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John Travis Marshall

Georgia State University College of Law, jmarshall32@gsu.edu

Jessica Venegas

Community Solutions

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THE SMART CITIES MOVEMENT AND ADVANCING THE INTERNATIONAL BATTLE TO ELIMINATE HOMELESSNESS – BARCELONA AS TEST CASE

By JOHN TRAVIS MARSHALL* and JESSICA VENEGAS**

ABSTRACT

Barcelona is a leader in the smart cities movement, a movement that aims to help cities deliver services to citizens more efficiently and economically as a way of making the city a more inviting and inclusive place to live and work. As with any city committed to forward-looking economic, social, and urban development initiatives, it is important to consider whether ambitious goals to reinvent the city include an agenda to solve the persistent problems that have faced major cities for decades, including affordable housing and caring for roofless or homeless men and women. This article ties together the challenges Barcelona faces in responding to the needs of its roofless citizens with Barcelona's leadership in the global smart cities movement. The article describes the problems that Barcelona currently faces with roofless citizens, outlines the smart cities movement's goals, expounds Barcelona's smart cities initiatives, and examines how the smart cities

*Assistant Professor of Law, Georgia State University College of Law; J.D., 1997, University of Florida College of Law; M.A., 1994, University of Texas at Austin; B.A., 1990, University of Notre Dame. The author thanks Dean Steven Kaminshine, Julian Juergensmeyer, Ryan Rowberry, and Karen Johnston at Georgia State University College of Law for the opportunity to participate in the Barcelona Study Space program. Dr. Juli Ponce Solé, Professor of Law at the University of Barcelona, is due special thanks not only for the wonderful hospitality he and his colleagues showed the Study Space VII participants, but also for the speakers and resources he brought to our seminars and field visits – without which this paper would not have been possible. The author also wishes to thank Peter Watson for his fine research assistance.

** Director of Strategic Partnerships, Community Solutions; B.A., Azusa Pacific University. Ms. Venegas led the partnership effort in support of the 100,000 Homes Campaign, an initiative to survey and house 100,000 vulnerable homeless Americans by 2014 (www.100KHomes.org) that successfully concluded in July of 2014 at 105,580 housed. She is now leading planning for partnership participation in Zero: 2016 (www.cmtysolutions.org/zero2016). Prior to joining Community Solutions, Jessica staffed a long-term partnership between Common Ground and UNITY of Greater New Orleans to help create 3,000 new units of affordable and supportive housing in the wake of Hurricanes Katrina and Rita. From 2007 to 2009 she was a Rockefeller Foundation Urban Redevelopment Fellow.

movement offers opportunities for Barcelona to collaborate with peer cities internationally to create new and promising approaches to ending homelessness.

Key Words: smart cities; Barcelona; homelessness; information technology; policy interventions to end homelessness

Introduction.

Barcelona's intimate streets tie together the city's vibrant neighborhoods and tourist attractions, its parks and civic institutions. Grand tree-lined boulevards bustle above ground with pedestrians, cyclists, joggers, trams, buses, and cars. Below ground subway trains whisk residents and tourists across the city. Even the narrow alleys of the city's age-old Gothic Quarter pulse with brisk pedestrian traffic. Barely wide enough for four people to walk abreast of each other, these alleys trace paths lined with shops, restaurants, medieval churches and townhomes, and fragments of ancient walls that date from the city's founding as a Roman outpost.

Barcelona thoroughly embraces its history. It proudly stakes its place as one of the Mediterranean's great ancient seats of culture and commerce. It can attest to persevering four decades of the Franco dictatorship's repressive rule and then pivoting quickly to host the 1992 Olympic Games – a blockbuster success that is a standard for other Olympic cities. Yet there is no indication that the city is content with its past accomplishments. It is actively looking ahead to its next chapter. Even amid the Great Recession and its dire economic challenges, including a 25 percent unemployment rate, Barcelona projects forward momentum.

The city's leadership believes that great cities do not stand still. In this regard, Barcelona considers itself in a friendly and collaborative footrace with a prestigious pack of international cities. Together, these cities are striding toward the goal of reinventing themselves as "smart cities," that is as cities focused not only on a resilient and sustainable future, but also as cities that are fundamentally reinventing how to function as places that maximize the flourishing of community, commerce, and culture in the internet and information technology eras.¹

Barcelona's swift current of creative, cultural and commercial energy swirls around residents and visitors. It grabs visitors the moment they disembark their

¹ANTHONY M. TOWNSEND, *SMART CITIES*, xii (2013).

flights and enter the sweeping breadth and sleek design of its airport terminal. It is present in the joggers, bikers and walkers that keep the city's streets alive late into the evening. But, the same way Barcelona's dynamic energy mesmerizes, it can also desensitize passersby and politicians to the needs of those Barcelonans who experience their days without benefit of even the most basic living conditions. No different than any city, Barcelona is home to thousands of men and women who are homeless or, as they aptly say in Barcelona, "roofless."²

Barcelona and its forward-looking international peer cities are investing billions of euros in remaking themselves as more efficient, more responsive, more economical, and more connected places to live and work.³ They speak about this transformation in terms of better interface with information technology and facilitation of innovation in government and private sector entrepreneurship.

However, noticeably absent from this dialogue about the tools and the improvements of technology that will shape the next generation of great cities is consideration of how this transformation will help eliminate one of the seemingly intractable problems facing cities: homelessness and, along with it, the poverty, illness, addiction or other circumstances that help fuel its disturbing persistence. This essay focuses on the role that the smart cities movement can play in developing and implementing a next generation city where homelessness is a rare and fleeting phenomenon as opposed to a troubling fixture.

The Smart Cities Movement

The smart cities movement capitalizes not only on the capacity for communications technology, big data, and the electronic delivery of information to advance not just commercial, social, and personal well-being, but also a local government's economy and efficiency.⁴ Cities are pursuing projects that save money, generate revenue, promote public safety and augment existing services available to its residents.⁵

² Estimates of Barcelona's roofless population vary, but those estimates are in agreement that the population numbers in excess of 1500. See <http://homeless.samhsa.gov/resource/report-from-barcelona-fostering-social-inclusion-to-end-homelessness-50139.aspx> (estimating the population at 1500 in 2010) and <http://www.arrelsfundacio.org/en/homeless-people/the-problem/> (currently estimating the city's homeless or roofless population at 3,000).

³ See TOWNSEND, *supra* note 1 at 31 - 32.

⁴ See *id.* at 31 - 33.

⁵ See Mark Scott, *Old World, New Tech*, N.Y. TIMES, April 21, 2014 [hereinafter *New Tech*], <http://www.nytimes.com/2014/04/22/business/energy-environment/europe-remains-ahead-of-us-in-creating-smart-cities.html>.

No single technology or system defines the smart city movement. Rather, aspiring smart cities share an understanding that strategically deployed technologies and systems can help them do the work of local government administration better.⁶ Thus, each local government pursues innovations that address pressing needs. For one city that critical advance may be a central command and control facility from which the local government can manage not only the day-to-day events of city life, but also the natural disasters that pose a far-reaching threat to public safety.⁷ For another city, the priority may be to improve government services by funding development of a citywide broadband network.⁸

For example, European electronics and cellular phone giants, Philips and Ericsson, are joining with Verizon Wireless to pursue a pilot project to combine energy-efficient street lighting with improved mobile phone antenna infrastructure.⁹ In London, a local entrepreneur worked with the city to obtain access to its transportation data to create a smartphone application that helps people navigate the complicated bus and subway networks.¹⁰

Technology and communications vendors are also quick to note that the smart cities movement holds even greater promise for the rapidly growing cities of developing nations.¹¹ By 2050 the world's population is forecast to balloon to 6.2 billion people from the 2010 estimate of 3.5 billion.¹² The majority of this growth will occur in developing nations, with cities primarily absorbing that population.¹³

⁶ See TOWNSEND, *supra* note 1, at 31 - 33.

⁷ THE DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS, GLOBAL INNOVATORS: INTERNATIONAL CASE STUDIES ON SMART CITIES, RESEARCH PAPER NO. 135, Oct. 2013, 14-15, available at <https://www.gov.uk/government/publications/smart-cities-international-case-studies-global-innovators>. Rio de Janeiro contracted with IBM to create a "state of the art situation room" for managing city operations.

⁸ The City of Stockholm aimed to create a civic environment in which individuals and businesses could engage with the City at any time of day or night. To facilitate this goal, the City prioritized build out of a fibre-optic broadband network to facilitate technological innovation and development. See *id.* at 18.

⁹ See Scott, *New Tech*, *supra* note 5.

¹⁰ See *id.*

¹¹ Anthony Flint, *Writing the Rules for Smart Cities*, ATLANTIC CITIES, July 23, 2012 [hereinafter *Writing the Rules*], <http://www.citylab.com/politics/2012/07/writing-rules-smart-cities/2663/>.

¹² See *id.*

¹³ See *id.*

As with pursuit of any forward-looking agenda, it is also important to realize the potential challenges associated with city government services and operations making advances in technology. Aspiring "smart cities" must also make sure that they do not overlook the needs of those who are currently marginalized and who have little or no access to information technology resources.¹⁴ Cisco and others urge that the only way developing cities, such as Bangalore, will be able to manage their dramatic surge in population is by managing city services in the most efficient and cost effective manner possible.¹⁵ This may be true, but as the second half of the 20th century proved, technology is not a panacea for a city's social ailments. The spirit of the smart cities movement has been described as better "mission control" for cities.¹⁶ However, even the achievements of the most competent "mission control" systems are limited by the fundamental objectives of that city's systems – including its ambition to make the city a more hospitable, equitable, and inclusive place.

Barcelona As A Smart City

The smart cities movement has taken root in cities with a strong culture of innovation. It is no coincidence that Barcelona is Spain's leading city for entrepreneurs and is motivated by its goal of having the best tools for implementing projects that will improve the lives of Barcelonans.¹⁷ Thus, a "smart city" is not an end in itself for Barcelona's city government. It is a means to the end of creating the best possible city.¹⁸ That vision for a better Barcelona includes not only a city that allows for the most efficient and sustainable urban mobility and greater environmental sustainability, but also improved "[i]ntegration and social cohesion" as well as "[u]niversal access to culture, education and health."¹⁹

Barcelona consolidates its smart cities efforts under its so-called Urban Habitats group.²⁰ This group coordinates the efforts of four City departments working to

¹⁴ See DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS, *supra* note 7, at 2.

¹⁵ See Flint, *Writing the Rules*, *supra* note 11.

¹⁶ Natasha Singer, *Mission Control, Built for Cities*, N.Y. TIMES, Mar. 12, 2012, available at <http://www.nytimes.com/2012/03/04/business/ibm-takes-smarter-cities-concept-to-rio-de-janeiro.html> (describing IBM's smart cities business initiatives and its then biggest smart cities project for the City of Rio de Janeiro).

¹⁷ See DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS, *supra* note 7, at 34.

¹⁸ See *id.* at 35.

¹⁹ See *id.*

²⁰ See *id.* at 36.

implement projects. These divisions include the City's water, human services, energy, and environment groups.

Barcelona is currently pursuing dozens of smart cities projects. Among this large group, there are 13 priority initiatives. Three of these initiatives are broad-based, cutting across all city departments. They aim to make the city as a whole operate more efficiently through a new telecommunications network, a citywide sensor platform, and a program to provide for "open data" and more accessible measurement of "city indicators."²¹ Ten initiatives are focused narrowly on specific city systems improvements. These projects include plans to achieve goals such as a unified lighting plan, a "smart parking" network, and an electric vehicle mobility system.²²

Barcelona's leadership believes the smart cities initiative turns the city outward and, in this regard, it is involved in promoting the smart cities movement among cities across the globe, through the international City Protocol initiative.²³ Although improving human services systems is explicitly a part of the smart cities movement, none of Barcelona's central initiatives address homelessness. However, given the City's commitment to sustaining and maintaining an international conversation regarding smart cities, there is little question but that the city would be open to adopting successful strategies devised by peer cities.²⁴ After all, the City's goal of reinventing Barcelona as a more inclusive city should naturally include a city trajectory focused holistically on the needs of all its citizens.²⁵

The Persistent Urban Problem of Homelessness

Homelessness is a growing problem for modern cities. By numbers alone, homeless residents add up to a city of people within a city. In 2013, New York

²¹ See *id.* at 37.

²² See *id.* at 37-38.

²³ See *id.* at 37.

²⁴ See *id.* at 38.

²⁵ Brent Toderian, *6 Ideas Every City Should Steal from Barcelona*, ATLANTIC CITIES (Nov. 30, 2012) [hereinafter *6 Ideas*], <http://www.citylab.com/design/2012/11/6-ideas-every-city-should-steal-barcelona/3998/> 5/19/2014 (explaining that Barcelona is heir to a long legacy of inclusive and citizen-focused planning).

had 64,060 homeless.²⁶ Los Angeles was home to approximately 53,798 homeless.

It is not surprising that as a city's homeless population grows, so too does friction between city residents who live in homes and apartments and the homeless who live at the margins of their neighborhoods. This problem is so bad in some cities that local governments in the U.S. and abroad are considering measures to exclude the homeless from public spaces, including parks.²⁷ Los Angeles and New York have considered ordinances allowing for a ban of distributing food to homeless in public places. A 90-year old man was arrested in Fort Lauderdale, Florida for violating a city ordinance that prohibits feeding the homeless in public.²⁸ Citizens complain that when food is distributed in their neighborhood homeless loiter and, as a result, secondary and tertiary problems ensue.

Solving homelessness is a challenge because the problem is multi-faceted.²⁹ Some homeless have lost their jobs and have no other support network. Others are escaping domestic violence. Some are victims of addiction. Still others suffer from mental illness. And, in a country at war for 13 years, leaving some 270,000 U.S. veterans diagnosed with traumatic brain injuries, some homeless are veterans who have not received sufficient care.

But what if we could limit the number of men and women who reach the street? What if we could house more of these men and women? What if we could prevent them from reaching the street, or recognize their problems quickly once they reach the street and get them into housing?

Failing to take concerted steps to end homelessness not only comes with a distressing and grim human cost, but also a high financial cost.³⁰ There are few

²⁶ Mary Jander, *Cities Banish Homeless, Not the Problem*, FUTURE (Nov. 23, 2013) [hereinafter *Cities Banish Homeless*], http://www.ubmfuturecities.com/author.asp?section_id=234&doc_id=526237.

²⁷ See *id.*

²⁸ Kevin Conlon and Catherine E. Shoichet, *90 year old Florida man charged for feeding homeless people*, CNN (Nov. 5, 2014), <http://www.cnn.com/2014/11/04/justice/florida-feeding-homeless-charges/>.

²⁹ See Jander, *Cities Banish Homeless*, *supra* note 26.

³⁰ See, e.g., Jeanett Schmidt, *The Danish Government's Policies on Homeless Migrants' Rights to Public Space and Public Facilities and Services for Homeless People: An Example of the Criminalisation of Homelessness in Copenhagen*, in HOMELESSNESS IN EUROPE, Summer 2012, at 5.

easy solutions to preventing homelessness or transitioning homeless from the street to a stable and supportive living situation.³¹ In fact, many homeless men and women may refuse offers to connect them with housing and social service resources.³² However, experience teaches that individuals who do not have a roof over their heads and a basic social support network are at increased risk of suffering from chronic illness, the physical and mental health problems associated with addiction, and possibly, death. Steep financial costs attach to these conditions: one homeless person's 63 emergency room visits in an 18 month period;³³ another homeless person's absence from the workforce due to unresolved addiction problems; and a child's failure to be enrolled in school leading to a potentially problematic lag in the child's social and intellectual development.³⁴

One successful example of an effort to solve homelessness is the 100,000 Homes Campaign, which was launched in the summer of 2010 in response to a comprehensive U.S. Government initiative to end homelessness.³⁵ The Campaign was spearheaded by Community Solutions, a New York-based nongovernmental organization, and it concluded in July 2014.³⁶

³¹ Intervention to assist homeless men and women already living on the street often consists largely of "individual emergency assistance in regards to basic needs . . ." See *id.*

³² Providers of social services acknowledge that their help is often declined, but they try to convince the homeless of the benefits associated with the assistance they are offering. See Dario Perez Madera, *The Work of the Samur Social in Bajasas International Airport* in HOMELESSNESS IN EUROPE, Summer 2012, at 14; Michel Dorin, *The Work Carried Out by the Aurore Maraude Ouest (Western Patrol) in the Bois de Boulogne: Its Target Group, Objectives and Partners*, in HOMELESSNESS IN EUROPE, Summer 2012, at 19 (noting the complexity of working with long-time homeless individuals because "they refuse to accept . . . offers of accommodation . . .").

³³ See Schmidt, *supra* note 30, at 5.

³⁴ Nicola Iodice, *The Creation of the "Bois de Vincennes MOUS (Social and Urban Project)"*, in HOMELESSNESS IN EUROPE, Summer 2012, at 17.

³⁵ The U.S. Government embarked on a national strategy called Opening Doors in 2010 through its U.S. Interagency Council on Homelessness. See U.S. INTERAGENCY COUNCIL ON HOMELESSNESS, http://usich.gov/opening_doors/ (last visited Dec. 1, 2014). The plan called for ending all veteran homelessness in 5 years (2015), chronic homelessness in 6 years (2016), and family/youth homelessness in 10 years (2020). See *id.* This federal plan was critical for mapping a path for cities who wished to fight homelessness. But it was clear that local leadership would have to be engaged for the goals to be met. The federal government thus began supporting partnership efforts with non-governmental organizations, philanthropy, and local governments. In other words, the federal government needed and wanted ways to support local problem solving, such as the 100,000 Homes Campaign.

³⁶ See 100,000 HOMES, <http://www.100khomes.org> (last visited Dec. 1, 2014).

The Campaign aimed to work with communities to find and house their most vulnerable and chronic homeless citizens. Communities enrolled in the Campaign to secure support from peer cities, technical assistance, and to be part of a movement that included other local leaders committed to ending chronic homelessness. The Campaign leveraged cities' understanding of themselves as centers for, and of, problem-solving. This self-conception flows from the fact that cities are uniquely positioned to understand their communities' true needs and how to convince local stakeholders to invest in solutions to address those needs.

The 100,000 Homes Campaign's goal to create a specific number of housing units required cities to maintain data concerning their efforts to eliminate homelessness. 186 communities participated in the Campaign. Each city reported monthly on how many chronic homeless they placed into permanent housing and how that matched against their census of total homeless. This continual collection and reporting of data helped local leaders assess exactly how much more they needed to plan for in terms of resources and long-term costs.³⁷

Some of the most creative solutions that came from the 100,000 Homes Campaign communities did not come from the federal plan, or even the national NGO that was driving the Campaign. They came from the communities themselves sharing with others and improving upon good ideas to make them an even better fit for a particular city.

Rooflessness (Homelessness) in Barcelona

In searching for the best approaches to helping its homeless citizens, Barcelona is a leader among European Union cities. As a member of EUROCITIES, a collaborative effort of 130 large European cities, Barcelona shares and advances policy solutions on a range of problems facing urban areas.³⁸ Among these EUROCITIES members, Barcelona is one of nine cities developing a strategic model, called the "integrated chain", which aims to create an integrated homeless services systems approach that can be copied and deployed across Europe.³⁹

³⁷ This push for knowing better data has moved outside of the US. Australia recently launched a campaign and Canada is moving towards their own national launch in mid-2015.

³⁸ EUROCITIES, *EUROCITIES REPORT ON CITIES' STRATEGIES AGAINST HOMELESSNESS: THE INTEGRATED CHAIN APPROACH*, 2012, 2. The 2012 EUROCITIES report updates an earlier 2009 report.

³⁹ See *id.* at 4.

The “integrated chain” approach acknowledges that there are many different types of interventions that cities must use to fight homelessness, from intake services, to “non-accommodation daytime” (i.e., nonresidential) services, to short-term nighttime shelter housing, to general supportive housing, and permanent long-term independent housing solutions. Including these five types of interventions, the EUROCITIES “integrated chain” initiative defines a total of ten critical categories of services necessary to meet the demands of a city’s homeless population. Barcelona and the other eight members of the EUROCITIES Working Group on Homelessness (WGH) recognize that there can be no hope for a comprehensive approach to homelessness unless all ten types of services for homeless individuals are seamlessly integrated.⁴⁰

Barcelona makes significant investment in social programs, including the recent construction of temporary housing for homeless individuals.⁴¹ Previously, the City of Barcelona’s principal engagement in addressing homelessness has been to take a periodic census of the city’s roofless population.⁴² The city completed its last head count in 2011, finding that the homeless population numbered 2,791.⁴³

Barcelona, the Smart Cities Movement and Ending Rooflessness

Although its smart cities initiatives may not be focused on eliminating homelessness, Barcelona has a track record of deploying social policy programs to assist its most vulnerable citizens and a demonstrated commitment to critically evaluating those social programs. Its historical efforts in this regard suggest that Barcelona is an optimal setting for connecting the smart cities movement to forward-thinking, technology-enhanced solutions to social issues, including the challenge of eliminating homelessness.

In hosting local government officials from peer European cities, Barcelona’s Mayor Xavier Trias explained his belief that Europe’s cities are the appropriate environment to test and implement European social policy.⁴⁴ The City’s current

⁴⁰ See *id.*

⁴¹ *Cities essential for success of Social Investment Package*, EUROCITIES (MAR. 10. 2014) (hereinafter *Cities essential for success*), <http://www.eurocities.eu/eurocities/news/Cities-essential-for-success-of-Social-Investment>.

⁴² Interview with Guillem Fernandez, Ph.D. Candidate, University of Barcelona (May 9, 2014).

⁴³ See Spain FEANSTA Country Fiche (Updated Autumn 2012) (Dec. 1, 2014), http://feantsa.org/spip.php?action=accéder_document&arg=1521&cle=2a1a7381ab78427305f54e0d3bf720ab7d633f64&file=pdf%2Fspain.pdf.

⁴⁴ See *Cities essential for success*, *supra* note 41.

three year Social Inclusion Plan suggests that the Mayor's words are not merely political rhetoric.⁴⁵ In response to much higher levels of poverty among the elderly, disabled, unemployed and children following the 2008 international financial crisis, Barcelona has increased its commitment to advancing social policies that promote the welfare of its most vulnerable citizens.⁴⁶

At the same time, the City has also commenced an effort to evaluate critically the benefit of these expensive social programs.⁴⁷ The goal is to work with its social program stakeholders – the recipients of services, the Spanish government, the regional Catalan government, and the City government – to ensure that these public investments are “delivering the best possible outcomes.”⁴⁸ In other words, the City's strategy is to move beyond traditional indicators documenting the number of people served and instead to view social programs as a long-term investment in the city and its people. This moves stakeholders to identify ways to improve services at a time when funding is shrinking and demand is improving.⁴⁹

The smart cities movement promotes exactly the type of collaborative, problem-solving dialogue among cities that is critical to any credible effort to end homelessness.⁵⁰ As peer cities from across the globe sit down to convene discussions about establishing a shared ‘grammar and vocabulary’ for defining and solving the challenges of the 21st century, this is also an opportune time for those cities to ensure their lexicon includes the most advanced tools and metrics for battling rooflessness.⁵¹

Another important aspect of the smart cities movement's collaborative spirit relates to the continued struggle facing many cities in their emergence from the great 2008 financial crisis.⁵² Although these cities cannot necessarily afford to

⁴⁵ EUROCIITIES, *CITIES ON THE FRONTLINE: LOCAL PRACTICES FOR ACTIVE INCLUSION IN BARCELONA*, June 2013, at 2.

⁴⁶ *See id.*

⁴⁷ *See id.* at 3.

⁴⁸ *See id.*

⁴⁹ *See id.* at 11.

⁵⁰ *See* Flint, *Writing the Rules*, *supra* note 11 (describing the international Smart Cities' movement's effort to develop formal “working groups” among cities with the aim that cities contribute to helping solve each other's problems).

⁵¹ *See id.* (highlighting the view that “there still isn't a common language or science of cities for the 21st century . . .”).

⁵² Sommer Mathis, *The Rise and Fall and Eventual Rise Again of the 'Smart City'*, CITY LAB, Jan. 13, 2014 [hereinafter *The Rise and Fall*], <http://www.citylab.com/tech/2014/01/rise-and-fall-and-eventual-rise-again-smart-city/8081/>.

purchase cutting edge information technology solutions promoted by Siemens, IBM, Cisco and others, they can participate in the informal global problem-solving discussions that smart cities will be carrying on. Further, cities which lack the resources needed to acquire high-end systems and programs can devise and implement their own home-grown solutions to critical urban problems.⁵³ Thus, the smart cities movement's emphasis on communication between and among global cities will promote both 'bottom up' and 'top down' opportunities for collaboration and problems solving.⁵⁴

For a movement grounded so firmly in using information technology to make local government's more efficient and more responsive to their citizens' needs, it is not surprising that when cities consider 'next steps' for their smart cities investments, they focus on projects that have broad general application.⁵⁵ Addressing traffic congestion or encouraging entrepreneurial collaboration tops their list of priorities.⁵⁶

However, among leading 'smart cities', it is apparent that less thought is given to how technology and data can be used to tackle social problems. There are few explicit mentions of how the technology can be used to streamline government assistance programs, to manage prison populations efficiently, or to eliminate homelessness. This is not to say that the plight of a city's homeless is not recognized as a pressing social problem. One priority on which many 'smart cities' agree is that there is a need to expand access to information technologies to those who currently do not have access.⁵⁷ Another priority is to give public broader access to data that can help social entrepreneurs and businesses tackle problems that are most important to them.⁵⁸ Further, a natural extension of this disposition toward openness and collaborative problem solving is the generally outward looking view of these cities. Smart cities value collaboration among cities – whether that means direct meetings with counterparts in other cities⁵⁹ or connecting social entrepreneurs with entrepreneurs doing similar work in other

⁵³ See *id.*

⁵⁴ See *id.* (discussing the important solutions to urban problems that are likely to flow from so-called "do-it-yourself urbanism" or "DIY urbanism").

⁵⁵ See DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS, *supra* note 7, at 30. Better traffic management is an important goal for Boston and Stockholm.

⁵⁶ See *id.* at 25.

⁵⁷ See *id.*

⁵⁸ See *id.* at 30. In Boston, the city would like to make more information publically available concerning such issues as in-school student behavior and in-school disciplinary problems.

⁵⁹ See TOWNSEND, *supra* note 1, at 245 - 48.

cities.⁶⁰ Collaboration can also take place within a city, with the local government establishing relationships with non-profit and philanthropic institutions, such as colleges and universities, to assist the city in developing technologies and considering their broader application.⁶¹

Assuming that smart cities technologies can help create cities that function as proactive allies in the fight against homelessness, this possible panacea comes with well-known liabilities. Most people currently identify government-sponsored information technology and data collection as an invasive over-reach into the realm of private citizens. The camera technology, the sensor technology, and data storage capabilities that might save the lives of countless homeless men and women are also technologies that citizens know can be easily abused and misused.⁶² Data theft and misuse by hackers or disgruntled city employees and contractors represents a proven risk. To be sure, this risk of data misappropriation must be balanced against the promise that smart data collection and storage could easily save a city dozens of lives and millions of dollars in healthcare costs each year.⁶³

The smart cities movement will not solve the problem of homelessness in Barcelona. Even the best administered programs offering a wide range of assistance to homeless men and women may not succeed in convincing the homeless to forego the street for the possibility of permanent shelter.⁶⁴ The programming and accommodations sometimes offered do not always address the precise needs or expectations of homeless individuals to whom they are offered.⁶⁵

However, the smart cities movement provides not just an opportunity, but a platform for local governments to coordinate their efforts with businesses and

⁶⁰ The City of Boston collaborates with Emerson College. See DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS, *supra* note 7, at 32.

⁶¹ Boston's MONUM program views as part of its function connecting Boston's social entrepreneurs with those from other cities. See *id.* at 31.

⁶² Erica Rascon, *Smart Cities: Getting smarter every day*, The Balance Sheet – Yardi Corporate Blog, May 13, 2014, <http://www.yardi.com/blog/technology/smart-cities/8605.html>.

⁶³ Alessandro Radicchi, *The Geographies of Homelessness: The Case of Italian Railway Stations*, in HOMELESS IN EUROPE, Summer 2012, at 12.

⁶⁴ Susannah Young, *The Geographies of Homelessness: Homeless Experiences and Homeless Policy in Different Spaces*, in HOMELESS IN EUROPE, Summer 2012, at 3.

⁶⁵ See *id.*

community.⁶⁶ In this regard, the smart cities movement could help to better facilitate the following policy objectives:

- Increase funding for finding solutions to rooflessness, including:
 - Social Impact Bonds – either through private investment⁶⁷ or through crowdfunding,⁶⁸ or
 - Mission-driven collaborations between local government and philanthropic or non-profit organizations.⁶⁹
- Cultivate of innovative ideas for solutions to rooflessness, such as:
 - Engaging social entrepreneurs to invent computer applications (or “apps”) to attack the rooflessness problem.⁷⁰ The key here is defining problems clearly so that the entrepreneurs can devise technological applications or ‘apps’ to address the problems.
 - Using the City as a social entrepreneur ‘match-maker’ to connect social entrepreneurs who are trying to solve the same problems.
- Promote “Smart” Interventions, including:
 - “Hotspotting” as employed in New York City: using data to identify individuals who frequently use New York City emergency rooms so

⁶⁶ The City of Chicago describes its smart city initiative as “aligning the interests of industry, community, and the public sector” through a shared focus on economic development. See DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS, *supra* note 7, at 8.

⁶⁷ See, e.g., EUROCITIES, *Social Impact Bonds – in search of new funding strategies*, June 14, 2012, <http://www.eurocities.eu/eurocities/news/Social-Impact-Bonds-in-search-of-new-funding-> (reporting that the European Invest Bank indicated its interest in raising private capital for financing social program investments by using the European Social Fund (ESF) for Social Impact Bonds).

⁶⁸ See Mathis, *The Rise and Fall*, *supra* note 52.

⁶⁹ A valuable illustration of this overlap is the four-year 100,000 Homes Campaign, which was spearheaded by a New York-based nongovernmental organization and concluded in July 2014. At its core, the 100,000 Homes Campaign, which was launched in July of 2010 by the non-governmental organization Community Solutions, aimed to work with communities to find and house their most vulnerable and chronic homeless citizens. Communities enrolled in the Campaign to secure support from peer cities, technical assistance, and to be part of a movement that included other local leaders committed to ending chronic homelessness. See, e.g., <http://www.100khomes.org>.

⁷⁰ See Mathis, *The Rise and Fall*, *supra* note 52 (observing that so-called technology “geeks” are inclined to invent ‘apps’ that define the quickest bicycle routes or the near artisan cocktail bar, but they are not as inclined to apply their skills to solving homelessness unless they are given the incentive to do so).

- that the City can dispatch “outreach teams” to provide those individuals with preventive healthcare assistance.⁷¹
- On-line direct donation systems such as Hand-Up⁷²: Web-based giving platforms are now a standard part of the fundraising mode for non-profit organizations. In May 2014, a San Francisco-based start-up, Hand-up,⁷³ won the Smart Cities Challenge Cup’s Domestic Award Category for its on-line donation system that allows homeless individuals to create and post a profile that details their specific needs – food, clothing, medical care, etc. -- and allows donors to give directly to the homeless individuals in order to help support their goals and meet their needs.
 - Data integration: using a city’s “open data” resources⁷⁴ to examine police reports, crime statistics, health clinic visits, library visits (computer logins or book check-outs) to identify individuals who are at risk or in need of special healthcare or social services.
 - Encourage creation of “On-line diaries”, “Digital Homes”⁷⁵ or “File Cabinets”⁷⁶: it is time-consuming and potentially life-threatening for homeless individuals not to have access to important health records, medication logs, and other personal information critical not only for obtaining healthcare but also for seeking jobs. The on-line diaries also provide local governments with a current and evolving map of where homeless individuals live day-to-day.⁷⁷ These on-line diaries are already in use in European Union cities.⁷⁸
 - Use advanced mapping resources: social services, non-profit, medical, and law enforcement staff may all have separate and multiple interactions with homeless individuals during the course of a week, month or year. Aggregating this information and mapping the services provided to homeless individuals or interactions with them can help

⁷¹ See Rascon, *supra* note 62.

⁷² Ronald Barba, *HandUp and MellowCabs Win Challenge Cup Smart Cities Semifinals* (May 16, 2014), <http://tech.co/handup-mellowcabs-wins-challenge-cup-smart-cities-semifinals-honorable-mention-reaction-2014-05>.

⁷³ See HANDUP, <https://handup.us/> (last visited July 30, 2014).

⁷⁴ The City of Chicago, for example, makes available to the public 851 data sets including information ranging from energy usage to public health to crime. See Rascon, *supra* note 62.

⁷⁵ The City of Chicago’s Smart Health Centres initiative offer similar services to low-income individuals. See DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS, *supra* note 7, at 9.

⁷⁶ See MICROSOFT CITYNEXT, Health & Social Services (Dec. 1, 2014), <http://www.microsoft.com/en-us/citynext/health-and-social-services.aspx#fbid=keG-hdCpO3l>.

⁷⁷ See Radicchi, *supra* note 63.

⁷⁸ See *id.* at 12.

local governments anticipate needs and consider additional possibilities for interventions.⁷⁹

Conclusion

To single out Barcelona for progress it can make in eliminating homelessness is not to diminish the city, its rich history, and its inspiring recent accomplishments. Barcelona's reputation as a leading world city is hard earned and well settled.⁸⁰ It is a city to which others across the globe look for leadership in the area of cutting edge advances in city development.⁸¹

Nor is Barcelona complacent with its status as one of the world's premier cities. It has already staked its place among global cities committed to using the newest technologies to create an urban environment that not only functions at the highest level of municipal efficiency, but creates a more dynamic and flexible urban working and living environment that allows residents and businesses to thrive. In short, Barcelona's status makes it a beacon of innovation. This preeminent status allows it to serve as a city that can do the thinking and the problem solving and innovating that can be tried and proven and then shared with other cities – cities across European Union and the globe who may be too taxed to focus resources on the challenge of how to eliminate homelessness.

Herein lies the challenge for Barcelona and all cities that stand out as hubs of innovation. Barcelona and its peer cities stand at a critical crossroads. The smart cities movement sees information technologies' enormous potential to transform the way local governments do their work. In the eyes of the movement's private and public sector advocates, the urban landscape is replete

⁷⁹ Mapping service providers' interactions with homeless individuals over time has been particularly important in rural settings insofar as it help various providers of services coordinate their efforts. See Iodice, *supra* note 34, at 17.

⁸⁰ Barcelona is widely considered to be among the world's most admired and alluring cities. In 2014, *The Guardian* published a list of the world's most powerful city brands and Barcelona notched number six on that list, notably ahead of Rio de Janeiro (#7), San Francisco (#8), Istanbul (#11) and Madrid (#12). See Chris Michaels, *From Milan to Mecca: the world's most powerful city brands revealed*, THE GUARDIAN (May 6, 2014), <http://www.theguardian.com/cities/datablog/2014/may/06/world-cities-most-powerful-brands-get-the-data>. Commentators also praise Barcelona as one of the world's best models of "city-building." See Toderian, *6 Ideas*, *supra* note 25.

⁸¹ Feargus O'Sullivan, *Is Tourism Ruining Barcelona?*, THE ATLANTIC CITIES (Apr. 21, 2014), <http://www.theatlanticcities.com/jobs-and-economy/2014/04/tourism-ruining-barcelona/89> (commenting that Barcelona has long been a model for cities globally who are trying to reinvent themselves through revitalization or their waterfronts).

with opportunities for improved efficiency and cost savings. Those advocates are hard at work building out networks of smart technologies to make cities even more inviting and sustainable places to live. But will Barcelona and other leading cities blindly follow the new technologies' lead? Or, will they remain continuously mindful of how the technologies can best serve all their citizens – those who have substantial resources and those who do not, those with homes and those without.

In the middle of last century, a previous generation of cities excitedly welcomed the automobile.⁸² Those cities readily ripped up street car tracks and bulldozed their most economically disadvantaged neighborhoods to make way for the promise of a more dynamic transportation system that would ensure cities' continued property. In so doing, however, the allied forces of industry and government planted the seeds of sprawling contemporary cities that are barely sustainable, increasingly segregated, and progressively more stratified economically. Now is the time for Barcelona to seize the opportunity to ensure that this promised new generation of technologies fortifies cities and all their citizens. This is only possible when cities are created for everyone who lives in them.⁸³ Cities at the forefront of the smart cities movement can and must include the goal of battling persistent urban problems, including homelessness. The smart cities movement provides a potentially powerful opportunity to leverage information technology and data resources to craft solutions that make cities more efficient, inclusive, affordable, and civilized places to live.

⁸² See TOWNSEND, *supra* note 1, at 18.

⁸³ See *id.* at 16 (quoting Jane Jacobs, who reflected that “cities have the capability of providing something for everybody, only because, and only when, they are created by everybody”).