Smart City Projects: Designing a Project-Level Smart Value Assessment Instrument

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Extended abstract: While the smart city gains global attention as a popular umbrella term for digitally-enabled sustainable city development, city administrations are faced with the managerial challenge that comes with a strategic digital transformation. Smart city projects form the frontline of smart city strategies. In smart projects, cities find a way to implement the principles of the smart city. Many of these are high-visibility projects, with substantial budget implications. In this extended abstract we propose the outline for a project-level smart value assessment instrument. The instrument should serve at the same time as a tool for smart city managers to assess and plan upfront how a project will contribute to reach the city's smart city ambition, as well as a post-factum evaluation.

I. INTRODUCTION

Smart cities are reimagining their future with digital technologies as the new normal, enabling sustainable city development and addressing current and future urban challenges. For city administrations the ambition comes with several managerial challenges [1]. The prolific use of the smart city terminology has equally led to a proliferation in city projects, labelled 'smart'. Today the label is an easy channel (ab)used to get to funding sources as well as a form of new political discourse. However, for city administrations that are serious about the smart city ambition, there is a lack of instruments to assess projects upfront for their 'smartness' and fit with the local smart city focus [2]. In this study we propose the design of a project-level smart value assessment instrument, from the city administration's perspective.

Acknowledging that 'smart city' is de facto an umbrella term with a wide variety of application areas, we adopt the definition of a smart city by Chourabi et al. [3], that outlines several application areas for including sustainable energy, e-government, mobility, etc.. The intention of our study is to develop the instrument to be applicable for smart city projects regardless of the specific application area(s) they fit.

Projects cannot be seen as a stand-alone object. They must be assessed on the stand-alone value as well as the extent to which they support the transformation of a city towards a smart city, and more specifically the local strategic priorities, set by the city administration. In theory the instrument should assess each of these levels of 'smartness' upfront. To make the instrument as concrete as possible we foresee the inclusion of indicators that are actually measurable over time. This will allow the city administration to follow-up and evaluate post-hoc whether a project, labelled smart, adheres to the principles of a smart city.

The purpose of this study is not to replace the financial business case for a project, which demonstrates the economic rationale behind a certain initiative. We foresee this smart value assessment as an addition to the traditional business case, focusing on its value in a smart city rationale, or, in other words, demonstrating the project's societal stakeholder value. Previous research on the smart city project level is rather limited. A project-level analysis of Seattle's smart city projects by Al Awadhi and Scholl [4] focused on the type of smart city benefits realised in each of the projects, and provides useful clues as to what 'smartness' at the project level means. We intend to build on this work by focusing on how these benefits can be assessed upfront.

II. THE INSTRUMENT

Figure 1 summarizes the three levels of project 'smartness' the instrument intends to cover. The first level will be a brief check whether the project has a good fit with the local smart city priorities. Is it aligned with other projects in the smart city portfolio and will it directly contribute to one or more of the local smart city indicators?

Secondly we foresee a more extensive layer for the transformative capacity of the project. E.g. does the project make use of open data and/or contribute to the generation of open data? Does the project make use of available APIs and services and/or does it produce such APIs or services in order to be reusable? Does the project take into account future scalability and sustainability by aligning to the smart city architecture? Etc.

Finally, a section will be provided to assess project-level smartness related to the above mentioned smart city benefits.

Figure 1 presents the instrument's design in its embryonic phase with the three layers and a first look at their meaning. To be valuable as a follow-up and post-hoc evaluation instrument, the instrument will have to include generic measurable indicators for each layer.
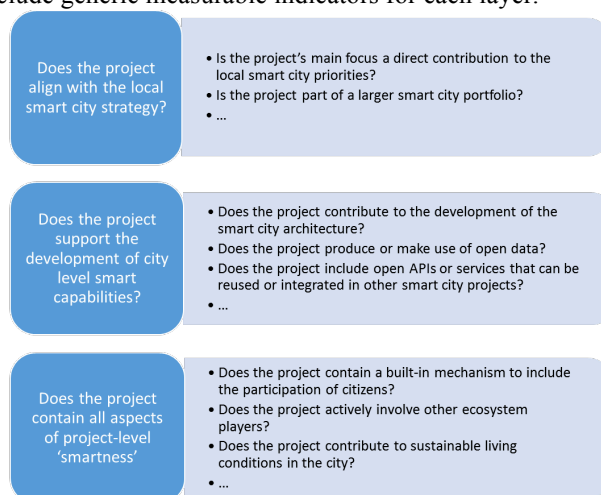

Figure 1: three layers of project-level smart value

III. RESEARCH APPROACH

The instrument will be designed on a theoretical basis first, by means of a literature review desk research, then to be refined by smart city experts. In a second phase it will be tested in a specific in-depth smart city environment. Simultaneously it will be tested by means of a large sample of smart city project data.

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