Piotr Kalbarczyk, Dilay Kesten Erhart, Valerie Bahr

CITyFiED Innovation Management Guide

A case study on the exploitation of smart city solutions in the European Smart Cities and Communities Project CITyFiED (Replicable and Innovative Future Efficient Districts and Cities)

CITyFiED
RepliCable and InnovaTive
Future Efficient Districts and cities

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Steinbeis-Edition

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Steinbeis Innovation gGmbH (SIG) is a not for profit research organisation within the Steinbeis Foundation for Technology Transfer. **Steinbeis-Europa-Zentrum (SEZ)** is an enterprising unit within the SIG, operating since 1990 as a not-for profit unit supporting innovation of SMEs, cross-border technology transfer, building innovation capacities in SME, and supporting SME´s participation in EU research projects. Steinbeis 2i GmbH (S2i) was founded in 2016 as a 100 % spin-off of Steinbeis-Europa-Zentrum (SEZ). Steinbeis 2i GmbH has taken over all staff members and competences from SEZ, so that over 25 years' experience of SEZ is fully guaranteed and now executed by Steinbeis 2i GmbH.

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The Authors

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Preface

"If I had asked people what they wanted,
they would have said faster horses."
Henry Ford

This famous quote by Henry Ford implies that finding the best answer to a problem is a critical issue for a disruptor. In order to address the new and ever more complex climate-change and urban sprawl related challenges, cities must adapt. Simple improvements applied to existing solutions are often neither desirable nor possible. To create a value and to place social outcomes at the core of policy making, many municipalities started transforming their systems. A high degree of effectiveness and efficiency in delivering citizen-dedicated services is necessary. Only in this way, the quality of life in a given city can be improved, while the metropolis itself becomes future-proof.

In order to succeed, being creative is not enough. Cities and their partners have to understand how to lay the right foundation for innovation – within and across their environments. The ability to identify a challenge and to translate an idea into a project is required. Moreover, it is important to recognise the processes and structures supporting and accelerating innovation.

Innovations are closely related to networking activities because networks are capable of transforming inputs (ideas, technologies, funds, patents, skills, etc.) into marketable outputs (new products, services, companies, jobs, profits, etc.). New types of collaborations enable the emergence of new ecosystems such as global innovation clusters, intelligent hubs, intelligent agglomerations or Living Labs. If coordinated wisely, these networks integrate the knowledge distributed on various spatial levels and skills dispersed among the society. Recent evidence advocates that international collaborations and global knowledge flows are a pivotal source of creativity and innovativeness.[1] **Smart Cities and Communities** projects with their local consortia covering multiple stakeholders from municipality, industry and research organisations, embedded in a

1 For more information see: Komninos, N. (2015). The Age of Intelligent Cities. London: Routledge, p. 40.

large international consortium, have shown to be an additional form of **innovation hub** with high potential at a local and an international level.

In many European cities, Smart Cities and Communities demonstration projects have been set up to test new, innovative and sustainability-oriented technologies. Having formed the appropriate partnerships and being financially supported by the European Commission, numerous municipalities engage in the projects eagerly.

The results of such piloted and implemented projects shall be disseminated and exploited system-wide. Unfortunately, many projects fail in terms of turning their valuable results into exploitable components or marketable utilities. However, the reason behind it is not the lack of potential. It is rather a high level of complexity as well as uncertainty characterising the innovation implementation environment. Addressing these factors is considered a major challenge to overcome.

Based on its perennial experience in providing expertise in **innovation management (including financing, commercialisation, related policy analysis, etc.), Steinbeis-Europa-Zentrum** developed a **functional exploitation strategy** to tackle this challenge. This strategy has been successfully applied to create links with the other European Smart City projects for a mass-market deployment and the long-term capitalisation beyond the project's lifespan. Using the European Smart Cities project **"CITyFiED"** as a case study, the main assumptions of the strategy are explained and exemplified in this guide. Moreover, it presents a selection of results such as products and services developed in the course of the project.

This guide is dedicated to all the stakeholders involved in publicly funded, innovation-oriented smart city projects that are in line with the quintuple helix innovation model – be it representatives of governments, business sectors, academia, civil societies or NGOs. It provides the reader with a set of tools and recommendations to help maximise the impact of their projects' outcomes. This is, for example, achieved by using the results in further research, in developing, creating and marketing new products, processes, services or in standardisation-related activities.

1 Introduction

Smart cities are multi-layered, territorial systems of innovation. Their structure consists of knowledge-intensive activities, digital spaces and **innovation-oriented institutions**. The latter provide a framework supporting activities in different fields such as research and development (R&D), collective intelligence, innovation funding, technology transfer, etc. Transformation-led and knowledge-based urban development became a popular model, which municipalities try to adopt and adapt to their specific circumstances. Factors playing a crucial role in this process are institutional effectiveness, a high level of trust, efficient collaborations and **knowledge spill-overs within the community**.[2] A Smart Cities and Communities demonstration project is the perfect tool to achieve these goals.[3] It decreases the time a technology needs to make its way from the development phase (prototype) to implementation and the general availability for the commercial users.[4] While testing its workability, such projects demonstrate the usability of the innovations to potential beneficiaries under real operational conditions. From the economic perspective, if well executed, **the demonstration project eventually leads to a higher level of additional investment (financial leverage), job creation, production of economic and innovation outputs and results commercialisation**.[5]

The projects prove the technical, commercial and environmental feasibility of an innovation, reduce risks and costs (components, building, operating, maintenance, etc.), develop public awareness and introduce an institutional framework for societal change. The following taxonomy of the project results purposes exists: learning (to be fed back into technical development), open-

2 Komninos, N. (2015). *The Age of Intelligent Cities.* London: Routledge, p. 24.

3 E.g. European Smart Cities and Communities Lighthouse Projects. They aim at improving urban life through more sustainable integrated solutions. Projects address the city-specific challenges from different policy areas such as energy, mobility and ICT. It builds on the engagement of the public, industry and other interested groups to develop innovative solutions and participate in city governance. (https://ec.europa.eu/info/eu-regional-and-urban-development/topics/cities-and-urban-development/city-initiatives/smart-cities_en)

4 Lefevre, S. R. (1984). *Using demonstration projects to advance innovation in energy.* Public Administration Review, 44(6), p. 483–490.

5 More details and quantified data in: European Commission (2017). *Assessment of the Union Added Value and the economic impact of the EU Framework Programmes (FP7, Horizon 2020).* [ebook] European Commission. Available at: http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/assessment_of_the_union_added_value_and_the_economic_impact_of_the_eu_framework_programmes.pdf [Accessed 25 Feb. 2019].