THE ROLE OF URBAN INNOVATIVENESS, SMART GOVERNANCE, AND SMART DEVELOPMENT IN THE URBAN SMARTNESS

O PAPEL DA INOVAÇÃO URBANA, GOVERNANÇA INTELIGENTE E DESENVOLVIMENTO INTELIGENTE NA INTELIGÊNCIA URBANA

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Abstract: *The phenomenon of Smart Cities (SC) has arisen within the context of urbanization, globalization and digital revolution. The purpose of this paper is to find the main constructs which could explain urban smartness and to reveal what is the shape of urban smartness could be assumed to. Considering the conceptual nature of our aim, we chose a qualitative and exploratory approach, in which we created propositions through a narrative review of publications on SC and the interconnection with other theories of social applied sciences, such as innovation, marketing, development and public administration. This paper proposed a framework with a set of propositions, which indicates that the urban smartness depends upon the interrelation of the constructs of urban innovativeness, smart governance, and smart development. Likewise, this paper proposed a definition of "urban product" and "urban process", which are relevant to the construct of urban innovativeness.*
Keywords: *Smart Cities. Urban and Place Marketing. Innovation. Governance. Development.*

Resumo: *O fenômeno das Cidades Inteligentes (CI) tem surgido no contexto da urbanização, globalização e revolução digital. O propósito deste artigo é encontrar os principais construtos que poderiam explicar a inteligência urbana e revelar a forma em que a inteligência urbana poderia tomar forma. Considerando a natureza conceitual do objetivo desta pesquisa, utilizou-se uma abordagem qualitativa e exploratória, na qual foram criadas proposições por meio de uma revisão narrativa da literatura sobre CI e da interconexão delas com outras teorias das ciências sociais aplicadas, tais como as relacionadas à inovação, marketing, desenvolvimento e administração pública. Assim, este artigo propôs um arcabouço teórico com uma série de proposições, as quais indicam que a inteligência urbana depende da relação entre os construtos de inovação urbana, governança inteligente, e desenvolvimento inteligente. Além disso, este artigo fornece uma definição de "produto urbano" e "processo urbano", os quais são relevantes para o construto de inovação urbana.*
Palavras-chave: *Cidades Inteligentes. Marketing urbano e de lugares. Inovação. Governança. Desenvolvimento.*

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Introduction

Urbanization, globalization, and digital revolution are social phenomena that have shaped the daily life of everyone. More people are living within cities, the time of displacement and traveling has become even more shorter, and the omnipresence and massive use of Information and Communication Technologies (ICT) have shifted the way that humanity works, lives and behaves. Furthermore, Smart Cities have arisen within this context, and are also a new phenomenon that emerged among those latter mentioned (MORA et al., 2017).

As Smart Cities are a new phenomenon, studies that explore and investigate them are not only incipient, but are also divergent: some scholars have called them as Smart Sustainable Cities, Intelligent Cities, Digital Cities, and so further; while others researchers do not agree that those cities emphasize sustainability and only do it with ICT (BIBRI; KROGSTIE, 2017). However, all of them converge that Smart Cities utilize ICT with intelligent functions to make the quotidian of the citizens easier, and turn urban systems and services more efficient and usable, *e.g.* mobility system, livability, among other solutions (BIBRI; KROGSTIE, 2017; MORA; DEAKIN, 2019; and others).

Although scholars have given attention to the phenomenon of the Smart Cities, the gap in the literature is to explore what makes cities smarter, that is, the urban smartness of these cities. In fact, the vast majority of them have been working on the definition and the characteristics of smart cities. There is a lack of knowledge on what is behind the Smart Cities, which explains their smartness. So, our purpose is to find the main constructs that could explain their urban smartness. Even more, our intent is not to investigate it deeper, but to reveal what is the shape of urban smartness could be assumed to.

Considering the conceptual nature of our aim, we chose a qualitative and exploratory approach, in which we created propositions through a narrative review of publications on Smart Cities and the interconnection with other theories of social applied sciences, as those related to innovation, marketing and public administration. In the literature, there are three main topics which could explain urban smartness: the first is related to innovation and marketing places; the second is related to governance; and the third is related to development.

Thus, in the first topic, we explored the existing literature on smart cities to make a possible connection with theories of innovation and marketing places, *e.g.* the definition of innovation, product (and urban product), process (and urban process), collaboration, co-creation, quintuple helix, ecosystem of innovation, and then we proposed a definition for the construct of — urban innovativeness. In the second topic, we explored and linked smart cities with governance through theories of public administration and innovation again, *e.g.* co-creation, collaboration, quintuple helix, principle of transparency, principle of accountability, ecosystem of innovation, e-government, and then, we proposed a definition for the construct of — smart governance. In the third topic, we explored and linked smart cities with theories of development and the concept of urban development used by the World Bank and Europe Union, *e.g.* the construct of development, the concept of urban development, and the challenges of Smart Cities which could be overcome.

The main finding of this paper is that urban smartness depends upon the interrelation of the three constructs explored and proposed which are urban innovativeness, smart governance, and smart development. Other relevant findings are new concepts of “urban product” and “urban process” provided. Our originality lies in providing a new theory of urban smartness composed by those three constructs mentioned which were created taking into account the interconnection of the literature on Smart Cities with other theories of social applied sciences, as those related to innovation, marketing and public administration. Also, we exposed our limitations and explained the theoretical, practical and social implications of this study.

Urban Innovativeness: Inside the social and urban transformation with marketing places

According to the Oslo Manual 2018, innovation is:

> "a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)" (OECD, 2018, p. 20).

In other words, innovation is understood as the creation of a new setting of how things are done or made to a public and market segmentation or as a critical part within a process. Even more, innovation has been strictly related to marketing literature, as well as its constructs of product and process, in which the organizations strengthen their ties with their community and creates value for their target audience, that is, those organizations are customer-focused, engaging and managing relationships with their customers (KOTLER; ARMSTRONG, 2018).

Kotler, Haider and Rein (1993) brought the theme of marketing to urban management and planning, however much of the content written in the classic book known as "Marketing Places" is outdated. For instance, Internet of Things (IoT), Smart Cities, and Sustainable Cities are terms not mentioned in that publication. Meanwhile, Kotler *et al.* (1993) provided the levels of place marketing, which urban managers should consider: (1) the target markets (*e.g.* exporters, investors, manufacturers, corporate headquarters, new residents, tourists, and conventioneers); (2) the marketing factors (*e.g.* infrastructure, people, image and quality of life, and attractions); (3) the planning group responsible for diagnosing, envisioning, and acting on an urban marketing plan, which is composed by the relationship among urban stakeholders, such as citizens, local/regional government, and the business community.

In this way, in order to refresh the urban marketing to the current digital context shedding light to the Smart Cities and how urban planners, practitioners, and academia could be benefited, the following paragraphs of this topic interrelate some constructs of urban marketing and innovation, and then, opening new avenues for urban studies.

Product is something that acknowledges and meets the needs and/or aspirations of a client or a market segmentation through their contemplation, acquisition, consumption or exploitation (KOTLER; ARMSTRONG, 2018), such as tangible objects, services, events, people, places, organizations, ideas or all of these combined. Also, products could be goods or services, and their innovation is basically their significant novelty or improvement within a segment (OECD, 2018).

Although the literature is incipient on what is "urban product", research has classified it as an inflexible and durable product (VAN DE BERG; BRAUN, 1999) and has demonstrated that stakeholders' perception on urban place are important measures to urban managers categorize the importance of selecting and prioritizing characteristics which are most valued by those stakeholders, that is, the place formation is optimized, legitimized and responsive (TELLER *et al.*, 2010). Some examples of "urban product" provided by the literature are: "office space, harbor facilities, an industrial estate or a shopping center, but it could also be a museum, an arts festival or a sports event" (VAN DE BERG; BRAUN, 1999, p. 994).

So, urban products could be urban facilities, which provide services and consumption, the logistic system, urban mobility, public services and all of the useful facilities for contemplation, acquisition, consumption, or exploitation. The inflexibility and high duration of the urban products could be outdated, because the pattern of urbanization and the emergence of smart cities with their ICT apparatus, those characteristics probably have changed over time, and further research should explore this issue. Considering the literature on urban product and that there are few relevant studies on it, we proposed the following definition on urban product:

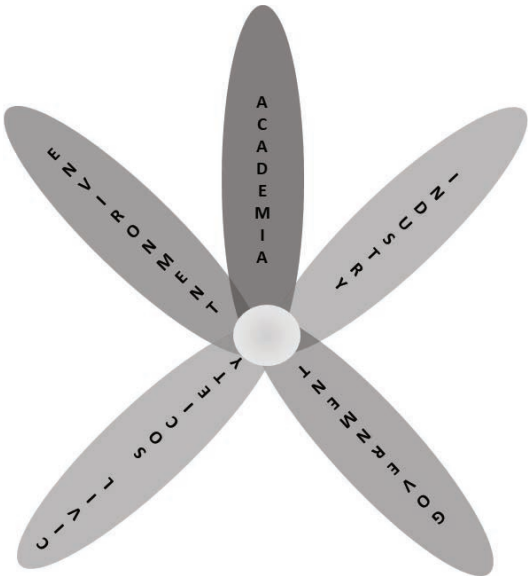
Proposition 1a: Urban product is anything (e.g. goods, facilities or services) that acknowledges and meets the needs and/or aspirations of the citizens and urban stakeholders through their contemplation, acquisition, consumption or exploitation, and then builds value for those citizens and urban stakeholders.

Processes create and capture the value desired by the customer (KOTLER; ARMSTRONG, 2018) and are related to the functions within and used by organizations (OECD, 2018), that is, processes are a set of events and/or actions implying or affecting the organization to create value for a public audience. The literature has shown that politics and power, real estate, urban structure and infrastructure, build environment, and urban design are factors that shape the urban processes (AMBROSE, 1994; GARCIA; CANTALONE, 2002; MADANIPOUR, 1996; MILES *et al.*, 2015). So, considering those factors that shape urban processes and the concept of processes, we defined urban processes as:

Proposition 1b: Urban processes are a set of events and/or actions that imply or affect the urban development. Those events or actions are related to the power, to the dominant ideology, to the built environment, to the urban structure and infrastructure, to the urban wealth, to the real estate, and to the urban design.

Citizens' engagement, collaboration, and co-creation are crucial to the innovation and sustainability management in urban context of smart cities, as well as the socioeconomic and innovative ecosystem (CONTI *et al.,* 2019). The literature has emphasized the role of the citizen as co-creators of smart applications, in which they have develop new ways of collaboration among the actors of the innovation ecosystem, of which the quintuple helixes are composed, *i.e.* academia, industry, government, civil society and environment (CARAYANNIS; CAMPBELL, 2009; CARAYANNIS *et al.*, 2018; KOMNINOS *et al.*, 2013). Quintuple helixes are shifting cities based on a knowledge-based economy (LEYDESDORFF, 2012). Furthermore, this innovative environment has technological, institutional and human components as the cornerstone of smart cities (NAM; PARDO, 2011). Figure 1 illustrates the innovation ecosystem and its quintuple helixes.

Figure 1 Quintuple Helixes of the Innovation Ecosystem.



Source: Own elaboration.

This "smart growth" creates new models of business, labs, and networks based on the trust among themselves, and is the top-layer of the urban smartness (ZYGIARIS, 2013), furthermore, there are three main areas of the innovation economy within smart cities: first, clusters of manufacturing industries, business, services, health and tourism; second, smart urban districts, *e.g.* business inner districts of cities, science parks, commercial buildings and districts, *campi* of universities, port and airport areas, and so on; and third, creation of new labs and incubators (SCHAFFERS *et al*., 2011). So, based on this discussion, we defined urban innovativeness and its function as:

Proposition 1c: The urban innovativeness plays a critical role in urban smartness and marketing places, and can be understood as the creation of new urban products or processes

stemmed from the engagement and/or collaboration among the actors of the quintuple helix, whether using Information and Communication Technologies or the mere human creativity to enhance better urban products, services and processes.

In short, constructs from the literature of marketing and innovation could be used in cities to make them smarter, more innovative, and then creating value for citizens and all sorts of urban stakeholders. In other words, urban innovativeness utilizes theories of marketing places and innovation to make the city an object to be exploited by urban stakeholders and government, causing social and urban transformations.

Smart Governance: The intersection among public administration, technology, and stakeholder engagement

Governance is "the interactive processes through which society and the economy are steered towards collectively negotiated objectives" (ANSELL; TORFING, 2016, p. 4). Conti *et al.* (2019) define governance as the capacity for articulation and cooperation among different stakeholders to discuss common issues and mutual interest subjects. Urban governance has been challenged by globalization, higher competitiveness among cities and regions. All of these challenges have influenced policy-making and governance, which manage a wide range of will conflicting interests among different urban stakeholders (PIERRE, 2016).

The literature on smart cities has highlighted the role of applying constructs of innovation management, sustainability, and strategic management into public administration. The engagement of the urban actors is a requisite to the urban innovation whether for technology or institutional factors (KOMNINOS *et al*., 2013; NAM; PARDO, 2011) and is a criterion to the strategic management within cities, that is, the social engagement could be exploited as a criterion by public managers in the decision-making process (SCHAFFERS *et al*., 2011; AHVENNIEMI *et al.*, 2017).

Smart cities have a governance that not only generates public value on urban attractiveness, innovation and engagement, but also long-term strategy, assets management (*e.g.* resources and knowledge), and economic sustainability in the medium-term (CASTELNOVO *et al.*, 2016). According to Meijer and Bolívar (2016), some of the main smart cities challenges are: (1) linking social issues with technical apparatus; (2) shifting the governmental structure to a smarter paradigm through more technologies and data management; and (3) having a legitimized governance which makes a sustainable and engaged approach be mandatory. In this way, we proposed that:

Proposition 2a: Smart governance could be partially resulted from constructs of innovation management, sustainability, and strategic management applied to the Public Administration, as for policy-making and policy-development.

In smart cities, ICT are means used by citizens and actors of innovative urban ecosystem to make their lives easier and even more efficient, and then enabling the urban governance to achieve its goals. So, ICT aligned with stakeholder engagement can make cities smarter (KOMNINOS *et al*., 2013; NAM; PARDO, 2011) and provide accurate and better data for decision-making (SCHAFFERS *et al*., 2011; AHVENNIEMI *et al.*, 2017).

Therefore, smart governance should match public administration and societal interests. For this, a smart governance should consider: (1) integrating governmental communication with citizens through ICT, and applying the principles of transparency and accountability (CHOURABI *et al.*, 2012); (2) shifting socioeconomic and institutional paradigms on how to communicate with urban actors (FERRO *et al.*, 2013), *e.g.* e-government is a model of governance based on the community which provides public services by digital means and its successful implementation requires engagement among the actors (CHOURABI *et al*., 2012; COE *et al.*, 2001); and (3) ICT has been used to provide information and better experience from users *e.g.* mobility, digital economy, e-participation, traffic jam management, housing, among others (BOLÍVAR; MUÑOZ, 2020; LOPES, 2020). Then, we proposed that:

Proposition 2b: *Smart governance could be partially resulted from the use of Information and Communication Technologies to make the daily life of the citizens easier and better, as deploying a structure related to the e-government, better data management, and also making*

transparency and accountability as core assumptions of urban governance.

In addition, engagement and collaboration among urban actors in decision-making process are decisive factors in smart cities, enabling the urban governance to promote local sustainability (CONTI *et al.,* 2019). Research has shown that: collaboration enables the creation of innovative networks, resulting in innovative decision-making processes (AHVENNIEMI *et al.*, 2017; MEIJER; BOLÍVAR, 2016); engagement is mandatory to make cities smarter (MEIJER; BOLÍVAR, 2016); engagement and open collaboration not only improve urban governance processes as well as increase indicators of sustainability, health and urban wealth within cities, that is, the results of this governance have a better performance (MEIJER; BOLÍVAR, 2016); and the cultural and environmental systems of cities can be better developed by the interaction among those actors of the quintuple helixes (CARAYANNIS; CAMPBELL, 2009; CARAYANNIS *et al*., 2018; DEAKIN, 2014; LEYDESDORFF; DEAKIN, 2011). So, we proposed that:

Proposition 2c: Smart governance could be partially resulted from the engagement of actors of the urban, innovative and smart ecosystem (i.e. academia, industry, government, civil society and environment) in decision-making processes.

Considering that governance can be influenced by a high variety of factors and the discussion above on smart governance highlighted the main characteristics of governance in smart cities, we presume that the combination of the three previous propositions (2a, 2b, and 2c) could be a better explanation of what actually makes a smart governance. Thus, we proposed that:

Proposition 2d: Smart governance could be strongly resulted from the sum of (1) an innovative, sustainable, and strategic Public Administration, (2) the use of Information and Communication Technologies to deploy e-government policies and apply the principles of transparency and accountability, and also from (3) the engagement of the actors of this ecosystem within the decision-making process.

In sum, there are three main connected points in smart city governance: first, the use of constructs related to sustainability, innovation and strategic management by public administration; second, the use of ICT as a tool for communication among urban actors, as the promotion of e-government and values related to transparency and accountability; and third, the importance of stakeholder engagement in decision-making processes.

Smart Development: The power of policies inducing new urban paradigms

According to Todaro and Smith (2015), development was traditionally a synonymous of economic development, in which income *per capita*, gross national income (GNI) and the gross domestic product (GDP) were the main measures that explain the success of economic development and growth. Nevertheless, social issues such as poverty, unemployment, and unequal income distribution become new challenges faced by economists and policy-makers, even when the countries achieve a desirable rate of economic indicators.

However, all of these assumptions still not enough, Amartya Sen (2000) developed a capability approach arguing that development should not only be measured by income and others socioeconomic indicators, but also by the human well-being and happiness, taking the functionality of what a person can be and do into account. In other words, the capabilities of humans to exploit a valuable function is more than the mere consumption, and considering the well-being and functionality of humans can explain the development more accurately.

In this way, Sen (2000) described five characteristics of development, which are - personal heterogeneities, environmental diversities, social-climate diversities (*e.g.* criminality rate and social capital availability), income distribution among persons within the family, and differences in relational perspectives (*i.e.* influence of customs on what constitutes social status).

In addition, Todaro and Smith (2015, p. 22-23) improved those conceptions on development proposing the core values of the development, which are - the sustenance, self-esteem, and freedom - the first one is the “ability to meet basic needs”, self-esteem is when someone considers him or herself as a person, and the last one is the ability “to choose”. Furthermore,

the three objectives of the development are: first, "to increase the availability and widen the distribution of basic life-sustaining goods"; second, "to raise levels of living"; and third, "to expand the range of economic and social choices" (TODARO; SMITH, p. 24). However, what about development within the urban context?

In cities, urban development has been primarily explored by international organizations, such as the World Bank Group and Europe Union. The World Bank (2020a) has emphasized that "city leaders must move quickly to plan for growth and provide the basic services, infrastructure, and affordable housing their expanding populations need". The Europe Union (2020) asserts that "urban development covers infrastructure for education, health, justice, solid waste, markets, street pavements and cultural heritage protection". Therefore, policy-makers usually takes urban development within "specific sector programs" and building "measures" to manage those policies. For instance, slums, conflicts, and natural disasters should be the priority issues on "rehabilitation and reconstruction" of urban infrastructure, in which urban managers should consider in urban development policies.

In other words, urban development should respond and meet the needs of citizens facing the existent local and global challenges as well as building the infrastructure required to deal with it. For example, the SARS-Cov-2 pandemic (also known as COVID-19) has affected the majority of cities around the world, and organizations as World Bank (2020b) has highlighted the importance of quick responses to this outbreak whether using smart technologies or not, in the case of "first data management" and "geospatial solutions" have been widely used to respond to the COVID-19 challenge.

The literature on smart cities has shown that ICT plays a critical role in urban development, *e.g.* managing data and using ICT devices at a vast urban agenda includes topics from safety, security, health, and mobility to more advanced ones (BIBRI; KROGSTIE, 2017; BIBRI, 2018, among others). Mora and Deakin (2019) revealed that the way to go toward a smarter urban development has some challenges regarding to performance indicators and metrics to be used, socioeconomic and cultural barriers to be overcome, on how to use ICT to resilience, inclusiveness and safety, on how to design and implement strategies, on how to manage and protect the privacy of the citizens, how to engage more citizens, and on how to manage and foster urban innovations. Therefore, considering the concept of development, the urban development literature, and the importance of addressing those concepts with our emergent reality of cities becoming smarter, we proposed that:

Proposition 3: Smart development of smart cities manages policies and uses Information and Communication Technologies to assure that sustenance, self-esteem, and freedom of the people be guaranteed as well as building the infrastructure required to face existing local and global challenges.

In brief, urban smart development synthesizes what has been worked on the literature on development and urban studies, and includes the role of ICT to deal with challenges related to the urban agenda.

Conclusion

Taking into account all of the latter propositions of the first and second section of this paper (the propositions 1c and 2d) and the unique of the third one, the proposition 3, we have the main elements discussed and explored in our work. The proposition 1c binds both 1a and 1b to only one demonstrating how innovation and urban branding could contribute to urban smartness. As for the proposition 2d, it is a combination of 2a, 2b and 2c and proposes a novel approach for urban smart governance. The proposition 3 is a revolutionary topic for smart cities proposing the clarification of urban development debate. Therefore, in order to summarize these three classes of constructs that embodies a new theory of the urban smartness, we propose that:

Proposition 4: Urban smartness is the interconnection and the mutual relation among urban innovativeness, smart governance and smart development, in which innovation, marketing place, the actors from quintuple helix, transparency and accountability as principles of

governance, Information and Communication Technologies, and urban development are the main characteristics that make cities smarter.

The Purpose of this paper was achieved by exploring and making some propositions on three constructs explaining the boundaries that shape the urban smartness. Our main finding is the fourth proposition, in which we summarized the three constructs presented in the earlier other propositions, that is, what actually means urban smartness. Therefore, the urban smartness depends upon the interrelation of the constructs of - urban innovativeness, smart governance, and smart development. Even more, we defined "urban product" and "urban process" which are relevant to the construct of urban innovativeness.

Also, regarding the three constructs proposed, we found that: (1) urban innovativeness is made from constructs of marketing places and innovation management in order to make cities smarter through turning them more innovative and oriented to value-creation for all of their stakeholders, and then transforming society and governments; (2) smart governance is composed of an urban public administration that cares for sustainability, innovation, strategic management of urban stakeholders, ubiquitous use of ICT as a tool for communication among urban actors, e-government, values anchored in transparency and accountability, and the high involvement of the actors on decision-making process; and (3) an urban smart development binds the literature on development, urban studies and smart cities, in which ICT become a mean to be used to overcome issues and challenges related to the urban agenda.

Considering the qualitative nature and exploratory approach of this conceptual research, our limitations are based on the non-reproducibility of the method applied here (as opposed to qualitative research made on systematic-literature review or those on quantitative methods) and the possibility of some biased view from the researcher, we have made several efforts to avoid misconceptions stemmed from subjectivism although.

Our research has originality in providing constructs (*i.e.* urban innovativeness, smart governance, and smart development) that constitute a new theory for urban smartness in order to better explain the lines which shape the phenomenon of smart cities. As earlier mentioned, those constructs were made with a coherent and possible combination and exploration of those we find in seminal literature on smart cities, marketing places, innovation, public administration and development.

Some of the several theoretical implications of this research are: (1) further research could be explore better what is "urban product" of the construct of urban innovativeness in order to update and define what are the characteristics of the urban product in any type of city, *e.g.* the smart cities type; (2) further studies could explore if urban product does still inflexible and durable in the current digital society, even more, scholars could specify what are the types of urban products which remain or not with these characteristics; (3) further research should investigate the possibility of linkage between the propositions 1b and 3 in order to explore how urban processes affect or are within urban development; (4) in the proposition 1c we proposed that the actors of quintuple helix play a critical role on the urban innovativeness, and the environment is considered an important influence, in this way, further research could explore the connection between the environment of the quintuple helix with Actor-Network Theory (*e.g.* the constructs of human and non-human actors); (5) future studies can test this theory and our three proposed constructs by creating some measures and proxies that could quantitatively explain the degree of the urban smartness within cities (or those considered smart cities); and (6) future studies could approximate theories of business strategy and political science, and adapt them to the context of smart governance in order to explore issues related to value creation and societal recognition, *e.g.* stakeholder, legitimacy and institutional theory.

Furthermore, our study provides several practical implications for public managers, some of them are: (1) taking into account the construct of urban innovativeness, public managers could be benefited from a better relationship with all of the actors of the quintuple helix, and hence managing all the ecosystem of innovation to be more innovative, *e.g.* the renewal of urban products and urban processes; and (2) better relationship among urban actors and efficiency within the Public Administration could be more easily achieved if public managers assume those characteristics proposed on smart governance.

Also, the social implications of our work lie whether in the improvement of urban products and urban process within cities, a better relationship among urban actors and efficiency resulting from a smart governance, and even the resolution of urban issues and challenges (*e.g.* coronavirus pandemic) that cities have faced over time taking a smart development as proposed here int account.

References

AHVENNIEMI, H.; HUOVILA, A.; PINTO-SEPPÄ, I.; AIRAKSINEN, M. What are the differences between sustainable and smart cities? **Cities**, v. 60, n. A, p. 234-245, 2017.

AMBROSE, P. **Urban Process and Power.** Routledge, London, 1994.

ANSELL, C.; TORFING, J. Introduction: theories of governance. *In:* ANSELL, C., TORFING, J. (orgs.). **Handbook on Theories of Governance**. Edward Elgar Publishing, Cheltenham, 2016, p. 1-20.

BIBRI, S. E. The IoT for smart sustainable cities of the future: An analytical framework for sensor-based big data applications for environmental sustainability. **Sustainable cities and society**, v. 38, p. 230-253, 2018.

BIBRI, S. E.; KROGSTIE, J. Smart sustainable cities of the future: An extensive interdisciplinary literature review. **Sustainable cities and society**, v. 31, p. 183-212, 2017.

BOLÍVAR, M. P. R.; MUÑOZ, L. A. **E-Participation in Smart Cities: Technologies and Models of Governance for Citizen Engagement.** Springer, Cham, 2020.

CARAYANNIS, E. G.; CAMPBELL, D. F. 'Mode 3' and 'Quadruple Helix': Toward a 21st century fractal innovation ecosystem. **International journal of technology management**, v. 46, n. 3-4, p. 201-234, 2009.

CARAYANNIS, E. G.; GRIGOROUDIS, E.; CAMPBELL, D. F.. MEISSNER, D.; STAMATI, D. The ecosystem as helix: an exploratory theory-building study of regional co-opetitive entrepreneurial ecosystems as Quadruple/Quintuple Helix Innovation Models. **R&D Management**, v. 48, n. 1, p. 148-162, 2018.

CASTELNOVO, W.; MISURACA, G.; SAVOLDELLI, A. Smart cities governance: The need for a holistic approach to assessing urban participatory policy making. **Social Science Computer Review**, v. 34, n. 6, p. 724-739, 2016.

COE, A., PAQUET, G., & ROY, J. E-governance and smart communities: a social learning challenge. **Social Science Computer Review**, v. 19, n. 1, p. 80-93, 2001.

CONTI, Diego de Melo et al. Collaborative governance towards cities sustainability transition. **Revista Brasileira de Gestão Urbana**, [S.l.], v. 11, maio, 2019.

DEAKIN, M. Smart cities: the state-of-the-art and governance challenge. **Triple Helix**, v. 1, n. 7, p. 1-16, 2014.

EUROPE UNION **Urban Development | Capacity4dev.** 2020. Available at: https://europa.eu/capacity4dev/topics/urban-development Accessed on: September 12, 2020. 2020.

FERRO, E.; CAROLEO, B.; LEO, M.; OSELLA, M.; PAUTASSO, E. The role of ICT in smart cities governance. *In:* PARYCEK, P.; EDELMANN, N. (orgs). **Conference for E-Democracy and Open Government**. Donau-Universität Krems, Krems, 2013, p. 133-145.

GARCIA, R.; CANTALONE, R. A critical look at technological innovation typology and innovativeness terminology: a literature review. **The Journal of Product Innovation Management**, v. 19, n. 2, p 110-132, 2002.

KOTLER, P.; HAIDER, D. H.; REIN, I. **Marketing Places: Attracting investment, industry, and tourism to Cities, States, and Nations.** The Free Press, New York, 1993.

KOTLER, P.; ARMSTRONG, G. **Principles of Marketing.** 17th. Edition, Pearson, New York, 2018.

KOMNINOS, N.; PALLOT, M.; SCHAFFERS, H. Special issue on smart cities and the future internet in Europe. **Journal of the knowledge Economy**, v. 4, n. 2, p. 119-134, 2013.

LEYDESDORFF, L. The triple helix, quadruple helix,..., and an N-tuple of helices: explanatory models for analyzing the knowledge-based economy? **Journal of the Knowledge Economy**, v. 3, n. 1, p. 25-35, 2012.

LEYDESDORFF, L.; DEAKIN, M. The triple helix of smart cities: a neo-evolutionary perspective. **Journal of Urban Technology**, v. 18, n. 2, p. 53-63. 2011.

LOPES, N. V. M. **Smart Governance for Cities: Perspectives and Experiences.** Springer, Cham, 2020.

MADANIPOUR, A. **Design of Urban Space: an inquiry into a socio-spatial process.** John Wiley & Sons, Chichester, 1996.

MEIJER, A.; BOLÍVAR, M. P. R. Governing the smart city: a review of the literature on smart urban governance. **International Review of Administrative Sciences**, v. 82, n. 2, p. 392-408, 2016.

MORA, L.; DEAKIN, M. The social shaping of smart cities. *In:* MORA, L.; DEAKIN, M. (orgs.). **Untangling Smart Cities: From utopian dreams to innovation systems for a technology-enabled urban sustainability**. Elsevier, Amsterdam, 2019, p. 215-234.

MORA, Luca; BOLICI, Roberto; DEAKIN, Mark. The first two decades of smart-city research: A bibliometric analysis. **Journal of Urban Technology**, v. 24, n. 1, p. 3-27, 2017.

OECD. **Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation**. 4th edition, Paris/Eurostat, Luxembourg, OECD Publishing, 2018.

PIERRE, J. Urban and Regional Governance. *In:* ANSELL, C.; TORFING, J. (orgs.). **Handbook on Theories of Governance**. Cheltenham: Edward Elgar Publishing, Cheltenham, 2016, p. 477-485.

SCHAFFERS, H.*et al.* Smart cities and the future internet: Towards cooperation frameworks for open innovation. *In:* DOMINGUE, J., *et al.* (orgs.). **Future Internet Assembly 2011: Achievements and Technological Promises**. Springer, Heidelberg, 2011, p. 431-446.

SEN, A. K. **Development as Freedom.** Alfred A. Knopf, Inc., New York, 2000.

TELLER, C.; ELMS, J. R.; THOMSON, J. A.; PADDISON, A. R. Place marketing and urban retail agglomerations: An examination of shoppers' place attractiveness perceptions. **Place Branding and Public Diplomacy**, v. 6, n. 2, p. 124-133, 2010.

TODARO, M. P.; SMITH, S. C. **Economic Development.** 12th edition, Pearson, New Jersey, 2015.

VAN DEN BERG, L.; BRAUN, E. Urban Competitiveness, Marketing and the Need for Organising Capacity. **Urban Studies**, v. 36, n. 5-6, p. 987–999, 1999.

WORLD BANK **Urban Development Overview.** 2020a. Available at: https://www.worldbank.org/en/topic/urbandevelopment/overview Accessed on: September 12, 2020.

WORLD BANK **Urban Development: COVID-19 (Coronavirus) Response.** 2020b Available at: https://www.worldbank.org/en/topic/urbandevelopment/coronavirus Accessed on: September 12, 2020.

ZYGIARIS, S. Smart city reference model: Assisting planners to conceptualize the building of smart city innovation ecosystems. **Journal of the Knowledge Economy**, v. 4, n. 2, p. 217-231, 2013.

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