me and invited me to collaborate.

8. Why is collaboration significant for a smart city initiative?

Smart cities need solutions in many areas of the city, namely technical, political and social. No one organization has the knowledge in all of these areas. That is why all of the stakeholders in a city need to collaborate.

9. Are there any power, hierarchy issues you think influence this initiative? How is the network looking like in the city, and where do you position yourself?

There are always partners collaborating that are more powerful, more privileged. This is especially the case for larger companies. But stakeholders should not focus on this. The focus should be the common goal that everyone wants to reach. Any problems regarding the hierarchy of stakeholders have to be overcome and put aside, because the projects and the outcomes are much more important. The only thing this can be achieved is if everyone works together.

10. How should the city promote or invite stakeholders? How should the city facilitate the collaboration (i.e., providing resources?)

For everything what we did for this project or the municipality we never demanded a payment.

11. Why is your organization not actively involved in the collaboration of the smart city initiative Maribor?

I have been to two meetings at the beginning where I also explained my expert opinion.

12. What were your collaboration goals when you became partner of the smart city initiative Maribor?

13. Do you consider becoming actively involved in the collaboration of the smart city initiative Maribor?

a. If yes, to what degree?

Yes, I would like to be more active. However, it is not my job to organize the initiative. This is the job of the municipality. They have to organize meetings and show some energy.

14. Please list and describe potential problems that you could encounter while collaborating in general and with other partners?

a. Possible solutions for potential problems?



I never had any problems when I collaborated with others. The only thing I could think of is if someone would say that there is only one solution to the problem available that we would be working on and would not want to hear any other suggestions. And if people would not be responsive.

**About the coordinator**

15. How do you consider the municipality to actively promote the collaboration in the smart city initiative Maribor?

a. Please elaborate on this.

I do not know. All I can say is that we were not contacted since the two meetings at the beginning that I mentioned before.

16. In your opinion, how could the municipality reach a higher degree of collaboration between partners in the initiative?

a. How would the municipality, in the role of a coordinator, need to change its behaviour?

The municipality should have been actively involved from the beginning. It has to organize meetings, become involved, connect stakeholders, and start intensively including the industry into the projects, exchange ideas with partners. The municipality has to promote the initiative to the industry so that in a way they can see this collaboration also benefits them. The initiative should also include people.

**Motivation factors**

17. What would motivate you for the active collaboration in the smart city initiative Maribor?

a. Some motives more important than others? (rank them according to the importance level?)

It would motivate me if the initiative would work on projects that I think are beneficial for the entire city. Also, if I could see the progress of the initiative, that the initiative has long-term goals and that that municipality is actively involved. Additionally, that we would work on the solutions not just for Maribor, but also for the broader region.

**Success factors**

18. Can you tell me about important factors of successful collaboration for this initiative to be successful?

- a. Some success factors more important than others? (rank them according to the importance level?)

Fair collaboration, where people discuss the ideas with you and tell you if they disagree in your face and not behind your back. Fair collaboration also means that everyone involved completes their tasks and if they started collaborating on the project they also have to complete it and not give up in the middle. If this is not the case other stakeholders feel frustrated with the project and the stakeholders and might not want to further collaborate. Also, trust, respect, good communication and common goals are very important factors. Without these factors there is no successful collaboration, what is left is chaos and problems and frustration on the side of the stakeholder(s) who would want to seriously work on the projects. At the end (financial) benefits could be mentioned here as well. But this is at least important thing among others described here. It is nice to get a benefit for your work at the end. Another thing is also compatibility with other people that are collaborating. I always thought I could work with everyone; however, this is not really the case. I have worked with people with whom I just could not get along or we just did not understand each others ideas. This is another important factor that can make or break a project.

## **Conclusion**

19. How would the future look like for the city and the initiative?

Well, if we'll finally step together and start collaborating and if the municipality will become an active coordinator the future will look much brighter.

20. Are there any other issues you want to mention?

In some other European smart cities the municipality is leading, organizing and coordinating the initiatives. And this is why they are successful. The municipalities are the motor of the initiatives. This is not the case for Maribor. The people or organizations that have a certain expertise on an area need to come together and talk about the ideas. If you have a look at the initiatives of other cities, for example Graz, you can see that they prepared all the necessary documentation about the initiative and the current and planned projects. When and if EU invites open applications for funding the smart city initiatives they simply apply and get the finances. In Maribor this is not the case and we then simply miss these applications and consequently do not get funding.