



Volume 48, Number 190,
July-September 2017

CONTENTS

EDITORIAL

SOCIAL INNOVATION FOR “SMART” TERRITORIES:
FICTION OR REALITY?

Jairo Parada¹

Date received: July 16, 2016. Date accepted: November 20, 2016.

Abstract

This essay explores the theoretical arguments regarding the existence of “smart” territories, a recently-developed concept based on notions related to the knowledge society and knowledge economy, sustainable development, and social inclusion. This paper examines the preconditions necessary to make it possible for this type of territorial development to emerge in relation to the economic development underpinning it, as well as the right type of social structure, qualities required for human agency, and the social innovations demanded for such purpose. Finally, as a case study, this paper provides an empirical analysis of such conditions on the Caribbean coast of Colombia, drawing some final conclusions and recommendations from it.

Keywords: Caribbean Region of Colombia, smart cities, urban sustainability, innovation, technological development, governance.

INTRODUCTION

Over the past two decades, a burgeoning volume of economic, social, and regional analysis has emerged, suggesting that it is possible to create “smart” territories or “smart” cities, or even “smart” regions, predicated on the advent of the knowledge society and economy. The logic behind these new concepts, applied in concrete economic or social spaces, arises from the ongoing technology revolution derived from, among other aspects, the development of the Internet, computing, and the widespread use of new devices to access an enormous quantity of information, which facilitates communication and has transformed the processes by which goods and services are produced.²

The impact of this science and technology revolution is not limited to developed countries. In fact, it has spread quickly to developing nations, which have become avid users of networks, cell phones, and tablets, displaying exponential growth. This reality has set expectations higher for regions and cities in developing countries, some of which have made leaps forward in development, spurring rapid economic growth and development against the backdrop of globalization.

Essentially, certain select regions and cities, as a result of physical, industrial, and social changes, seem primed to become those select places where development could come about.

Nevertheless, the growing enthusiasm in these currents of thought ought to be tempered, insofar as the basic building blocks for economic development cannot be avoided. Economic development requires not only the technological prerequisites necessary for the current scientific revolution, but also a sufficient degree of the social and institutional density these phenomena entail. For that reason, following this introduction, this essay delves into theoretical approaches to “smart” territories, thoroughly analyzing the requirements that environments of this sort demand. Then, this paper explores the institutional and social preexisting conditions in these areas or cities, emphasizing the institutional matrix upon which they are based.

Subsequently, these ideas are applied to a case study of the Caribbean Region of Colombia, analyzing the institutional structure and governance conditions in the region and its potential to become a “smart” territory. Finally, some conclusions and specific recommendations are offered to move towards more realistic and grounded expectations for the impact of these new technologies.

THEORETICAL APPROACHES TO “SMART” TERRITORIES

Due to exponential urban population growth around the world, new urbanization patterns are emerging, creating new urban areas in countries across the globe and bringing with it novel challenges and demands for all sorts of services, not only limited to infrastructure, such as aqueducts, sewage, electricity, housing, and a broad suite of social services, but also broadband networks, fiber optic wiring, and an environment characterized by collaboration across diverse agents (Komninos, 2015, pp. 1-2). The theoretical literature revolving around smart cities has taken off ever since M. Porter introduced the concept (Hadjuk, 2016). The subsequent literature has been very clear in underscoring the technological (integration), institutional (governance), and human (learning) factors that comprise the prerequisites for a smart territory

to emerge (Nam & Pardo, 2011, p. 288). Additionally, various tools have been developed to study which cities are heading in that direction using a set of indicators, which has led to various rankings (Gil-Garcia & Nam, 2015, p. 66).

As such, the notion of "smart" territories or "smart" cities is conceived of as geographic spaces in which knowledge-intensive activities are undertaken, such that institutions and routes for cooperation and innovation are necessary, underpinned by infrastructure requirements, including broadband, digital spaces, electronic services, and collaborative environments for the sake of cooperation (Komninos, 2015, p.4). The impact of these new elements in these territories is not reduced solely to the production of goods and services, but rather also entails the creation of learning institutions and innovative ecosystems that allow these communities to solve problems (Komninos, 2015, p. 21).

From a social standpoint, these territories require a dense civil society, because, according to Komninos, they need:

...the citizen to become a more active and participative member of the community, for example, providing feedback on the quality of services or the state of roads and the built environment...volunteering for social activities or supporting minority groups (2015, p. 22).

In territories that have come to be known as intelligent, there are three basic layers of social and economic infrastructure: *i)* a well-populated urban area with diverse economic activities and material infrastructure in terms of industries, businesses and services, communication routes, housing, utilities, fiber optics, Internet, and all the material facets of a modern society; *ii)* institutions for innovation embodied in appropriate organizations surrounded by an ecosystem. This latter layer is what the experts refer to as "institutional density" and it produces spillover effects on collaboration, trust, and knowledge; and, finally *iii)* broadband, sensors, clouds, and applications should be in intensive use in the territory (Komninos, 2015, p. 24). Accordingly, several authors have asserted that the notion of "smart" territories and cities requires three basic dimensions: technological, human, and social and community creativity (Nam & Pardo, 2011, p. 288).

However, some authors emphasize only the technological components of smart territories in terms of the material existence of Information and Communication Technologies (ICT) and communication infrastructure. Nevertheless, a more holistic view of the nature of these territories underscores the crucial role that the human and social capital operating these technologies plays with a sustainable and long-term vision (Vega *et al.*, 2016). Examples of "smart" cities tend to include Silicon Valley, Seattle, Austin, Raleigh, Boston, Stockholm, Munich, Helsinki, Shanghai, Seoul, Singapore, Taiwan, and Tokyo (Komninos, 2015, p. 44). The concept can also be extended to regions, clusters, and industrial sectors (p. 49).

"Smart" territories should not be conflated with "digital" or "virtual" spaces to the extent that the notion of a territory implies physical integration and the interconnectivity of all digital, social, and physical spaces in these cities or territories (p. 58). The notion of the "Internet of Things" refers to a wide network of multiple devices, vehicles, buildings, etc., all connected with one another, such that information flows are generated, collected, and wielded for a variety of purposes.

The "Internet of Things" has prompted the belief that there are no borders between the physical and digital worlds. Even so, it is unwise to overly condense analysis levels, and better to be clear as to the need to maintain the various levels of analysis described earlier so that "smart" territories can truly exist.

The assumption is that "smart" territories are endowed with "spatial" intelligence, which is composed of various processes, including informational, cognitive, and innovative processes. Citizens and organizations acquire capacities to solve challenges in their daily lives. For that reason, communities are able to merge this "intellectual" capital with institutions for collaboration and the technical infrastructure to build the know-how that will help them make better use of resources in a wide spectrum of activities (Komninos, 2015, p. 80). "Smart" cities entail fostering knowledge- and creativity-intense initiatives to improve socioeconomic conditions and the logistics performance and competitiveness of cities, in combination with, of course, the right mix of human, social, infrastructure, and business capital (Koutit & Nijkamp, 2012, p. 93).

The concept of "smart" territories is bound up in the notion of social innovation, referring to a process of social change in which institutions may be modified, reformed, or exchanged for new social designs that enhance society's welfare, not only changing the rules of the game, but also having a significant impact on different organizations across all levels of society.

Social innovations arise in a wide range of fields. They may be related to healthcare, microfinance, open-source software, social entrepreneurship, community markets, new forms of money, or legal issues tied to race and exclusion, to name a few. New technologies and digital devices bolster social innovation. As some authors have asserted, "social innovation refers to the new ideas that function by meeting social objectives" (Mulgan *et al.*, 2007, p. 9). Along these same lines, Giovanni López carefully explored the emergence of this concept over time, mapping out how the meaning of social innovation has evolved over time, and reaching the conclusion that it should be understood as an emerging phenomenon tied to the social processes that enable a society to find new solutions to social problems in a more efficient, sustainable, and effective fashion as compared to those currently in use (López, 2014).

All of the foregoing theoretical concepts can be parsed from the standpoint of original institutionalism. First, every society stretching across human history has availed itself of knowledge resources in order to survive. In this sense, the concept of the "knowledge society," so in vogue nowadays, is not very accurate and should be used in the context of the Information Age. Second, knowledge is by nature social; it cannot be broken down into small individual units as is posited by the mainstream currents of economic theory on "human capital" (Hodgson, 2005, p. 550). Third, nearly a century ago, Thorstein Veblen highlighted the crucial role of intangible assets and physical tools in production processes, based on the immaterial knowledge of means and ends (Veblen, 1919, p. 349). Later, as Rossi (2016) explained, the notion of

institutions espoused by John R. Commons—from the standpoint of original institutionalism—establishes that the collective action that controls, liberates, and expands individual action implies that the social innovations related to public or private actions are capable of modifying a country's or territory's institutional endowment, such that it is possible not only to improve the productivity of factors, but also quality of life and standard of living for the masses.

This means that all knowledge is inherently social and that the modern knowledge society demands solid and dense social interconnectivity across members of a community in order to be successful. As Hodgson stressed:

A social or local culture provides interpretations and meanings, and all knowledge is dependent on this context. Social institutions are structures that preserve and reproduce these cultural conventions. We rely on these institutions, and interaction with others, to acquire the cognitive capacity to make sense of the chaotic multitude of data that reach our senses. We rely on the social institution of language in order to receive and communicate information (Hodgson, 2005, p. 359).

Another aspect of the discussion that bears consideration is that the knowledge economy operates within the confines of a capitalist regime. As such, it cannot be separated from capital and its power. In this sense, knowledge is not only a new source of productivity and competitiveness; knowledge represents an important asset that must be controlled by this new "cognitive capitalism" (Gagnon, 2007, p. 598). As a result, developing a knowledge economy in the modern day will depend on concrete capitalist development in a region or city, with all of the material, political, and social implications it entails. In effect, digital technologies are having a major impact on the labor market, and if they are not properly regulated, they could lead to a wide range of substandard jobs, offering workers low wages, little control, and "miserable working" conditions (Scherrer, 2016).

Finally, another important distinction that helps orient the discussion is to clearly distinguish between knowledge and information. As Foray (2004) explained, information is just the structured stock of data, which requires cognitive capabilities and learning processes to be analyzed and harnessed. Moreover, the degree of development of an industrial process leads to the potential for conversion to a knowledge society. For his part, Steinmueller (2002) is very clear in highlighting this difference, because every society across history has combined an endowment of knowledge and devices, but what the world is witnessing now is the rapid spread and growth of these activities, posing unprecedented challenges to companies and societies. When it comes to the chance for a city or region to become intelligent, these notions leave no doubt that ICT infrastructure alone is not enough. There must also be real potential to process information to solve problems for the productive sectors, services, or social structures that truly exist in the area.

Last but not least, "social innovation" as a concept bears the brunt of criticism from a wide range of radical viewpoints to the extent that it cannot escape the structural limitations of capitalist development, not only in developed nations but also, and even more so, in developing countries. It may be used as an excuse to mitigate the raw impact of neoliberal policies.

PREREQUISITES FOR "SMART" TERRITORIES OR CITIES

Leaving aside for a moment the digital and material conditions necessary for "smart" territories to exist, the institutional and governance structures in these territories comprise the foundation for the human agency necessary to bring about the environment needed for these territories to become a success. "Smart" territories imply collaborative relationships between citizens, companies, and the government. Learning institutions must operate in open societies able to receive all of the knowledge and information that can be harvested from the digital space in order to foster innovation and entrepreneurship.

An environment of social entrepreneurship of this nature demands an active democracy, engaged citizenry, and a "dense" civil society committed to these activities, not only in terms of the production of goods and services, but also in being aware of the quality of the public goods and services the government must guarantee. Moreover, the government must be very transparent in the sense that these new digital technologies and big data management systems mean that governments need to create access to information conduits for citizens to get involved in physical activities. This process must go hand in hand with quality governance. In short, developing "smart" cities or networks requires modern institutions and good governance to be successful.

The problem resides in the fact that the widespread existence of digital devices or merely having fiber optic cables or computational networks installed and up and running in an area is not enough (these are only the material preconditions); a region must also have an adequate institutional matrix in place. This is an important factor that is frequently forgotten when developing countries are formulating public policy and the ruling class believes that handing out digital tablets to public schools in rural areas is a key factor that is somehow going to transform these areas into a new world, when they are entirely surrounded by a completely pre-modern social and governmental environment.

"Smart" territories or cities should have an eye to sustainable and inclusive urban development, demanding social innovations concerned with the poor or marginalized, improving their standard of living by way of a complete network of good public services, decent housing, access to healthcare, and education. In this way, citizens gain a sense of belonging in the territory, integrating their culture into the demands and benefits from other levels of the "smart" territories (Vega *et al.*, 2016, p. 35).

There is no single metric to evaluate how smart a city or territory is. The Intelligent Community Forum (ICF) publishes a list every year of smart cities based on indicators that include broadband networks, schooling of the labor force, innovation, digital equity, sustainability, and support processes (ICF, 2015). In 2017, they named cities in Canada, Taiwan,

Australia, the United Kingdom, the United States, Russia, Kazakhstan, and New Zealand.

In Latin America, several authors have called attention to cities that have become heavily involved in exportation and industrialization, examining the impact of multinational corporations from various standpoints and finding that the institutional prerequisites and material conditions for local development are in place in northern Mexico (Carrillo *et al.*, 2012). In Argentina, Yoguel and Boscherini looked at a large sample of companies (Mar de Plata and Rafael), finding that dependence on the institutional environment path is crucial to endogenous growth in these territories (Yoguel & Boscherini, 2001). In this same vein, Mochi emphasized the technological and social conditions for the development of technology clusters in Mexico and Argentina (Mochi, 2009). Other well-known "smart" cities on the list include Santiago in Chile, Curitiba in Brazil, and Bogotá and Medellín ("M Route") in Colombia (CCIT; Fedesarrollo, 2016). Not a single city on the Colombian Caribbean coast is mentioned.³

PRECONDITIONS AND GOVERNANCE IN THE COLOMBIAN CARIBBEAN COAST IN RELATION TO "SMART" TERRITORIES

The theoretical preconditions for "smart" territories to emerge will now be examined in the real context of Colombia, a developing nation, specifically, in a region that has tended to lag behind the country average, where civil servants are hoping to develop a toolbox of public policies to foster the conditions to turn these regions into "smart" regions. This section will evaluate institutional features and governance in the region.

Nowadays, a wide range of theoretical perspectives generally agree that institutions matter in making economic development successful. Development is a complex process that cannot be reduced to merely material or industrial transformations. It also requires the alignment of formal and informal institutions in society in order to guarantee good conditions for all inhabitants. There may be healthy debate about the role of the State or markets in achieving these objectives, or the degree to which they are necessary, but in a society where ownership rights of any sort (private, cooperative, community) are not respected, or the predatory behavior of the ruling elite is unconstrained, development is practically impossible.

The same logic can be extended to different regions within a country. Capitalism intrinsically generates unequal development pursuant to how it is organized throughout space, creating the possibility for convergence or divergence, even across regions in the same country. An in-depth analysis of each region would make it possible to determine whether "extractive" and "predatory" or more inclusive and "industrial" (in the sense of Veblen) institutions are predominant. In the former case, it is difficult to feel optimistic about an area's development potential and very improbable to imagine that these territories could become "intelligent."

Measuring the quality of institutions in a territory is no small feat; it requires drawing on a wide range of proxy indicators to gain an idea of what is happening in a region (Voigt, 2013). There is also the issue of endogeneity between development and institutions, where the material and societal conditions interact cumulatively and causally with institutions.

Colombia is an upper middle-income country of 48.2 million people, with average per capita income of 7,130 dollars, a life expectancy of 74 years, and 27.8 million people living below the poverty line. Its gross domestic product (GDP) skyrocketed between 2002 and 2014, thanks to booming export prices for oil and coal in this time period (World Bank, 2016). However, the benefits of this economic prosperity have not been equitably distributed across the regions, and have rather been subject to each region's ability to capture the advantages of this positive growth. Many regions that thought they would benefit from the commodities price boom failed to absorb the results, plagued by violence, corruption, and weak local governments.

Undoubtedly, the central provinces in the Andean region were those best able to achieve economic and social progress, especially as compared to regions in the Caribbean and Pacific. This unequal regional development pattern has held steady. Another important issue that affected economic development in these peripheral regions was the presence of drug cartels and guerrilla fighters who have hindered, to some extent, the effectiveness of public policy in these areas. The country is still afflicted by recent paramilitary violence, despite the good news on the peace accords just signed by the rebel group the Armed Revolutionary Forces of Colombia (FARC), ailing local governments, especially in the Caribbean Region. These groups managed to build political alliances with the local elite, undermining local governments and reshaping territorial states, jeopardizing local democracy along the way (Trejos & Rendon, 2015). The influence of these groups has diminished, but their presence still permeates the peripheral regions.

Colombia's Caribbean Region is composed of eight provinces surrounded by the Caribbean Sea with a population of 10 million people (21% of Colombia's total population), producing 14.7% of the country's GDP, and is home to 35% of the nation's poorest. Estimates say that around 47% of the people in this region live in poverty.

This extended territory (see Figure 1) can be characterized as being in a transition from pre-modernity to modernity. The primary features of urban life can be observed in most of the province capitals, but these urban hubs are encircled by small rural towns where pre-modernity prevails. Capitalist development in Colombia has been extremely unequal in regional terms, leading to several focal points of modernity in a couple of urban hubs that maintain ties with areas that are falling behind, where farming and livestock-raising are not done with modern methods. For such reason, the productive base is very heterogeneous, with industrial activities in cities like Barranquilla, Cartagena, and Santa Marta, in conjunction with modern mining in the north of Guajira, and a blend of modern and pre-modern agriculture and livestock activities.

The institutions—formal and informal rules of the game—in a territory are embodied in a set of indicators, which, to a certain degree, reflect citizen values and their respect for law and justice, and reveal whether predatory habits have seeped into a territory. These indicators give an outside observer a glance at the social, ethical, and productive cohesion in a territory, which help determine whether it will be able to support economic development strategies. To get an idea of the institutional matrix in a territory, there are several indicators that can be used as an approximation of the institutional structure. The fact that there is no regional database of information on institutional factors related to governance and entrepreneurship does impose a constraint on this research. For this reason, it is necessary to gather indicators available for a couple of variables for which records do exist.⁴

In Table 1, the homicide rate in the region is shown to be quite high as compared to rates in developed nations, but not as bad as the average in Colombia, a country affected by political violence and drug trafficking. Nevertheless, this reality does hold sway over people's, the government's, and companies' normal activities. The border with Venezuela has recently begun to deteriorate, affecting the state of affairs in Cesar and La Guajira. Table 2 summarizes theft rates, which are also rather high as compared to developed nations and which have grown worse in recent years, even as the homicide rate has improved. The situation has become aggravated in the region's major cities, which is cause for concern, even as the problem has also spread to smaller towns in rural areas. Micro-drug trafficking and the recrudescence of neo-paramilitary groups seem to be at play here. This institutional environment imposes high transaction costs on businesses, people, and even the government, which, in its daily activities, tries to guarantee some degree of security in transactions.

One important factor in a territory's institutional performance is public employees' perceptions of their government, in terms of the institutional environment (credibility of the rules, procedures, and certainty of fiscal resources). Institutional performance, the capacity of the public sector, accountability, and welfare of public employees are all important factors in public sector moral. The National Statistics Department (DANE) gathers this information through a national survey (see Table 2). Certain variables have improved over time nationwide. However, at the province level, there is no clear trend. Some improvements can be seen in Atlántico, Magdalena, Cesar, and Sucre. Apparently, most of the provinces report results exceeding the national average, which is a positive (DANE, 2015).

Table 1. Colombia – Caribbean Region – Homicide Rate

<i>Provinces</i>	<i>Rate per 100,000 p</i>
Atlántico	21.47
Bolívar	18.84
Córdoba	16.95
Sucre	18.32
Magdalena	28.41
Cesar	25.2
Guajira	19.28
Colombia	30.3
OECD	4.2
United States	5.2

Source: Medicina Legal de Colombia, OECD. <http://www.oecdbetterlifeindex.org/top>

Table 2. Colombia – Caribbean Region – 2013

<i>Provinces</i>	<i>Rate per 100,000 p</i>
Atlántico	293
Bolívar	106
Córdoba	183
Sucre	308
Magdalena	202
Cesar	197
Guajira	107
Colombia	292
OECD	39
United States	113

Source: OECD, FBI, National Police.

Figure 1. Caribbean Region of Colombia



Source: <http://www.minambiente.gov.co> / February 8, 2018.

Table 3. Colombia – Caribbean Region – Institutional Environment and Public Sector Performance (2012-2014)

Province/years	Institutional environment			Institutional performance		
	2012	2013	2014	2012	2013	2014
Atlántico	80.5	81.2	82.1	70.2	68.2	72.5
Bolívar	77.7	85.0	79.9	71.1	67.3	72.6
Magdalena	74.7	80.9	82.4	73.2	73.7	74.8
Cesar	79.4	80.7	81.6	70.2	68.2	72.5
Córdoba	86.1	84.4	84.7	61.3	69.8	76.9
Guajira	80.1	78.5	75.4	73.4	71.0	66.8
Sucre	77.4	83.7	80.9	66.0	69.1	66.4
COLOMBIA	74.3	75.8	77.1	64.2	68.6	66.9

Source: DANE, 2015.

In terms of citizen perceptions of the cities for which information was available, furnished by the surveys (see Table 4), it is only in Barranquilla where there has been any improvement at all in citizen perception, but it is clear that the perception of the judicial system's ability to fight crime is very poor all over. Similarly, public opinion as to satisfaction with local public investment is very low (Barranquilla Cómo Vamos, 2012-2014).

Table 4. Citizen Perceptions of Caribbean Cities in Colombia from Cómo Vamos

		Cartagena			Barranquilla			Valledupar		
		2012	2013	2014	2012	2013	2014	2012	2013	2014
Generally speaking: How are things going?	Good	35	41	36	58	56	61	49	38	n/a
	Bad	65	59	64	42	44	39	57	62	n/a
Is justice helping to reduce crime?	A little	18	14	16	27	18	21	12	n/a	n/a
	Not much	39	40	84	41	82	79	60	n/a	n/a
Satisfaction with public investment	Satisfied	22	18	n/a	40	36	n/a	55	n/a	n/a
	Not satisfied	37	41	n/a	25	26	n/a	15	n/a	n/a

Source: Barranquilla Cómo Vamos, 2012, 2013, 2014

Table 5 reveals the Transparency Index for the region's provinces. Three elements comprise the index: 1) visibility (measuring accountability, e-government, and available public information); 2) institutional quality (referring to the quality of hiring processes and planning management); 3) oversight and sanctions (auditing and tracking of public spending and reporting to citizens). Only Atlántico earned satisfactory scores. Córdoba, Magdalena, and Bolívar fall around halfway on the scale, but La Guajira, Cesar, and Sucre are at risk.

Table 5. Transparency Ranking – Colombia – Caribbean Provinces 2014
(percentage)

<i>Ranking</i>	<i>Province</i>	<i>Visibility</i>	<i>Institutionalism</i>	<i>Oversight and sanctions</i>	<i>Provincial Transparency Index</i>	<i>Risk level</i>
7/32	Atlántico	73.5	78.4	100.0	84.0	Moderate
13/32	Córdoba	67.5	79.2	66.0	70.9	Medium
14/32	Magdalena	44.3	74.9	89.4	69.5	Medium
16/32	Bolívar	56.8	72.0	75.0	67.9	Medium
20/32	Sucre	58.9	65.6	71.3	65.3	Medium
24/32	La Guajira	46.5	72.5	52.5	57.2	High
28/32	Cesar	54.8	66.9	32.3	51.4	High

Source: Transparencia por Colombia. Colombia's 32 provinces or administrative divisions.

One key factor in any institutional analysis of a territory is the number of non-governmental organizations (NGO) it harbors, to the extent that this indicator reflects a certain degree of civil society activism, which is crucial to developing a "smart" territory. Colombia was home to 1,191 NGOs in 2015, with 168 in the Caribbean Region, or 14% of the total. A high number of NGOs in developing nations does not necessarily reflect a highly dense civil society. Sometimes, it even underscores the weakness of the social services that the government ought to be providing.

Table 6 reveals that most NGOs in the Caribbean work with marginalized people or provide humanitarian aid, education, and healthcare. There is a certain degree of activism in fields such as immigrants, the environment, and women. Topics related to democracy, transparency, or accountability for public finances receive little attention. The reason for this is that most NGOs compete for public resources to develop their social programs. Local and provincial governments use NGOs to run their social programs, usually tied to specific political groups that control local politics. Finally, Atlántico has the greatest number of NGOs but it is also the most populated (ONG.info.com, 2015).

(SEE TABLE 6)

Turning to governance, the structure of the State in the region consists of eight provinces each governed by an elected governor and municipal governments spearheaded by mayors also elected by the citizens. Current mayors in the region basically belong to Colombia's traditional parties, like the U, Liberal, Cambio Radical, and the Partido Conservador, demonstrating that the leftist opposition forces have been unable to get civil servants into office. The same is true for the governors. One might think that this reality would support stronger public policies. The problem is that civil society is weak, accountability is low, and the public administration is ripe with clientelism and corruption. The same applies to the makeup of the local councils and provincial assemblies where the leftist opposition parties have only managed to scrape together 5% or 6% of the votes, electing, all in all, just one representative.

With that said, one key aspect of a strong civil society is political engagement. In this sense, electoral participation is one of the cornerstones of governance and accountability. Table 7 describes electoral participation in two years, covering parliamentary elections and provincial and local runoffs. Provinces like Cesar, Sucre, and Córdoba have high voting rates. However, these are not the most economically developed provinces, to the degree that they tend towards farming, services, and mining, in a few. Political control over the population is quite high here as compared to more developed urban areas like Barranquilla and Cartagena.

Returning to the ideas expressed at the beginning of this paper, it is time to shed light on the material conditions in the region in relation to economic development and the technology required to become a "smart" territory. Essentially, the region is home to two dynamic industrial poles, in Barranquilla and Cartagena (Atlántico and Bolívar). The rest of the cities are home mainly to tertiary activities, like those in the healthcare, public, education, trade, hotels, and financial activities sectors, and are plagued by informality. Unemployment is as high as 7% or 6% of the workforce, lower than the national average of 10%, but workforce participation altogether is weaker and informal activities amount to 55% to 60% of the workforce. There is a large mining sector in Cesar and La Guajira, but due to the capital-intensive nature of the sector, with weak forward and backward linkages, it has had little impact on employment as compared to other sectors.

Table 7. Electoral Participation – Caribbean Region – Colombia 2007-2011 (percentage)

<i>Provinces</i>	<i>Years</i>	
	<i>2007</i>	<i>2011</i>
Atlántico	50.9	53.7
Bolívar	52.4	56.1
Cesar	58.0	60.2
La Guajira	50.9	54.1
Magdalena	57.1	54.1
Sucre	66.6	70.4
Córdoba	64.7	68.3

Source: DANE. Political Culture Survey, 2011.

Speaking of Internet usage, in 2014 (see Table 8), the penetration rate was very low in all of the provinces except Atlántico. The situation is much better nowadays, but there are still many rural areas and small towns that lack Internet service access. However, cell phones have gained rapid penetration, so much so that there are now more cell phones than people.⁵

In short, the preconditions for this province to become “intelligent” fall short in the variables of civil society density, political engagement, degree of public sector openness to the media and citizens, control in the hands of non-progressive political parties, and weak digital infrastructure, with the exception of cell phones, where coverage exceeds the population. There are signs of potential in Barranquilla and Cartagena, but it will be much harder for the other provinces to keep up, due to the dearth of necessary material development and digital limitations in the area. Prospects for developing a wide range of innovations are constrained by a weak civil society, a poor material and productive foundation, and the economic and digital infrastructure. Social policies to support the poor frequently lead to corruption, although progress has been made in expanding coverage for education and healthcare. The “Internet of Things” tends to be limited to cell phones and, on a smaller scale, to tablets and computers. Transforming these urban areas into “smart” territories will be a difficult task, because the main prerequisites defined above simply cannot be guaranteed.

Table 8. Caribbean Region – ICT Penetration – 2014

<i>Province</i>	<i>Internet penetration rate (%)</i>	<i>Number of municipalities with fiber optics</i>	<i>National ranking (out of 33)</i>
Atlántico	10.76	18/23	7
Bolívar	6.77	35/46	14
Cesar	5.27	16/30	17
La Guajira	2.41	12/15	26
Magdalena	4.89	23/30	18
Sucre	4.54	18/26	19
Córdoba	3.91	16/30	23

Source: Colombian Ministry of Information and Technology.

CONCLUSIONS AND PROSPECTS

From a theoretical standpoint, the notion of “smart” territories emerged in the wake of the globalization of the nineteen-eighties and the Internet-based technology revolution and digital tools at the disposal of humanity today. Nevertheless, the basic tenets of the knowledge society, the knowledge economy, and social innovations are not immune to harsh criticism from all corners looking at the way capitalism is evolving in the present day. However, aspects like big data and the Internet of Things make it possible to understand better than ever before what is happening in special places around the world, in places that have become “intelligent.” By examining the preexisting conditions that give rise to this feat, it emerges that the following are necessary: capitalist development, infrastructure, Internet grid, and a very active local civil

society demanding open and more transparent government. These circumstances entail very specific social and technological conditions in conjunction with the right human agency able to lead transformations of this sort.

In the Caribbean Region of Colombia, there are signs of potential in the urban hubs of Barranquilla and Cartagena, but it will take combined work over decades, and will be subject to political transformations and decisive leadership to enhance local democracy and generate new social innovations, in conjunction with support from the national government, and a move away from clientelism and corruption. Prospects do not augur well for the other areas, and their chances of achieving change may be nothing more than hopeful wishes.

BIBLIOGRAPHY

- Barranquilla Cómo Vamos, 2012-2014. *Barranquilla Cómo Vamos*, [online], available at: <www.barranquillacomovamos.co/bcv/index.php/informes-de-indicadores-tecnicos-bqcv> [Accessed: 10 05 2015].
- Carrillo, J., Hualde, A. & Villavicencio, D. (2012), *Dilemas de la Innovación en México: dinámicas sectoriales, territoriales e institucionales*, Mexico, El Colegio de la Frontera Norte-Tijuana.
- Castells, M. (2000), *The Information Age: Economy, Society and Culture: The Rise of Network Society*, New York, Oxford.
- CCIT; Fedesarrollo (2016), *Coyuntura TIC*, [online], available at: <www.ccit.org.co> [Accessed: January 5, 2017].
- DANE (2011), *Encuesta de Cultura Política*, [online], available at: <www.dane.gov.co/index.php/educacion-cultura-y-gobierno/encuesta-de-cultura-politica> [Accessed: March 10, 2015].
- _____ (2011), *Encuesta de Cultura Política*, Bogotá, s.n.
- _____ (2015), *Ambiente y Desempeño Institucional*, [online], available at: <<https://www.dane.gov.co/index.php/educacion-cultura-y-gobierno/encuesta-sobre-ambiente-y-desempeño-institucional-departamental-edid>> [Accessed: April 5, 2015].
- Drucker, P. (1969), *The Age of Discontinuity: Guidelines to our Changing Society*, London, Heinemann.
- Foray, D. (2004), *The Economics of Knowledge*, Cambridge (Massachusetts), MIT Press.
- Gagnon, M. A. (2007), Capital, Power, and Knowledge According to Thorstein Veblen: Reinterpreting the Knowledge-Based Economy *Journal of Economic Issues*, June, XLI (2), 593-600.
- Gil-Garcia, J. R. & Nam, T. P. T. (2015), What makes A City Smart? Identifying Core Components and Proposing an Integrative and Comprehensive Conceptualization, *Information Polity*, vol. 20, 61-87.
- Hadjuk, S. (2016), The Concept of Smart City in Urban Management, *Business, Management and Education*, 14(1), 34-49.
- Hodgson, G. (2005), Knowledge at Work: Some Neoliberal Anachronism. *Review of Social Economy*, IXIII (4), 547-565, December.
- IFC (2015), [online], available at: <www.intelligentcommunity.org> [Accessed: January 4, 2017].
- Kola-Bezka, M., Czupich, M. & Ignasiak-Szulc, A. (2016), Smart Cities in Central and Eastern Europe: Viable future or Unfulfilled Dream? *Journal of International Studies*, 9(1), 76-87.
- Komminos, N. (2015), *The Age of Intelligent Cities: Smart Environments and Innovation For all Strategies*, New York, Routledge.
- Koutit, K. & Nijkamp, P. (2012), Innovation, *The European Journal of Social Research*, 25(2), 93-95, June.
- López, G. (2014), "Innovación: lo social le es inminente", *Revista Facultad de Ciencias Económicas Universidad Tecnológica Pereira*, 123-158, December.
- Mochi, P. (2009), "Los clústers tecnológicos en México y Argentina: una estrategia para el desarrollo local", *Territorios*, Issue 20-21, 31-51.
- Mulgan, G., Tucker, S., Ali, R. & Sanders, B. (2007), *Social Innovation: What it is, Why it matters and How it can be accelerated*, London, Young Foundation and Basingstoke Press.
- Nam, T. & Pardo, T. (2011), *Conceptualizing Smart City with Dimensions of Technology, People and Institutions*, Albany, New York, s.n., 282-291.
- ONG.info.com (2015), *Directorio de ONGs de Colombia*, [online], available at: <<http://ong.tupatrocio.com7colombia-p15.html>>
- Rossi, F. J. (2016), "La innovación social en commons", *Análisis Económico*, XXXI (76), 141-165, April.

- Scherrer, P. (2016), *Shaping the New World of Work*, [online], available at: <www.socialeurope.eu/2016/06/shaping-new-world-work> [Accessed: June 30, 2016].
- Steinmueller, W. E. (2002), "Knowledge-based Economies and Information and Communication Technologies", *International Social Science Journal*, 54(171), 141-153.
- Transparencia por Colombia (2015), *Índice de Transparencia Colombia*, [online], available at: <www.indicedetransparencia.org.co/ITD/Gobernaciones/resultadosGenerales> [Accessed: June 12, 2015].
- Trejos, L. F. & Rendon, G. (2015), "Ilegalidad, debilidad estatal y reconfiguración cooptada del Estado en la Región Caribe colombiana", *Revista Encrucijada Americana*, 7(2), 99-113.
- Veblen, T. (1919), *The Place of Science in Modern Civilization*, New York, Huebach.
- Vega, J., Britton, E. & Negrette, I. (2016), *Modelo de territorio inteligente del Diamante Caribe y Santanderes*, Barranquilla, Universidad del Norte.
- Voigt, S. (2013), "How (not) to Measure Institutions", *Journal of Institutional Economics*, 9(1), 1-26, March.
- World Bank (2016), *World Bank Country Data Base*, [online], available at: <<http://data.worldbank.org/country/colombia>> [Accessed December 14, 2016].
- Yoguel, G. & Boscherini, F. (2001), "El desarrollo de las capacidades innovativas de las firmas y el rol del sistema territorial", *Revista Desarrollo Económico*, 41(161), 37-69, April-June.

¹ Universidad del Norte, Colombia. E-mail addresses: jparadac@uinorte.edu.co

² Three concepts emerge for this analysis: 1) the Information Age, which refers to a time period characterized by change, ranging from the Industrial Revolution to a society and an economy based on the widespread use of computerized information emerging from the digital evolution; 2) the knowledge society, which refers to a society able to use all of the data from the Information Age, insofar as sharing and disseminating this knowledge improves the human condition; 3) the knowledge economy, meaning the ability to harness knowledge to create value, transform knowledge into machines and instruments that transform the production of goods and services. The concept implies knowledge production and transfer, continuous learning, innovation, and creativity. See Castells (2000) and Drucker (1969).

³ A full list of the worlds "intelligent" cities can be found in Table 1 in Nam and Pardo (2011, p. 282). Prospects for cities in Central and Eastern Europe to become "intelligent" are explored with an emphasis on ICT and public services in Kola-Bezka, Czupich, and Ignasiak-Szulc (2016).

⁴ Another major limitation on this paper is that the information on the research centers and scientific projects are not included in this essay, because various working groups dealt with different areas on this project and including all of this information would be far removed from the purpose of this research.

⁵ Overall Internet penetration for all devices in Colombia is 52.6%, according to the World Bank. These data refer to the penetration of Internet through household connections.