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Exploring the role of civilizational competences for smart cities' development

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Abstract

Purpose: From their birth till now a day, smart cities are striving to clarify their identity and become better – and thus smarter. The whole process is in many ways similar to the journey of a child in his quest of growing into a smart adult, with the help of parents and support from educators. But it is not easy to tell how we, as citizens - through civic, educational and governance structures - raise smart cities. What competences do we need? This was the main question for the present essay, generated by several theoretical and practical experiences.

Design/methodology: We used literature analysis, synthesis and theoretical inferences for the smart city problematic, induction and exploratory qualitative analysis for soft, civilizational competences.

Findings: The main conclusion is that the literature still associates the smart city especially with its hard dimension, the highly developed and intelligent technologies, including ICTs, despite a growing number of studies dedicated to the soft, human and social capital component. The intangible, soft component – the human actor – plays an equally, if not even more important role, through mechanisms affecting all classical dimensions of smart cities (smart economy, people, governance, mobility, environment, living). Civilizational competences, soft skills or human related characteristics of cities, strongly influenced by culture (at national, regional, organizational and individual level), are crucial for the development of smart and competitive cities. Civilizational competences are grouped into four categories: enterprise culture, discursive culture, civic culture and daily culture. If we want to make our cities smart, we need to develop these competences - first define them, then identify their antecedents – or influence factors – and measure them.

Practical and social implications: The findings of this exploratory conceptual essay could be used for further testing of hypotheses on the relationship between civilizational competences and smart cities' development. Also, local and regional administrations could use the results in order to increase civil society's involvement for the development of smart cities.

Originality: The study points out some new connections and relations for the smart city problematic, and explicitly suggest relating the development of smart cities to the development of civilizational competences, as a complex category of factors going beyond the unique dimension of "people" or "human and social capital" from the smart cities literature. It is an exploratory outcome, generating new research hypotheses for the relationships between smart city development and cultural related factors grouped under the 'cities' civilizational competences' label.

1. Introduction – context

We live in a time when everything around us is supposed to be or become smart and even smarter. "Smart" has probably become one of the most intensely used and fashionable words, as excellence, convergence or globalization. It is attached as describing attribute for people, politicians, cities, communities, universities, territories, regions, economies, states, environment, governance, mobility, development, defence, strategies, and even living. Among all these, "smart cities" seem to

deal with almost all of the previous concepts, enclosing and interweaving them, as many researchers have found. (Albino et al., 2015; Caragliu et al., 2011; Deakin and Al Waer, 2011; Grimaldi and Fernandez, 2016; Herrschel, 2013; Ishkineeva et al., 2015; Meijer and Bolivar, 2015; Meijer et al., 2015; Monfaredzadeh and Berardi, 2015; Nam and Pardo, 2011; Stratigea, 2012;). From their birth (as label), around 1990, till today, smart cities are striving to clarify their identity and become better – and thus smarter. The whole process is pretty similar to the journey of a child in his quest of growing into a smart adult, with the help of parents and support from educators. How do we, as citizens - through civic, educational and governance structures - raise smart cities, what competences do we need? This was the main question for the present exploratory essay, which was generated by several theoretical and practical experiences. The approach is mainly inductive, having its roots in the coordination of several theses on place marketing, city branding and tourism destination image, on one side, and continuing with the experience of being in the team that prepared the candidature of Iasi to the title of European Capital of Culture 2021, on another side. This inductive approach, together with a subsequent deductive one, based on a literature review, suggested that for an Eastern European city, the “eastern most” of Romania (who is, also, the eastern most EU member), growing into a smart city might require some significant catching up on specific competences which are not directly related to the main “hard” characteristics of smart cities, but rather to social and psychological, civilizational “soft” competences. The main significance of the study resides in the generation of future research hypotheses for the development of Eastern European smart cities based on a series of constructs labelled as civilizational competences.

2. Methodology

We used literature analysis, synthesis and theoretical inferences, together with induction and exploratory qualitative analysis for the smart city problematic and that of civilizational competences. For the literature analysis the whole process was initially similar to an intersection of mathematical sets – one set included articles on the smart city subject and the other set studies on civilizational and soft competences. Several subsets were also generated within each set, using key words specific for the smart cities dimensions (especially hard and soft ones) and civilizational competences categories. In a second stage of the literature review we were particularly interested in rather heterodox opinions about the subject, besides the common, classical theory of smart cities, which lead us to the inclusion of singular or isolated points of view on narrower issues. Using this double approach – classical focus on commonly accepted views and search for less usual, rather marginal opinions, allowed us to have a better picture of the subject. We needed this type of literature review in order to identify potential new streams of research, taking into consideration heterodox theories for smart cities, as well. The literature analysis was followed by an exploratory research on civilizational competences proxy variables specific for cities, with some empirical data for the analyzed cases.

3. Attributes for present cities: livable, intelligent, competitive, smart, resilient

Cities become more and more complex every day, and an almost endless list of expected characteristics for modern cities develops at an amazing pace. The attribute “smart” seems to be the most comprehensive one, encompassing the majority of these characteristics. To justify the choice we analyzed the most frequent attributes related to city development – smartness, livability, intelligence, competitiveness, sustainability – in the literature, and analyzed, as well, the focus of

the articles – hard (technology and ICTs) versus soft (human and social capital). We started with a general search on “smart cities”, continuing with narrower categories – smart cities and technology, smart cities and ICTs, smart cities and social capital, smart cities and human capital (search on November 6, 2016). The main databases were ISI Thomson Reuters Web of Science, Science Direct, Proquest and Springer Link, and we retained only peer reviewed full text materials (books and articles), the results being presented in Table 1.

Table 1: Articles on the subject of smart cities grouped on categories (key words searched for)

Database/Subject	Smart cities and technology	Smart cities and human capital	Smart cities and social capital
ISI Thomson	1148	25	38
Science Direct	17700	3287	3991
Proquest	22856	9486	10803
Springer Link	34415	10251	11516

Source: own search for mentioned electronic data bases

We can notice that studies on the hard dimension of smart cities greatly exceed those focusing on the soft dimension (more than three times), at a very general observation. This confirms more in-depth analyses, as the one performed by Meijer and Bolivar (2015), who found the same fragmentation in approaches for the smart cities subject. Going deeply, analyzing in-depth 51 selected publications relevant for the smart cities literature, they discovered 12 studies dealing with the subject of technology, 4 dealing with people, 6 with governance and 12 combined (17 out of the 51 did not have explicit definitions or dimensions for smart cities). Again, the focus is mainly on the technological aspects, even if the soft component is also considered.

Continuing our analysis, we looked for other attributes used for describing smart cities and the ones appearing most often were intelligent, followed at a great distance by livable, happy, sustainable, and competitive.

Modern cities also need to become intelligent. Apparently, it's not a big difference between being intelligent and being smart. If we start with the roots and look at the Webster's definitions for „intelligent“ and „smart“ we can notice the common points – „*having or showing the ability to easily learn or understand things or to deal with new or difficult situations; able to learn and understand things*“ for intelligent, respectively “*very good at learning or thinking about things; showing intelligence or good judgment*” for smart (Webster Dictionary, 1996). There is, though, one more meaning for “smart”, with a rather negative connotation: “*behaving in an impolite way, showing lack of respect for someone.*” We definitely don't want to apply this to a city, but we should keep this possible connotation in mind for future developments on the situation of Eastern European cities, when we speak about civilizational competences.

Intelligent cities are those where a wide range of electronic and digital technologies are applied, where the use of information technologies transforms the life and work within a region; ICTs are embedded in the city, and such practices are territorialized in a way that bring ICTs and people together, in order to enhance innovation, learning, knowledge and problem solving. (Deakin and Al Waer, 2011).

Smart cities are even better, and we will present two definitions that tried to catch the complexity and interconnectedness of their constitutive features. The first one belongs to Deakin and Al Waer and touches, in just a few words, the essence of the process necessary for obtaining smart cities– “smart cities are territories with a high capacity for learning and innovation, which is built-in to the creativity of their population, their institutions of knowledge production and their digital infrastructure for communication”. (Deakin and Al Waer, 2011). The second one belongs to

Caragliu, Del Bo and Nijkamp and it is probably the most exhaustive one, including dimensions, processes and outcomes, as well: “We believe a city to be smart when investments in human and social capital and traditional (transport) and modern (ICTs) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.” (Caragliu et al, 2009).

As Deakin and Al Waer observed, in smart cities the ICTs are communication means, and they are considered smart because they allows cities to empower and educate people. A ‘really’ smart city uses ICTs not as an objective in itself, but as a way to enhance participation and democratic debates about the type of city people want to live in. The same view is supported by Caragliu et al, who acknowledge the importance of the human and social infrastructure. What we do not know, yet, is how these processes will work in particular situations.

Defining the smart city might be easy or not, despite the large amount of definition attempts. Albino et al. (2015) found no less than 23 different definitions of smart cities, in different researches, with common and different characteristics included. They also thought about the connotation shadows of intelligent and smart, noticing that in the marketing language, in particular, “smartness” is a more user-friendly term than the more elitist one “intelligent,” generally associated with having a quick mind and being responsive to feedback.

Harrison et al. (2010) suggest that actually “smart” is a better term, because it includes “intelligent”, is wider. For them, “smart city” denotes an “instrumented, interconnected and intelligent city”, the focus being on the technical side. Such an instrumented city is capable of capturing and integrating real-world data through various technical devices and sensors, thus making the city more intelligent. Interconnectedness refers to the integration of the previous data into some sort of platform that allows the communication of information among the various city actors and services. Intelligence refers to the use of complex analytics and services to make better decisions – at operational and strategic level, as well. In the end they, too, notice that the soft relational component is important. Smartness is the concept on which governments and public agencies focus in order to foster sustainable behaviour, to stimulate economic growth, ensure better quality of life and create happiness for their citizens (Harrison et al., 2010).

If cities want to have a healthy growing, they also need to be livable, offering good living conditions and a pleasant and safe environment to all their targets – inhabitants, tourists, and business people. Simply, cities have to be „happy“. Place happiness is really important when people chose destinations (either for living or for tourism and business) and activities (Deutsch-Burgner et al., 2014). Livability depends on infrastructure, health care, education, environment, stability and safety, among other indicators – a mixture of „hard“, economic and administration factors, as well as „soft“, social and cultural ones.

Analyzing the major approaches towards the understanding of the smart city concept, Ishkineeva et al also insist on the importance of the soft side, emphasizing the fact that modern smart cities should not only be technologically developed, but they should also be able to provide more opportunities for the well-being of their citizens, ensuring them a better quality of life. (Ishkineeva et al., 2015) Herrschel also noticed the importance of city livability in the smartness process, clearly stating what smart growth is and is not: “Smart Growth is not *no growth*; rather it seeks to foster efficient development at the edges of the regions, in the process creating more livable communities.” (Herrschel, 2013).

Modern cities want to be smart because they are also involved into harsh competitions with other cities, in their desire to grow – to attract EU money for different programs, including cultural, specific ones, governmental money, national and international investors, tourists and inhabitants. So, another attribute attached to cities is that of „competitive“. Real strategic and operational

branding wars take place between cities. A recent World Bank report considers that, a competitive city is a city that successfully facilitates its firms and industries to create jobs, raise productivity, and increase the incomes of citizens over time. Worldwide, improving the competitiveness of cities is a pathway to eliminating extreme poverty and to promoting shared prosperity.“ (World Bank Report, 2015). Looking at data on 750 cities for the 2005-2012 period of time, the authors of the report noticed that competitive cities use three channels for their development – a mayor’s wedge, growth coalitions and intergovernmental relations. In order to facilitate growth, competitive cities use four categories of factors or interventions – institutions and regulations, infrastructure and land, skills and innovation, and enterprise support & finance. (World Bank Report, 2015).

Smartness is also associated with a more rapid adaptation of cities to various shocks, to sudden and abrupt changes, which brings into attention other necessary attributes, as “resilient cities” (Chelleri, 2012) and "creative cities" (Florida, 2003). As Florida notices, more interdisciplinary research would be needed in order to discover the factors motivating people to be more creative and adaptive. Similar research efforts could help find ways for increasing the capacity of citizens and institutions within a city to adapt, survive and grow in times of chronic and acute stressful experiences. (Chelleri, 2012)

We notice the presence of positive attributes associated with smart cities. However, there are also sceptical or cautious opinions about smart cities’ development. The main concerns are related to the politics and security of big urban data, which could lead to technological lock-ins, hackable cities and especially increased levels of surveillance – the so called panoptic cities (Kitchin, 2014). Other voices notice that we too easily assume that each and every city wants to be intelligent, smartness being taken for granted as the ideal, desired state, and we forget that in this process we should also care about other important characteristics of cities – being inclusive, socially progressive, ensuring both social cohesion and diversity, at the same time (Hollands, 2008).

Being smart and competitive simultaneously might also prove difficult, sometimes. Monfaredzadeh and Berardi analyzed the dichotomy between sustainability and competitiveness, noticing that “together with the growing interest in the concept of the smart city, cities are often pursuing other goals that may be in conflict with the characteristics of a smart city”. (Monfaredzadeh and Berardi, 2015). Sustainability is frequently a stated goal for urban development all over the world. Sound economic development is a major driver of smart cities, but a high degree of economic competitiveness is just one component for a smart city. Sustainability and economic competitiveness not only have few elements in common, but they might even be contradictory. Recent studies emphasize the importance of analyzing smartness and sustainability together, advocating for the development of sustainable smart cities. (Ahvenniemi et al, 2017; Bibri and Krogstie, 2017) The answer for the harmonization of such contradictory goals as being smart and sustainable at the same time might be found, again, looking at the soft side of smart cities. If people are not motivated and do not participate to the whole process, then any reform attempts would fail, by creating a negative human environment (Pinteric, 2017). As Winters (2011) stated, people are the protagonists of a smart city and they shape their city through continuous interactions. This is why creativity is recognized as a key driver for a smart city’s development, conferring a central role to education, learning, and knowledge creation, into a complex space with hybrid social, cultural and economic entities. Thus, smart people become, at the same time, generators and beneficiaries for the social capital of a knowledge-based city (Alfaro Navaro et al, 2017; Tworzecki, 2004). A similar answer is suggested in the report on competitiveness of the World Economic Forum from 2014, which speaks about hard and soft connectivity as a necessity for city competitiveness (World Economic Forum, 2014). For the hard part, according to the report, a mix of planning and organic

growth is needed, and big hard-connectivity gaps should be plugged, especially for emerging-market cities, which need massive investments to increase productivity and growth. As for the soft connectivity, the city's social capital, it is considered at least as important as hard connectivity in the 21st century's knowledge economy: "While soft and hard connectivity are mutually reinforcing, soft connectivity is also about supporting an open society in the city, which spurs ideas, entrepreneurship, innovation and growth. [...] Education is the ultimate soft connectivity." (World Economic Forum, 2014).

Smart cities could be deeper analyzed on their dimensions or constitutive components, as well; the literature usually identifies six such dimensions. (Caragliu et al, 2009; Giffinger and Haindl, 2009; Meijer and Bolivar, 2015; Nam and Pardo, 2011; Stratigea, 2012) . The main components of smart cities are smart economy, smart people, smart governance, smart mobility, smart environment, and smart living. These dimensions have corresponding, related aspects of urban life, labelled slightly different by various authors: industry or competitiveness, education or social and human capital, e-democracy or participation, logistics & infrastructures or transportation and ICTs, efficiency & sustainability or natural resources, security & quality or quality of life. (Nam and Pardo, 2011, versus Giffinger and Haindl, 2009) From the smart people category we can also talk about the smart community – which has a crucial role; a city is smart if it's capable of inspiring a sense of belonging and community among citizens, which need to feel a real desire to participate to the city's life. In other words, nobody can build a smart city without the people inside being an active and committed actor. We could even measure a city's degree of "smartness", and we will again discover the importance of people's involvement and active participation, on different levels or stakeholders categories. (Caragliu et al, 2009; Johannensen et al, 2016; Meijer et al, 2015; Reddick, 2011) The whole society plays an important role - Lombardi et al. (2012) started from the classical triple helix model – university, industry, government – and added a new element: the civil society. They thus obtained a four helices model of growth and innovation for a smart city, in which the civil society plays an equally important role. Every time we speak about smart cities, we speak about ICT's, which are the communication means, but we also speak about the process or collaboration and networking of actors, and about people – citizens, city community, and the civil society – which should be the final goal pursued (Meijer and Bolivar, 2015; Stratigea, 2012).

We can notice from this quick analysis that there are at least three types of aspects or directions for the study of smart cities, labelled as emphasis points or as crucial issues for the advancing of our understanding (Meijer and Bolivar, 2015; Meijer et al, 2015): (1) defining features of smart cities or contextual conditions (smart technologies, people, etc.); (2) transformative perspective or changes in urban governance, with various governance models; (3) assessment of public value, better outcomes, more open process. The largest number of studies addressed the features or dimensions of smart cities, followed by governance models and then by outcomes or results. At this point, an oversimplification of the smart city story might look like this - we need the appropriate vehicle (from hundreds of alternatives, for different types of roads and budgets) to get our family (from one to many members, and generations, and cultures) to our established destination (which heavily depends on our personal and common objectives). The smart city is not just the vehicle, it's not just the family, nor just the journey or the final destination – it is an aggregated sum of all these. Smart technology, economy, people etc. are just parts or pieces of the vehicle; the way they are built in, connected and fuelled, represents the motor and transportation type, and defines the length and comfort of the journey; and the final destination, even if we label it as public value, has hundreds of individual facets to be taken into consideration. The human being is crucial for the vehicle, the journey, the partners and the destination, and even for the very technical parts, and for every choice, not only from the point of view of knowledge and education, not just as human and social capital in

their largest senses, as they were defined in the literature (Bourdieu, 1986; Knack and Keefer, 1998; Temple, 2001; Woolcock, 1998). It is about people with inherent differences in terms of personalities, perceptions, cultural background, habits and customs, etc. So, if we want to raise smart cities, we need to look at the soft competencies required for this process, from a larger perspective, at the intersection of the three emphasis points - dimensions, processes and outcomes.

4. Raising smart cities – the soft skills

Smart kids, smart people, smart cities – it's not that different when you raise them, after all. Principles are similar, resources needed as well – keeping the right sizes and proportions, of course. Although cultural and societal processes are not the same as the physical and psychological growing up of a human being, there are common issues, especially related to the transmission of values, attitudes and norms. Small, close-knit groups in which people have ongoing interactions, like repeated games, might lead to the emerging of specific social norms. For a child, a small group of people or a community, similar learning processes take place – a disproportionate punishment, as well as a delayed reward, are difficult to understand and will become ineffective, when a certain community structure of desired values needs to be formed or changed. By going through all the characteristics of livable, competitive and smart cities we wanted to emphasize the role of the soft component, of people and relationships, of culture and education, of civilization. This soft dimension is even more difficult to develop than the hard one, because most of the necessary changes are cultural and civilizational and require massive efforts and especially time. In the 90's, just after the domino of revolutions in Eastern Europe, Piotr Sztompka was talking about the huge role of what he labelled “civilizational competences” for the post-communist transition. (Sztompka, 1993) Almost 25 years later, it is amazing how well his theory still explains the difficulties that Eastern cities encounter in their way to become smarter. In 1993, asking himself what stops Eastern and Central Europeans from attaining the goals of democratic polity and open culture, Sztompka looked for sociological explanations and found two categories: “hard” factors, which include institutions and organizations, economic and political structures, material resources and technologies, and “soft” ones – human factors which stand in the way of a rapid and smooth transition. (Sztompka, 1993) The dominant explanations seem to be based on the hard factors, although people are present everywhere in those hard structures and the soft, intangible and imponderable relationships, mentalities and networks are much more demanding when we want to change them, in terms of time and energy. It is the so-called “mental, cultural, and civilizational fabric” of society that matters – terribly true not only for the transition to a market economy, but also for the transformation of cities from old, classical type, to modern, smart ones. Eastern European cities wanted to catch-up with their Western competitors cities and got caught into a contradictory combination of processes, labelled by Sztompka imposed modernity, vestiges of pre-modern society of status, and the cultural effects of the previous socialism era. In this way, the cultural, intangible tissue of these cities was torn, unravelled, making the gaps between core and periphery bigger and more difficult to eliminate. Previous studies dealt with civic values and civic engagement, measurements of civil societies, mechanisms for the intergenerational transmission of the cultural capital or influence factors for citizenship norms in Eastern Europe, in a quest for explaining different forms of community progress. (Coffe and Van der Lippe, 2010; Inglehart and Welzel, 2005; Lyons, 2009; Mohr and DiMaggio, 1995; Sachs-Jeantet, 2003; Sztompka, 1993). Many other researchers, from different fields – economics, psychology, sociology, political science, communication studies, European studies, etc. – realized, in their studies, that human, cultural factors might explain most of the failures, delays and wasted resources within the process of developing cities, regions and economies. Knowing that many researches showed the weakness of

the civil society in Eastern Europe, Coffé and van der Lippe investigated mean levels of what they called “civic mindedness” in four Eastern European countries and tested whether factors traditionally associated with civic and political participation are also correlated with citizenship norms across Eastern Europe. (Coffé and Van der Lippe, 2010) They discovered that individual-level characteristics are differently related to citizenship norms across the countries of their study, showing that the cultural specificities are important in explaining the behaviour of civil societies. These could also explain why some Eastern European cities, from specific countries, are better at advancing towards becoming smart cities than others. And because the cultural capital is transmitted through intergenerational mechanisms, as Mohr and DiMaggio stressed (1995), it is even harder for some cities to advance, since the gaps are somehow auto-generated, self-maintaining, encrypted as almost cultural viruses into the social tissue of a community. Moreover, broader civic values, especially those focusing on freedom and self-expressing, as Inglehart et al. found (2005), are more important for the development of real democratic and active cities than any other type of economic or political support.

Serious efforts were undertaken in order to measure and compare civil societies. In one such endeavour, Lyons considered three important dimensions for any civil society: associational life, good society and public sphere or arena for public deliberation. (Lyons, 2009) The first dimension refers mainly to not for profit associations and societal governance, the second to core important values, such as tolerance, social justice and equality, and the third one to various publicly available media and other communication and debate channels. All these can be transformed into indexes through which civil societies can be measured, through diamond like structures, and could be useful in the process of managing social changes in an era of era of global, fragmented, multi-cultural, multi-ethnic, governed, ecological, and technological cities. As Sachs-Jeantet (2003) states, “as territories where social transformations take place, cities need to be monitored and studied from a broad social science perspective. The challenge at stake: cities as the enhancement of human capabilities.” For such an enhancement to take place, civic engagement is required, in times when citizen’s participation, especially in former socialist countries, is rather weak and discontinuous. One possible explanation is, again, related to civilizational incompetence, as Tworzecki (2004) found in his research. So, it looks like 25 years after the transformations which took place in Eastern Europe, civilizational, “soft” and intangible competences could still explain the pace of Eastern European cities’ progress. If we take a closer look at Sztompka’s categorization of civilizational competences, we notice that all four types of cultural intangibles are important for the creation of a smart city: the enterprise culture, the civic culture, the discursive culture and the so-called everyday culture. (Sztompka, 1993)

The enterprise culture includes factors related to the development of smart cities, as innovative persistence, achievement orientation and individualistic competitiveness, together with rational calculation ability. For measuring this dimension we can use observable variables – number of new companies created, spin-offs etc., as well as latent variables – individual entrepreneurial orientation, organizational entrepreneurial orientation, for example.

The civic culture will explain the soft connectivity of smart cities, through such factors as political and social activism, readiness to participate to the public life of the community, concern and interest towards public issues, discipline, respect for the opinions of others and for opponents or compliance with the majority, in a democratic society. The variable could be operationalized through latent measures, mostly psychographic type scales, but also through different indexes for civic engagement, solidarity, social trust, etc. Some measures, the latent ones, are usually at individual level, while the indexes are aggregated at city level.

A very important third category is that of *discursive culture*, absolutely necessary for people in general, and various categories of stakeholders, in particular, to be part of the intellectual and public debate flow. To be able to do this, people from a city need to be tolerant and open-minded, to accept diversity and opinions' pluralism, to accept criticism and also be critical-thinking persons, with constructive critics and professional scepticism. Most of the measures here are for latent constructs - psychometric scales designed for individuals or for groups (city council, various governance teams etc.). Proxy variables, directly observable, can be also used (number of minorities, mixed marriages, platforms created for public debates, etc.).

Finally, the fourth dimension, *everyday culture* will support people's daily life in cities which are highly urbanized and technologically endowed, so that they will be able to accept, use and improve the ICTs present in smart cities. We will find here very basic factors – cultural habits, most of the time, such as punctuality and orderliness, cleanliness and support services, healthcare values, pro-activeness and desire to learn, especially how to confidently handle advanced technologies and devices. Proxy variables as park and green space surfaces, water and sewerage, healthcare facilities, etc. can be used for measuring this dimension. Latent cultural variables can also be created – attitude towards technology, perceived ease of use of ICTs, core personal values etc.

Without these competences, a smart city would be lifeless and would not be able to function at full capacity. It sounds simple, yet it's a difficult process, because these civilizational competences are very cultural dependent. Different cultural layers exist, when analyzing one's culture and they manifest at different levels: national culture level (or country level), ethnic and religious level (subcultures within the same country), organizational level (differences in organizational culture, as a whole, or even at team level within the same organization), professional level (professions and social class), generation level (different ages and role categories – parents versus children, for example), gender level. (Zait, 2016) All these cultural layers of an individual (coming from the different levels) are important in explaining interactions and transformations, especially because in economic, social and urban interactions from a city, in all governance processes, we cannot say that one culture, in general, interacts with another one, but individuals or citizens interact with other individuals or citizens. It is the reason for which all layers have to be considered when analyzing what we could label "city culture". Due to these cultural influences, civilizational competences cannot be quickly acquired or changed. Moreover, they cannot be imported, as we do with complex technologies and devices, because we cannot import the inhabitants or the spirit of a city. The solution is internal, resides in the community of the city longing to be smart; the transformations are possible because culture is not homogeneous and monolithic, and so people have various degrees of cultural competence or incompetence. They are also differently exposed to cultural influences and more or less receptive to change, education, cosmopolitan orientation or globalization. The process is long and painful, but acquiring and growing these civilizational competences asks for a continuous development of the human capital which will be the main actor using smart ICTs in a smart city.

Although the intention of this essay is mainly to trigger the attention towards the importance of soft competences for the development of smart cities, from a theoretical point of view, a few empirical, exploratory level examples might be useful in supporting this hypothesis. We shortly analyzed a few variables from the four types of civilizational competences in the case of four (out of 14) Romanian cities competing for the preselection short list as European cultural capital 2021, three of which have succeeded (Bucharest, Cluj and Timisoara) and one not (Iasi). Except for Bucharest, the capital, with a special statute in terms of size and administrative position, the other analyzed cities

are very similar in terms of population (all between 300 and 330 thousands inhabitants) and position (“capitals” of their regions). An analysis of the civil society from the competitor cities shows how they’re different in terms of non-governmental organizations and institutions that manifest interests and wills of citizens, especially in fields as culture, education, health, environment, philanthropy and social-services: Iasi has about half of the number of NGO’s comparing with Cluj and Timisoara (38, 2016). Although this is just a proxy variable for civic culture, it indirectly reflects the concern with public issues and the readiness to participate, as civilizational competences. Respect for opponents from the same civic culture dimension, as well as tolerance, open-mindedness, acceptance of diversity, scepticism and criticism, from the discursive culture dimension could be measured using other proxies – linguistic diversity, frequency of intermarriage, number of political votes for minorities (normalized), number of participants to public protests, number of professors and other intellectuals publicly taking attitude towards common issues of interest, number and quality of social networks and public mass-media comments from various citizens for critical incidents, etc. Again, a quick, exploratory analysis of such approximate figures shows that Iasi is surpassed by Cluj and Timisoara (content analysis of press articles and social media, one week before and one week after main events). Other directly observable variables could be considered, as well, as a reflection of civilizational competences. Table 2 presents the values, for the analyzed cities, for a selection of such proxy variables.

Although open-mindedness, for example, is a characteristic usually measured at individual level, one can evaluate this for a group, an organization or a whole city, through Likert type scales using statements (for example, committee members/city council members/citizen organizations routinely judge the quality of their decisions, question the way they perceive the markets, make critical assessments of their investment approaches etc.).

Table 2. Proxy civilizational variables for the analyzed cities*

City/ County (2014)	Roma nian tourists	Foreign tourists	Total tourists	Nr. of nights	Hotel capacity	Culture - spectators and auditors	Museum visitors	Total school – all levels	Research- Develop ment expenses (thousands lei)	Sewerage (km)	Street length (km)	Green space (ha)	Sur face (km 2)	Population
Iasi	167454	29570	197024	391404	4276	125788	290539	196078	143568	958	785	770	121	321606
Bucuresti	645718	864504	1510222	2497182	19784	1137510	1462410	437330	965060	2336	3404	4506	228	1920610
Cluj	281103	73717	354820	646020	8436	260509	432946	164577	170745	1255	822	1254	165	304527
Timisoara	209528	79321	288849	683015	8025	228987	201306	140431	77447	1082	999	954	129	303737

Source of data: *National Institute of Statistics, <http://www.insse.ro>*

Note* - proxy variables from the table have direct relationships with all dimensions of a smart city (economy, environment, people, governance, mobility, living), and they are influenced, among other factors, by civilizational competences (they could indirectly serve as proxies for other soft indicators, as well)

The majority of intelligence theories are, at a basic level, about different values (Ritchhart, 2001), and the so-called thinking dispositions are important – creative thinking (how we, as citizens of a town, look out at the world, how open minded and inquisitive we are), reflective thinking (how we look in, are aware of the others, take positions, have integrity, fairness, perseverance, intellectual courage etc.), and critical thinking (how we look at, how systematic and analytic we are, how sensitive to feed-back we are, how sceptical – in the professional sense – we are, trying to seek for alternatives, detect contradictions, have independence of mind, etc.). Of course, measuring all these latent variables at city level is complex and requires time and methodological rigor, but could provide important information about factors influencing the capacity of a city to become smarter, from the soft perspective of human and intellectual capital.

Conclusions

Main findings

The main result of our theoretical synthesis is that the literature still associates the smart city especially with its hard dimension, the highly developed and intelligent technologies, including ICTs (about two thirds of the total number of articles), despite a growing number of studies dedicated to the soft, human and social capital component. The intangible, soft component – the human actor – plays an equally, if not even more important role, through mechanisms affecting all classical dimensions of smart cities (smart economy, people, governance, mobility, environment, living). Civilizational competences, soft skills or human related characteristics of cities, strongly influenced by culture (at national, regional, organizational and individual level), are crucial for the development of smart and competitive cities. Civilizational competences are grouped into four categories: enterprise culture, discursive culture, civic culture and daily culture. If we want to make our cities smart, we need to develop these competences - first define them, then identify their antecedents – or influence factors – and measure them.

Practical and social implications

The findings of this exploratory conceptual essay could be used for further testing of hypotheses on the relationship between civilizational competences and smart cities' development. Also, local and regional administrations could use the results in order to increase human motivation and civil society's involvement for the development of sustainable smart cities.

Further discussion

What is the main conclusion of our exploratory essay? The smart city seems to be the ideal city of the future, despite many contradictory issues in the processes of sustainable growth and competitive economic and urban development. Although we primarily associate the smart city with its hard dimension, the highly developed and intelligent technologies, including ICTs, the intangible, soft component – the human actor – plays an equally, if not even more important role. Civilizational competences, soft skills or human related characteristics of cities, influenced by culture, might be crucial for their development as smart and competitive cities. As far as we know, this is the first study explicitly relating smart cities and civilizational competences, but further research is needed to test our exploratory assumptions. The construct we suggest, '*cities' civilizational competences*' has four dimensions - enterprise or entrepreneurial culture, civic culture, discursive culture and everyday or daily culture. Our hypotheses, suggested by the exploratory essay, would be that civilizational competences influence – directly or indirectly, as potential mediators or moderators, all six dimensions of a smart city, which means that they go beyond the social and human capital component. They also influence governance models, participation models and processes, and even

the way objectives are established and expected, desired outcomes (that is, all critical issues of smart cities, as depicted in the literature). If we want to develop these competences in cities we need to define them (theoretical conceptualization), identify their antecedents – or influence factors – and measure them (operationalization). Most of these antecedents of civilizational competences are related to culture, at all levels – national (country), regional, organizational, individual.

Civilizational competences could be measured in two different ways – as latent variables, using specially developed and tested scales (psychometric scales), and as proxy variables – using already available observable variables (as number of civil organizations, NGOs, etc.) Such an approach has a double utility – from a theoretical point of view, in order to advance knowledge on smart cities development, and from a managerial point of view – for local, regional and national administrations willing to faster develop smart cities and regions. Local administrations and government could use proxies and soft indicators as predictors for citizens' involvement in the design and especially implementation of social, economic and political strategies of development. The main actors contributing to the development of smart cities through increased civilizational competencies come from all four categories of the quadruple helix – economic environment, government and administration, universities and educational institutions, civil society. Working on the development of such competencies we could raise smarter cities for the future of a solid European structure from economic, political and social points of view.

Limits an further research

The study has several limits – first of all, the exploratory nature in itself, with many inductive and abductive suppositions that will need further testing. Second, the literature selection has a certain degree of subjectivity, due to the fact that besides the common, classical theory of smart cities, we were particularly interested in rather heterodox opinions about the subject, which lead us to the inclusion of singular or isolated points of view on narrower issues.

As future research, a comprehensive “map” of proxy variables and latent variables would be needed in order to gather empirical data and validate the potential model that would test the relationships between cities' degree of smartness, measured on the six classical dimensions (economy, people, government, environment, mobility and quality of life) and various levels of civilizational competences, on their four dimensions (entrepreneurial culture, civic culture, discursive culture and daily culture).

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