

<b>Semester</b>	WS 18/19
<b>Lehrstuhl</b>	Prof. Dr. Frederik Ahlemann
<b>Betreuer</b>	
<b>Studiengang</b>	B.Sc.
<b>Sprache</b>	EN
<b>Themenkomplex</b>	
Smart City	
<b>Thementitel</b>	
Classifying Smart Cities - Towards a taxonomy of Smart City initiatives	
<b>Themenbeschreibung</b>	
<p>Smart City initiatives are closely linked to self-imposed goals and encompass many different areas of modern cities. The nature of these initiatives depend on many aspects like the size of the city, the number of citizens, the characterization of its industry, its culture, its available IT know how, and its budget. Consequently, all Smart City initiatives differ slightly and are therefore difficult to compare.</p> <p>The aim of this thesis has two objectives: First, it provides an overview of existing Smart Cities case studies in literature and briefly explains their characteristics. Second, based on these findings, this thesis develops a taxonomy describing Smart City initiatives according to different criteria. This taxonomy should therefore help researchers classify future Smart City initiatives.</p>	
<b>Literatur</b>	
<ul style="list-style-type: none"> <li>▪ Anthopoulos, L. G., &amp; Fitsilis, P. (2014). Smart cities and their roles in city competition: A classification. <i>International Journal of Electronic Government Research (IJEGR)</i>, 10(1), 63-77.</li> <li>▪ Niaros, V. (2016). Introducing a taxonomy of the “smart city”: Towards a commons-oriented approach?. <i>tripleC: Communication, Capitalism &amp; Critique. Open Access Journal for a Global Sustainable Information Society</i>, 14(1), 51-61.</li> <li>▪ Perboli, G., De Marco, A., Perfetti, F., &amp; Marone, M. (2014). A new taxonomy of smart city projects. <i>Transportation Research Procedia</i>, 3, 470-478.</li> </ul>	

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Manage Smart City	
<b>Thementitel</b>	
Governing the digital transformation of cities – Governance mechanism for future Smart Cities	
<b>Themenbeschreibung</b>	
<p>Smart City initiatives usually involve a high number of stakeholders from different areas of a city and with different knowledge backgrounds and (political) agendas. Governmental, semi-governmental, and private organizations work together to orchestrate their future Smart City services. In order to ensure the successful development of a Smart City, new governance mechanisms beyond the governmental governance structure are needed to manage the networks. It is important to define, for example, the roles, boards, and processes steering the initiative and to actually transform the city. However, to date, the governance aspects have not been considered in any depth.</p> <p>This thesis goal is to identify currently implemented governance approaches in Smart City initiatives. Special attention will be paid to the division of tasks, responsibilities, and decision-making. Moreover, the findings will highlight the extent to which governmental institutions needed to change their governance mechanisms due to the Smart City initiative.</p>	
<b>Literatur</b>	
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Smart City solutions and services	
<b>Thementitel</b>	
Smart City Sensor Platforms	
<b>Themenbeschreibung</b>	
<p>An increasing number of cities are becoming involved in Smart City schemes aimed at improving such cities' economic efficiency and increasing their citizens' quality of life by applying various information and communications technologies. These activities should make these cities more attractive for their citizens and their companies. In order to function effectively, Smart Cities require a "high level of integration, coordination, and cooperation between ordinary objects" (Alvear, Calafate, Cano, &amp; Manzoni, 2018, p. 1). Sensing processes are among the most vital tasks in smart cities, because they help practitioners identify different processes' different parameters (Alvear et al., 2018, p. 2). The collected data are subsequently analyzed on a central server and the resultant feedback given to the citizens by means of their representatives to improve their quality of life (Alvear et al., 2018, p. 3).</p> <p>Sensor platforms are physical platforms comprising various sensors and communication technologies. They are generally useful for the monitoring and analysis of various Smart City actions, such as monitoring the traffic, air quality, sound pollution, security, and parking spots. Platforms can collect, pre-process, and transmit the collected data (Hancke, Silva, &amp; Hancke, Jr., 2012, p. 399). A platform can have several types of radio (LoRa, Narrowband-IoT, GSM, etc.) or broadband connectivity. Platforms are closely linked with applications, users, policy makers, and businesses to avoid a technology push (Latre et al., 2016, p. 1). One of the main benefits of sensor platforms is their flexibility and cost-efficiency. They can be added or upgraded according to demand.</p> <p>The idea of using platforms has been around for some time now, but the implementation has only recently become feasible due to their reduced manufacturing costs and low-cost components (Hancke, Silva, &amp; Hancke, Jr., 2012, p. 399).</p> <p>This bachelor thesis aims to analyze the market of such Smart City sensor platforms, which will be done by identifying their shared and different characteristics, their maturity, expected benefits, costs, efforts, and risks. Major players and existing use cases will be identified. Based on the findings, the thesis will provide recommendations on how Smart Cities could use sensor platforms.</p>	
<b>Literatur</b>	
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Smart City and social media	
<b>Thementitel</b>	
Opportunities and threats of social media usage in smart city initiatives	
<b>Themenbeschreibung</b>	
<p>Smart City initiatives are closely linked to self-imposed goals and encompass many different areas of modern cities. The nature of these initiatives depends [NATURE = SINGULAR] on many aspects like the size of the city, the number of citizen, the industry's characterization, the culture, the available IT know-how, and the budget. All Smart City initiatives therefore differ slightly and involve many different stakeholders and interest groups.</p> <p>People's resistance to sustainability initiatives is due to seven psychological barriers: i) their limited cognition, ii) their ideologies, iii) their comparisons with others, iv) the sunk costs, v) the discredence, vi) the perceived risks, and vii) their limited behavior (Brauer &amp; Kolbe, 2016; Gifford, 2011). Digital technologies, such as social media, can be a huge contributor to addressing and potentially surmounting these barriers by not only interconnecting citizen horizontally with their municipal governments, but also vertically (Schlagwein &amp; Hu, 2017). A literature review needs to be undertaken to a) identify the opportunities and the threats of municipal institutions' increased social media usage and b) to investigate how social media can be used to address the seven psychological barriers.</p>	
<b>Literatur</b>	
<ul style="list-style-type: none"> <li>▪ Brauer, B., &amp; Kolbe, L. (2016). Towards IS-enabled Sustainable Communities—A Conceptual Framework and Research Agenda.</li> <li>▪ Gifford, R. (2011). The dragons of inaction: psychological barriers that limit climate change mitigation and adaptation. <i>American Psychologist</i>, 66(4), 290.</li> </ul>	

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