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The Development of a Framework for Sustainable Connected Cities for Dublin, Ireland

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"Sustainable Connected Cities" has emerged as an important research challenge. Despite the strategic importance of this topic to both practitioners and academics there has been relatively attention paid to the topic in academic research publications to-date. There is a need for a systematic approach to researching this topic and the research described in this paper addresses this opportunity. The paper explores the factors required to evaluate the environmental and socioeconomic sustainability impact of Information and Communication Technology (ICT) solutions at a city level. A systematic literature review is implemented to develop and propose a smart city definition. Furthermore a Smart City framework is proposed, containing domains where ICT solutions are expected to be implemented.

The research project presented in this paper is being conducted in collaboration with Dublin City Council and Intel Corp., and aims at the development of a Sustainable Connected City Maturity Model. Analyzing the literature on maturity models, it arose that the most frequent critique to such assessment models is their poor theoretical background (Biberoglu and Haddad, 2002). However, most of the models are based on practices and factors that have led to successful results in projects already implemented within certain organizations or industry sectors (Mettler, 2011). In our case, in order to systematically define the content of our maturity assessment model, we decided to implement a systematic literature review process. The main goal was to leverage the awareness of the mechanisms that characterize cities (from the city council side), and the technological infrastructure associated with cities (from the company side), with the knowledge arising from extant academic theory.

This paper is divided in three main sections. After this introduction, section two will describe step by step the systematic literature review process that we have followed. The third section will be on the research methodology that we are adopting, i.e. Action Design Research (Sein et al. 2011). Finally, within the last section a definition and a comprehensive framework for Smart Cities will be proposed.

In particular we define a Sustainable Connected City as *"an urban area that leverages its technological and social infrastructure implementing people-private-public partnerships supported by innovative governance in terms of policies, leadership and proper on-going management principles, to enable smart information services, aiming at improving its critical capabilities"*. This definition encompasses all the critical aspects that arose from the literature currently available. Then, as mentioned above, we went into a greater level of detail with the definition of the framework. The main objective for the framework was to define mutually exclusive and collectively exhaustive areas that fully encompass all the enabler factors of Sustainable Connected Cities. These dimensions are: "Technology", "Social Infrastructure", "Governance", "3P Partnerships" (People-Private-People Partnerships), and "Information Services". A summary of its conceptual functioning is provided in Figure 1: A Framework for a Sustainable Connected City