

The economic value of smart city technology

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Abstract:

This paper aims to analyze and discuss the concept of smart cities, the assemblage of participants, tenets and technologies related to smart city interventions, and the governance approaches in smart cities. My analysis complements the growing literature on the collaborative character of smart cities, the key function of political, economic and cultural frameworks in influencing the manner cities attempt to become smart, and the demand for altering governance patterns in smart cities. Although researchers have discovered some important findings regarding the characteristics of smart city proposals, major beneficiaries of smart city technologies, and elements or determinants for governance paradigms in smart cities, there is still a great deal that is unknown and that requires further empirical inquiry.

JEL codes: O14; L24

Keywords: smart city technology; governance pattern; collaborative ecosystem

Full Text:

1. Introduction

Economy is the main determinant of smart city proposals, and a city with a significant level of economic competitiveness (Popescu, 2015a, b, c, d, e) has one of the features of a smart city. The economic consequences of the smart city proposals are business production, job generation, personnel development, and enhancement in the productivity. The enforcement of an ICT infrastructure is essential to a smart city's advancement and is contingent on several elements associated with its attainability and operation. (Chourabi et al., 2012) Smart city involvements are the end results of, and uncomfortably incorporated into, present social and spatial configurations of urban governance (Bratu, 2015) and the built setting: the smart city is put together gradually, integrated awkwardly into current arrangements of city administration and the reinforced environment. Smart cities are intrinsically distinguished, being geographically asymmetrical at a diversity of scales. Not all places of the city will be similarly smart: smart cities will favor some spaces, individuals, and undertakings over others. An essential component of the smart city is its capacity to further economic growth. (Shelton et al., 2015)

2. The Assemblage of Participants, Tenets and Technologies Related to Smart City Interventions

The "smart city" notion has arisen from long-persisting opinions regarding urban technological idealistic schemes (Lazaroiu, 2013) and the absolutely competitive city. Smart cities are where novel technologies may be produced and the receptacles for technology, i.e. the goal of its utilizations. The contest to join this movement and become a smart city has stimulated city policymakers to endogenize the performance of technology-led growth (Lazaroiu, 2014a, b, c), leading municipal budgets toward financings that present smart city standing. The boundaries of the smart city are generated both by the lack of data utilizations that can handle shared and not separate solutions and by the incapacity to aim at indefinite features of cities that both enhance and blemish from the standard of urban existence for city inhabitants. Smart city technology financings are chiefly composed of ameliorations instead of genuine innovations, on the citizen

consumer side. (Glasmeier and Christopherson, 2015) The notion of smart city as a method to improve the life standard of individuals has been achieving rising relevance in the calendars of policymakers. The amount of "smart" proposals initiated by a municipality can lead to an intermediate final product that indicates the endeavors made to augment the quality of existence of the citizens. The probabilities of a city raising its degree of smartness are contingent on several country-specific variables that outweigh its economic, technological and green advancement rate. Public administrations demand backing to organize the notion of the smartness of a city (Nica, 2015a, b, c, d), to encapsulate its ramifications, to establish standards at the global level, and to observe enhancement chances. (Neirotti et al., 2014) The growth of smart cities is assisting the rise of government employment of ITCs to enhance political involvement, enforce public schemes or supply public sphere services. There is no one way to becoming smart, and diverse cities have embraced distinct advances that indicate their specific circumstances. The administration of smart cities is dependent on elaborate arrangements of interdependent entities. (Rodriguez Bolivar, 2015)

The association of smart (technology-enabled) solutions to satisfy the leading societal difficult tasks and the concentration on the city as the chief determinant of alteration bring about the notion of the "smart city." The rise of novel technologies to assess and interlink various facets of ordinary existence ("the internet of things") is relevant in the progression towards a smart city. The latter is attempting to encourage and adjust innovations to the demands of their citizens (Pera, 2015a, b) by urging synergetic advancement of inventions with various stakeholders. In smart cities, synergetic digital settings further the advancement of groundbreaking utilizations, proceeding from the human capital of the city. Smart cities concentrate on the participation of all important stakeholders, while on the contrary "digital cities," "wired cities" or "ubiquitous cities" emphasize the occurrence of technological infrastructure. A smart city is a synergetic ecosystem providing the co-production of sustainable, subsequent proof innovations that enhance existence in the city and improve the economy, in which technology has an enabling function. (Baccarne et al., 2014)

3. The Key Function of Political, Economic and Cultural Frameworks in Influencing the Manner Cities Attempt to Become Smart

Imaginable bewilderment associated with the technology view of a smart city appears from the top-down and firm-driven undertakings taken for setting up a smart city. Individuals are the leading characters of a smart city who influence it via ceaseless interplays. Smart cities should incorporate technologies, systems, services, and means into a structured arrangement that is adequately multi-sectorial and adjustable for subsequent advancements. Smart governance implies diverse stakeholders are involved in decision making and public services. E-governance is essential in bringing smart city proposals to individuals, and to maintaining the resolution and enforcement process unambiguous, but the style of e-governance should be citizen-centric and citizen-driven. (Albino et al., 2015) The regional and transnational placement of cities is dependent to being smart, and where the establishing of substantial and various economic arrangement relations (Popescu, 2013) is vital. To pull through intense international competition, smart cities should be more linked to the outside world: they are relative capacities of urban systems and should be regulated within the background of network features, should introduce and handle relentless flows of capital, knowledge, and human exchange globally, and should improve their potential to be powerful mediators within the system, optimizing connectivity to a significant variety of diverse cities. Contingent to smart cities accomplishing more relevant connectivity and brokerage are an intricate concept of several scales of human interplay. By working together, separate smart cities can fortify their status within the system, becoming more durable and flexible. (Wall et al., 2015)

In smart city proposals, a difficult task is to surpass the technological-deterministic debate by dynamically including all stakeholders that can supply significant input for advancing a more attainable, data based, interactive and participatory urban setting. Smart cities act as an innovation broker, linking various stakeholders, providing real-life substantiation, celebration and co-production. A relevant component in smart cities is the manner research, scheme, private associates and individuals cooperate and distribute knowledge and services (Lazaroiu, 2015a, b, c, d) for the purpose of optimally improving subsequent goods and services with a relevant

sustainability. Without a private associate, smart city proposals should depend on "citizen entrepreneurs" or incessant proposal backing by the city administration. (Baccarne et al., 2014)

4. The Collaborative Character of Smart Cities

Guaranteeing adequate conditions within the framework of swift urban population growth throughout the world necessitates a profound grasp of the smart city notion. A smart city depends on an assemblage of smart computing technologies applied to pivotal infrastructure elements and services. Proposals of smart cities influence the citizens' standard of existence and seek to further more knowledgeable and participatory individuals (Mihaila et al., 2016), enabling the latter to be involved in the administration of the city and becoming dynamic consumers. Individuals and communities demand smart cities proposals to be responsive in assessing the requirements of diverse communities. (Chourabi et al., 2012) Information technology should pave the way for the open government trend in a smart community. The growth of smart cities constitutes an essential component in the worldwide information economy. A smart city is a center for cerebral enterprise that boosts the knowledge economy, and should facilitate better decision-making, raise citizens' participation in government, and improve democracy. The administration of smart cities should highlight the production and strengthening of knowledge, the unbiased and pervasive diffusion of knowledge, and profound meaningful participation. Individuals of a smart city will tend to employ the Internet to interact with their government and with other people. (David et al., 2015)

Smartness may have a prevailing effect on reconstituting and therefore on the subsequent tendency of the whole urban community. The demand to preserve and enhance local transformative potential denotes the notion of smart city, as it entails with it a capacity of rise in local potential to improve knowledge operations and to further interplay that is critical for local economic restructuring. The primary consequence of expanded smartness should be the positive result of local economic scheme in restoring local economy to satisfy the difficult task of relentlessly advancing local-global debate. The appropriateness of the notion of smart city for the fabric for local economic advancement is determined mainly by the applicability and functional features of "smartness." Smart city can assist both in establishing methods and out comes of local economic advancement, which relate respectively to important characteristics as smart facilitation workings and smart policy options in local economic restructuring. Smartness may have an effect in intricate knowledge-intensive and stakeholder-involving operations that influences the future of urban communities. (Anttiroiko, 2015) Numerous smart city undertakings have a technological-deterministic character: new media and ICT solutions can enhance existence in the city, whereas technology is the chief determinant to clarify the elaborate societal difficult tasks we confront in contemporary cities. Smart city proposals seek to give rise to economic and/or public value. If they cannot advance economy or be economically effective to become self-governing (Nica, 2013), they will have to depend on governmental backing and subsidization. As smart cities attempt to encourage "smart citizenship," they frequently concentrate on the enabling of individuals and enhancing civic involvement, interplay and participation. Cities should function as smart collaborative ecosystems, empowered by the highest level of technology development, and may be seen as testing grounds and determinants for social change. The absence of engagement of private associates and feasible business patterns prevents the long-run sustainability and economic value generation of smart city proposals. (Baccarne et al., 2014)

5. Conclusions

"Smart cities" is a label that has achieved adhesion in the academic world, business and government to characterize cities that are progressively constituted of and observed by prevalent and omnipresent computing, and whose economy and administration is being directed by innovation, inventiveness and entrepreneurship, established by smart individuals. The smart city calendar and related technologies are being considerably advanced by several of the world's most relevant software services and hardware firms who regard city governance as an enormous, long-run possible market for their goods. One important feature of the smart cities notion is the development of complex data analytics for grasping, supervising, organizing and planning the city. (Kitchin, 2014) Data is both the thrust behind smart city proposals, and in addition the methods by which they are enforced, but the fundamental objective of the schemes is furthering economic

advancement. The smart city concept mainly coheres around approaches for economic growth in a period of austerity. The smart city constitutes the most recent in an interminable line of policy patterns that regard science and technology as sovereign remedies for economic depression. The potential of the smart city imaginary to encapsulate the intentions of firms (Orasanu, 2012), policymakers and average individuals makes it a significant method via which cities are being (re)created. (Shelton et al., 2015)

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