

# Smart Cities, Transparency, Civic Technology and Reinventing Government

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## 1 Introduction

This chapter looks at the interaction between the smart city movement, civic technology and the gradual reinvention of public administration. Civic technology is an emerging movement that promises to span the gap between smart cities and traditional public management.

Through civic technology, businesses, nonprofits and civic associations are transforming government from the outside and changing communities, all within the context of smart cities and the smart cities movement. The chapter looks at the civic technology movement, the growth of civic hacking and other civic technology practices, open civic data and the creation and repurposing of a wide range of technology.

Communities throughout the world face a number of challenges that threaten their viability and the sustainability. While we are concerned with smart cities in particular, these challenges have an impact of communities of all sizes and types. Lack of community solidarity is an issue in many communities as the social capital deficit continues to play out (Putnam 2000). Many communities face issues of financial revenue decline, taxation issues and an inability to provide critical local services. Communities also face the inability to deal with larger interests from state and national government and big business. In the face of these issues, emerging technology provides a potential solution to the problem. Technology can help

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address these issues but is often outside the capacity of local government. There is, however, hope.

Over the past decade, businesses, nonprofit organizations and citizen groups have come up to the plate using technology to build their communities, improve government and resist outside forces. Organizations that are part of the civic technology movement (such as Code for America and the Knight Foundation), civic hackers and hackathons (Johnson and Robinson 2014; Stepasiuk 2014; Baraniuk 2013; McNutt and Justice 2016), technology enhanced local organizing groups, and other nonprofit actors are changing the face of communities (see Living Cities 2012; Hébert 2014; Baraniuk 2013; Goldstein and Dyson 2013).

The chapter has four parts. First, we will discuss the smart city movement. This brief section will provide context for the overall argument. Second, the civic technology movement will be presented and carefully differentiated from related concepts in technology. Third, we will present civic technology as a conceptual bridge between smart cities and traditional public administration. Our final sections examine how changes in these three areas in interaction could revolutionize the future of each of the enterprises, discuss how the expected skill set of public managers may change, and offer conclusions.

## ***1.1 The Smart Cities Movement***

The 21st century city is connected “not by road networks but by digital networks” (Townsend 2013, p. 7). It is characterized by mobile capital, a global workforce, grids, and telecommunications infrastructure that serve as a spatial fix (Harvey 2001). That is, the geographically bound city that was defined primarily by its built environment has been replaced by a floating city. Some fear that this means that cities will be abstracted from social and cultural ties, their built environment rendered obsolete, and their overall existence undermined by technology (Greenfield 2013). That is, “We are headed for the death of cities, which are nothing more than leftover baggage from the industrial era” (Mitchell 1999, p. 157). But although cities today face a unique set of physical, technological, demographic, social, cultural, environmental, and economic challenges, instead of withering away, they have the potential to become symbiotic environments of place and cyberspace (Townsend 2013, p. 6).

The term “smart city” is used to encapsulate responses to these challenges (Chourabi et al. 2012). “Smart city” also conceptually mediates the tensions between the city that is grounded as a physical entity and the city that floats as a networked part of a global system. At the core of the smart city is its use of information and communication technologies (ICT). However, a smart city is more than a digital city or intelligent city (Al Waer and Deakin 2011). It is broader in scope than the use of technology alone (Hollands 2008). There are normative goals for process and outcomes. A smart city is one where “investments in human and social capital and traditional (transport) and modern (ICT) 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. 2011, p. 70). That is, ICT should play a role in both hard (e.g., buildings, energy grids, mobility etc.) and soft domains (e.g., education, inclusion, government) (Neirotti et al. 2014). This definition highlights that the use of technology in itself will not be transformative—that governments will have to make concurrent investments in the built environment and those who inhabit it.

## 1.2 *Smart Citizens*

Indeed, Albino et al. (2015) refer to citizens as the “protagonists” of the smart city. When smart cities place a premium on smart citizens, they emphasize creativity, education, and learning. When this emphasis is realized and nurtured, smart cities become the center of higher education, better-educated individuals, and skilled workforces (Winters 2011). In order to promote creativity, education, innovation, and learning, however, smart cities should be governed by smart governments that remove barriers to participation, knowledge, and services. Access to knowledge and services will help build intellectual, social, and human capacities. This in conjunction with the facilitation of civic participation will allow governance to be citizen-centric and citizen-driven (Albino et al. 2015). When citizens are able to fully participate in governance, it results in sustained interaction and partnership between citizens and their government. This further creates a smart community where collaborative governance affords better opportunities to tackle wicked problems (Meijer et al. 2015). As Caragliu et al. (2011) definition of smart cities suggests, ICTs, then play a central role in building human and social capital and promoting participatory governance.

Even so, there are concerns that the term “smart city” is often used in a cursory manner and as a marketing ploy (Caragliu et al. 2011); that smart cities are built for and by business rather than people (Greenfield 2013); that they are a new form of panopticon; that they might obfuscate democracy and engagement; that they might widen inequities in terms of who has access to information and the quality of information that is accessible (David et al. 2015); and that they might be “economically polarized, and socially, culturally, and spatially divided” (Hollands 2008, p. 312).

## 1.3 *Smart(er) Cities? The Complicated Roles of Sustainability, Intelligence, Transparency, and Participation*

The concerns articulated above might be alleviated in the following ways: first, by reiterating that smart cities are more than the ICTs that form their core—that is,

smart cities should be smarter (David et al. 2015). To do this, scholars have deconstructed the concept of the smart city and offered several comprehensive ways of reconstructing it. Chourabi et al. (2012) suggest that successful smart cities focus on at least eight factors. These are management and organization; technology; governance; policy; people and communities; the economy; built infrastructure; and the natural environment. Similarly, Lombardi et al. (2012) propose that smart cities have six key dimensions: a smart economy; smart mobility; smart environment; smart people; smart living; and smart governance. These factors and dimensions form the basis of sustainability: the balance of environmental, economic, and equity goals (Campbell 1996; Marsden 2008), as articulated in Caragliu et al. (2011) smart city definition.

Second, by emphasizing that smart cities are built around the intelligence function: the creation, accumulation, consolidation, and liberalizing of knowledge. Knowledge would be collected from a variety of sources and disseminated to variety of sources (David et al. 2015). This is self-reinforcing. Citizens, as part of the knowledge network would be well informed and in turn would also serve as knowledge creators. That is, ICT investments have the potential to support transparency, and in doing so can foster mutual learning by citizens and decision makers, ensure decision makers are accountable to citizens, and promote participation of citizens in governance. Mutual learning is facilitated by two types of transparency [as distinguished by Heald (2006)]. “Inwards” transparency would facilitate citizen’s knowledge of decision makers’ actions and “outwards” transparency would facilitate decision makers’ knowledge of citizens’ needs and expectations (David et al. 2015).

ICT supports transparency by making it easier for government to make large quantities of data and information (e.g., budgets, meeting minutes, and plans) available to citizens; for citizens to consume this information when and where they choose (e.g., streaming city council meetings from the comfort of their home); and for citizens to communicate with their government and each other (e.g., surveys, discussion boards, and social media). The cumulative impact of this knowledge circuit is that both citizens and decision makers are informed and the feedback from citizens to government and government to citizens would truly be a loop. This symbolizes truly participatory and collaborative governance by signaling a “shift in the balance of power between...business, government, communities and the ordinary people who live in cities” (Amin et al. 2000 as cited in Hollands 2008, p. 315).

Third, by underscoring the importance of interaction in the quest for participatory governance. That is, communication must not be unidirectional. Citizens must also not be passive recipients of information. Rather, communication should be two-way, interactive, and should allow opportunities for citizens to influence public policy decisions (see Arnstein 1969; Greitens and Strachan 2011; Reece 2006). McMillan (2002) offers four categories of cyber-interaction: monologue, feedback, responsive dialogue, and mutual discourse. Monologue is unidirectional (e.g., information provision). Feedback is one-way communication with limited opportunities for responses (e.g., e-mail). Responsive dialogue is asymmetric two-way

communication (e.g., e-commerce and customer support websites), and mutual discourse allows full participation and discussion.

Others have conceptualized ICT enabled interaction as transactional, administrative, and participatory (see Musso et al. 2000). Transactional and administrative interactions allow government and citizens to interact as providers and recipients of services (e.g., applying for permits and paying parking tickets). Participatory interactions, on the other hand, focus on citizens' civic responsibilities and government's role in enhancing democratic participation (e.g., participation in policy making). Scholars assert that governments tend to primarily focus on monologue, feedback, and responsive dialogue, and emphasize their transactional and administrative functions (e.g., service delivery) over their civic functions (e.g., democratic participation) (Evans-Cowley and Conroy 2006; Musso et al. 2000).

In their ideal form, smart cities, use ICTs to allow citizens to engage deeply (Coe et al. 2001, p. 92), climb to the highest rungs of Arnstein's (1969) ladder, and use "information technology to enhance democratic debates about the kind of city it wants to be and what kind of city people want to live in" (Hollands 2008, p. 315).

## 2 The Role of Civic Technology in Creating Smart(er) Cities

Civic technology is a nascent movement that has the potential to assuage concerns about where smart cities might fall short, and help smart cities attain the highest order of holistic, knowledgeable, and interactive participation by opening up possibilities for fundamental changes in the working relationships among city governments, citizens, and civic organizations. Civic technology goes beyond more familiar forms of transparency, citizen engagement, and service-quality management by making synergistic use of contemporary ICTs, open civic data, and civic and service apps to support innovative practices that potentially could render permeable or even partially dissolve the boundaries of government organizations. In this sense it represents a possibly disruptive innovation with the potential to be qualitatively different from, rather than just an evolutionary extension or outgrowth of, late-twentieth century reform movements such as the New Public Management (NPM) or Reinventing Government (Behn 2001; Kettl 2000; Osborne and Gaebler 1992).

In normative, aspirational terms, civic technology may be defined as, "The use of digital technologies and social media for service provision, civic engagement, and data analysis [in ways that have] the potential to transform cities and the lives of their low income residents" (Living Cities 2012, p. 3). In descriptive, measurable terms, civic technology may be defined as,

a set of *collaborative practices* that local governments and external stakeholders pursue in order to engage citizens and civic groups in jointly developing and using *ICT tools and applications* that make use of *open civic data* to improve service delivery. (McNutt et al. 2016, p. 168)

It is this emphasis on collaborative practices in particular that distinguishes the civic technology movement from NPM- and Reinventing Government-influenced uses of modern ICTs, such as e-government, in which “politics on the internet is simply politics as usual” without marked changes in citizen participation (Pérez et al. 2008, p. 383). By integrating active multilateral engagement and collaboration with the use of ICT and open data, civic technology has the potential to “subvert the top-down, corporate vision some offer as a smart city. The large-scale diffusion [of the task of knowledge production allows] individuals to share data collectively and extract information instantly” (Mitton et al. (2012) as cited in Albino et al. 2015, p. 9).

The landscape of civic technology focuses primarily on the themes of open government (e.g., data access and transparency, data utility, public decision making, resident feedback, visualization and mapping, and voting) and community action (e.g., civic crowdfunding, community organizing, information crowdsourcing, neighborhood forums, and peer-to-peer sharing) (Patel et al. 2013). In doing so, it allows a seamless completion of the knowledge circuit mentioned previously as vital to the effective functioning of a smart city.

Finally, rooted in the enhancement of public services, spaces, place-based networks, and community forums (Patel et al. 2013), civic technology liberates technology and information in one sense but also firmly grounds it in another. This relieves concerns that smart cities may be abstracted from the realities of their geographies and highlights the importance of place.

## 2.1 *The Civic Technology Movement*

McNutt et al. (2016) anchored their descriptive definition in the collaborative civic practices that distinguish participatory, more or less developmental (adopting here the protective- vs. developmental-democracy typology of Held 2006) uses of open data and ICT innovations from elite-managed protective approaches. At the same time, the established phenomenon of the digital divide, and the current nature of civic-technology collaborations as primarily involving collaborations between governmental elites and elite technorati, indicate that truly broad and deep, inclusive development of citizen capacities is not a realistic expectation for the civic-technology movement in the short-term. It is an open question at present how and to what extent practitioners of civic technology are in fact concerned with developmental goals as much as with technical efficiency and protective goals.

Organizations and individuals involved in the emerging civic technology movement include the Knight Foundation, Code for America, the Sunlight Foundation, the Open Knowledge Foundation, and a host of local hacktivists and community organizers. Although arguments for civic technology as a distinctive practice are not widely couched in the language of explicitly *political* transformation, even the language of the Living Cities (2012) definition does indicate that some type of transformative change is sought. Indeed, many of the leaders of local

and international efforts to develop civic technology do appear to be aware of the potential for the synergistic integration of open data, technology applications, and the associated practices to cause the crossing, or even rendering porous, of the traditional organizational boundaries that distinguish local governments from other organizations, associations, and citizens other than city employees. This type of partial dissolution of organizational boundaries and reconstruction of the practices of designing, selecting, and delivering local policies and services has the potential to be disruptive. What is not yet clear is whether that disruptive transformation, if and when it occurs, will bring about genuinely inclusive development of citizens' capacities for self-governance or simply serve as a means for technologically literate and socially connected elites to increase their influence, however well-intentioned they might be.

For example, one statement of civic-technology aspirations, Code for America's "What we do" page (Code for America n.d.), appears to emphasize the technocratic side of the equation over transformation of the institutions of governance. The page lists three things governments "must do" in the 21st century: "Be good at digital," "Ensure policy and implementation work together, and are centered around the needs of the people," and "Be a platform for civic engagement and participation." The more specific resources linked from that page talk about best practices in technology development, the value of open access to data, and the importance of changing organizational cultures to make them more accepting of innovation. There is nothing about dissolving boundaries or directly organizing and engaging the "low income citizens" invoked by Living Cities.

Still, there seems little question that substantial adoption of civic technology in its fully engaged form could at the very least involve significant changes in the operations of local governments, the permeability of their organizational boundaries, and the ways in which government employees interact and share operating and decision making responsibilities more directly with at least the technically adept among their citizens.

## ***2.2 Elements of Civic Technology***

As the definition offered by McNutt et al. (2016) indicates, the three major elements of civic technology are (1) open civic data, (2) the technological applications that facilitate multi-directional sharing of information among stakeholders inside and outside of government organizations, and most critically (3) the collaborative practices that make use of data and technological tools to transform the processes and outcomes of local governance. Empirical research in the U.S. suggests that while some aspects of civic technology are becoming commonplace there, much of the movement's potential has not yet been fully realized. As could be expected in the case of a still-developing movement, the most potentially transformative aspects of each element of civic technology are as yet not very widely or fully developed.

**Open Civic Data** Contemporary information-management hardware and software, including electronic databases and enterprise resource planning (ERP) systems facilitate the storage and easy retrieval of comprehensive and detailed administration and operational data by organizations. Contemporary communications and information-sharing technologies such as the Internet facilitate cost-effective, engaging dissemination of information in a variety of formats, including raw data, documents, and custom-generated data visualizations and analyses. The open civic data component of civic technology is related to broad efforts aimed at promoting transparency and open government, but focuses specifically on using ICT tools to make government data extensively and useably available to citizens.

A particular focus here is making basic administrative data, such as real property records; information on government contracts and payments; financial accounting and budgetary data; crime data; and planning and zoning information available. Using the open-data categories from the U.S. City Open Data Census (Open Knowledge Foundation 2015), McNutt et al. (2016) found that the availability of open civic data varied widely within a sample of 162 U.S. municipal governments that ranged in population from 74 to over 600,000, with a median population of 41,011. Most of the sampled municipalities provided budgets and financial reports on their websites, half provided zoning information, nearly half provided crime-report information and two-fifths provided detailed information on city spending. Many other types of information were much less widely available, however, and very little data was analyzable on demand or available for downloading in machine-readable form.

**Technology** Key facilitative ICTs for the civic technology movement include the fundamental infrastructure of the Internet and Worldwide Web; the category of interpersonal communication applications termed social media and Web 2.0; and a variety of other applications meant to facilitate multi-way communications and information exchange, data access and analysis, and collaboration. Social media tools—blogs, wikis, micro-blogs such as Twitter, social-networking sites, and the like—support the exchange of information and ideas between governments and citizens, and among citizens. More specialized civic technology applications include service applications such as Fix My Street, civic mapping, political-participation forums and neighborhood forums, civic crowdfunding, crowdsourcing, and data visualization tools.

**Collaborative Practices** While open civic data and ICT are arguably the basic building blocks of any vision of smart cities, it is collaborative practices that constitute the defining essence of civic technology as a social movement, and represent its most revolutionary potential to foster the civic dimensions of smart cities, by reinventing government operations and decision making from the outside in. This is the element of civic technology that moves reform most strongly toward the type of developmental, participatory impulses that motivated one faction among the U.S. Progressives, and less toward the more narrowly efficiency-focused, managerialist and protective perspectives that informed later twentieth-century reforms that such as NPM and Reinventing Government, with their view of citizens

as customers to be served. One dramatic illustration of the potential power of civic technology was use of social-media and other contemporary ICTs to support information sharing, organizing, and political mobilization by the Arab Spring movements of 2011.

Information crowdsourcing, Code for America fellowships, local contests, civic hacking and hackathons, and local groups of technologists such as Code for America brigades are among the most widely identified civic technology practices (Living Cities 2012). What all of these practices have in common is that they bring people from outside government and provide a means for them to be involved in changing government.

There are a number of practical examples of how civic technology works. FixMyStreet (<https://www.fixmystreet.com/>) is a program in the United Kingdom that was created under the auspices of MySociety by nongovernment technologists. It allows citizens to report public works problems (such as potholes, broken benches and so forth) and to track if government has made the necessary repairs. There is an underlying political dimension to this system because if the work is not performed, complaints are documented. In the United States, technologists were able to use open data from the Delaware Department of Transportation to create a map where the public could see which roads were being plowed (Podraza 2016). This is not only directly helpful to motorists. It also represents a source of data for civic involvement to assess whether and how services are or are not delivered.

**The Relationship Between Civic Technology and Smart Cities** It is useful to think of smart cities and civic technology as a balanced relationship where smart city elements address the more macro aspects of the relationship while civic technology integrates government, nonprofits and the community into the whole. Together these two components create a technology-enhanced core for the city.

### 3 Civic Technology, Smart Cities and Public Management

Smart cities and civic technology share a common wellspring composed of advances in technology and progress in open civic data. This creates a useful dynamic, as these two movements support and enrich each other. Civic Technology represents the “feet” of the smart cities movement. It provides a firmer model of how to incorporate individual citizens as well as a more substantial approach to bringing in other partners such as smart nonprofits and civic associations. It also allows us to incorporate some of the other technological trends that area affecting urban spaces such as the Internet of things (Atzori et al. 2010), the sharing economy, big data, predictive analytics and the growing set of applications in Web 3.0. Civic technology, then, offers a number of advantages for creators of smart city efforts.

Civic technology brings in smart nonprofits and civic associations. While nonprofits have had a hard time catching up to public sector and commercial

organizations, there are many nonprofits that make extensive use of technology. This can operate well within the civic technology world. Organizations like Code for America are nonprofits. The ability to incorporate virtual groups of citizens is critical. Civic technology also brings in the business sector. Smart businesses, start up efforts and so called Unicorns will see the advantages of civic technology.

What civic technology ultimately does is to blur the boundaries of the three sectors by allowing the reinventing of government from the outside. Representatives of both the nonprofit and business sector are partnered with government to create new technology based applications. These technologies are the government to a wide range of citizens. This continues a process that began many years ago.

The dividing lines between the three sectors were at one time formidable. Anything more than casual interaction was difficult, even impossible. In the 1980s, that began to change. Nonprofit health and welfare organizations began to accept purchase of services contracts from government under the label of privatization (Smith and Lipsky 1993). At the same time, outsourcing to business began in earnest. Three decades later, quite a bit of formally government activity has been contracted out, outsourced or coproduced. Businesses and nonprofits fight our wars, run our prisons and heal our children. As Kettl (2008) notes, contracting creates problems of control.

While privatization changes the size of government, it doesn't really change the internal workings of government. Civic technology has that potential. By involving a wide range of users in reinventing government it might move the needle a bit further toward the point where government and the community merge. This should be seen against our movement toward an information society.

Most of our understanding of the three sectors is based on our experience with the way the sectors developed in industrial era. While some of this is based on the Agrarian period, very little takes into account the changes that have and well occur as our information society evolves (see McNutt and Hoefer 2016). Postindustrial government will be different. Equally, nonprofit organizations and voluntary action will change. The industrial model tends toward bricks and mortar nonprofits with an occasional nod to unincorporated associations combined with government based on a similar set of concepts. Years ago historian Lubove (1965) explored how nonprofit social agencies were organized along the lines of a factory.

The same can be said about conceptions of government, particularly as they are identified in public administration. Early management theory owed much to the writer of industrial management.

Since the 1970s, the industrial model has given way to an emergent information society (McNutt and Hoefer 2016). This transition reenvision some of the basic assumptions behind how the sectors ought to be organized and what type of activities and organizations should be in it. It is against this backdrop that civic technology emerges as a postindustrial force to change government, nonprofits and communities.

## 4 How Civic Technology Can Reinvent Government

Civic technology is a small movement that offers large promises for both reinventing government and changing the nature of government-community relationships. It also comes at a time when online political action and the development of virtual life are beginning to show strength. Civic technology illustrates the potential of civic action to change government in important ways. It also signals that in some respects, the dividing lines between government and the community and nonprofits and the government is going to shift. We envision a progression similar to what is depicted in Fig. 1.

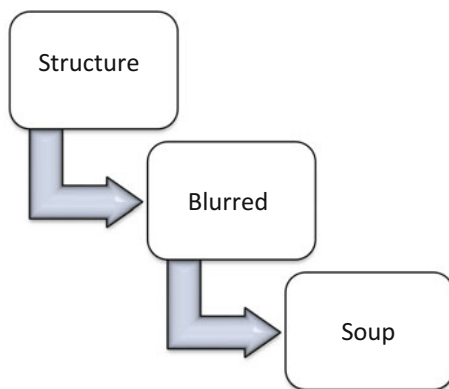
We start with a firm set of divisions between the sectors. In this nice, orderly world you know where you stand and what your responsibilities are. Caring factories interact with governing factories. This orderly world is more of an ideal type than a reality. There were always substantial interactions between the sectors.

The next phase reflects the blurring that was discussed above. The structure begins to erode because of government policy, a changing economy and a changed set of social values. Devolution and privatizations are the driving forces here, but might reflect larger changes in society.

The final phase portrays what could happen as movements like civic technology chip away at the established order. With online civic and political participation, virtual and leaderless organizations and a host of other innovations we can encourage a situation where interaction between government, nonprofits and the commercial sector is more organic and more positive.

We call this third phase “soup”. This means that nonprofits come together with citizens, government, and commercial organizations in creating community. Each participant adds their unique contribution to the community. This might lead to another round of changes in the nonprofit sector as bricks and mortar nonprofits are replaced by virtual organizations and ad hoc action groups as it becomes evident that there are real economies to be had. While we will always need more traditional organizations with physical presences to address some issues, virtual organizations

**Fig. 1** The progression of government/community relations



and individual action can perform many of the tasks that traditional organizations now perform. Economic models like the sharing economy might also fit in here and some of the elements (such as civic crowdfunding) are already included.

At this point, civic technology and smart cities could conceivably create a system where all components of the modern city can work together. This would substitute a network for the factory of old. This does not mean that there would be no structure, and it also doesn't mean that older forms of public organizations won't survive in some arenas. While networks effectively address a wide variety of issues, other issues require different forms of organization. We might therefore expect to see a mixed economy of networks and traditional organizations.

## 5 Changes in Public Management Practice and Education

Running a network is different from running a factory (Dunleavy et al. 2006). Much of the public management approach originally depended on theory that was developed for industrial organizations. Hierarchy, scalar chain, departmentalization and so forth are artifacts of those earlier times. This is replaced by how to leverage common pool resources in an effort to build communities.

Current approaches to change government differ from civic technology. The NPM and Reinventing models of reform call for making full use of available data and ICT to support improved service efficiency, transparency, and accountability, but they do so based upon a primarily managerial, principal-agent outlook that accepts the government organization as the basic focus of governance decision making and service delivery. If elected and civil-service managers were simply allowed to manage and innovate, and held accountable for managing efficiently and effectively, the argument goes, public services and governmental functions with a clear focus on expressly stipulated performance goals and measured results, they could deliver those results more efficiently and effectively.

These models thus relied, at least implicitly, on a more protective than developmental model of democracy (as distinguished by Held (2006)): one in which the purpose of popular control and the institutions of representative government is primarily to preserve and protect the material rights and interests of citizens. Here the role of citizens is that of consumers of services. Citizens as principals engage managers as agents to deliver public services and maintain order, using what the managers deem to be the most appropriate tools and techniques. ICTs and e-government can enhance managerial accountability and efficiency of administration in such a system, by rendering their administration of public affairs more transparent, but no more fundamental transformation of traditional government institutions or traditional managerial models of public organizations is called for.

By contrast, the radical idea behind the civic technology movement is its use of twenty-first-century ICT tools and the new modes of social interaction those tools facilitate to break down the boundaries between local government organizations and the constituencies they serve. This serves an espoused collaborative vision that

is grounded implicitly or explicitly upon a more developmental model of democracy, one in which democracy serves as a means to develop human potential for self-governance and provide institutions that provide space for the exercise of that realized potential (see Held 2006). This normative aspiration is apparent in the Living Cities (2012) definition, which identifies equity and engagement, as well as service delivery, as defining goals of the civic technology movement.

Public administrators will need to be planners and organizers as opposed to only administrators. They will need skills in managing networks and using resources that they do not control. They will need far more substantial skills in managing technology. Those administrators who want to work in a single organization and control only what happens inside it will be swept away. This process has been going on for decades and, while there are calls for change, the traditional program in public management is still essentially what it was years ago.

How good the “soup” is will depend on how well those in public service are able to adapt to changes in their environment. This will require new skills and a new set of perspectives. It will also be critically important to the future of smart cities. Going forward, public management education will be designed around technology and community. It will examine practice in new types of organizational environments. It will create a practitioner who can survive in the new environment.

## 6 Conclusions

Information technology and the emerging information society offer us a future that includes both wonderful vistas and horrible visions. They potentially can bring us the capacity for knowledge, communication, and sharing, as well as terror, exposure, and disaster. The same technology that can support a person, destroy a dictator, and create a sharing community can also bring cyberbullying, identity theft, and online terrorism.

The civic technology movement provides a fascinating opportunity to examine how a technology-led movement can affect the nonprofit sector. Civic technology could involve nonprofits in building government that is representative, responsive and collaborative. It could support traditional nonprofits and engender the development of a healthy and robust civic and political engagement.

When the civic technology movements combined with the smart cities movement even more exciting developments are possible. Communities are empowered to address their problems, meet the needs of their citizens and use the gifts that technology offers in important ways.

It can also mean that community is the locus for considering the future of public management. We look at the organizations and ignore the many other possibilities. There are emerging organizational forms that will frustrate existing theory. While there is a substantial literature on virtual organizations, where do they end and other types of organizations begin? The quasi business quasi nonprofit organizations that

interest some scholars are relatively tame by comparison with the potential of the nonprofit sector in cyberspace.

On balance, we could see this as simple procurement or, even worse, a manipulative attempt to capitalize on the altruism of the technology community. Worse yet, it could become something to control and regiment civic engagement. On the other hand, civic technology could create the opportunity for civil unrest. Tools like Fix My Street have the power to underpin political unrest and open data could be useful in the hands of activists.

Without civic technology, many of the things that have been discussed in this chapter will happen anyhow. The availability of technology, changing social structure and societal values and the global information economy will change government in important ways.

Transitions are always difficult and this one will not be different. We may wind up with a very bad soup, where services are not delivered and trust in government declines. On balance, we may see a new age where government and citizens work hand in hand and the best wishes of our public service forefathers are realized. While technology may be neutral, human nature is not. Any tool that is useful to government or philanthropy can easily be used by terrorists and tyrants. In the context of the smart city movement, civic technology can be a potent force for change.

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Rodríguez Bolívar, M.P. (Ed.)

2018, XVI, 196 p. 23 illus., 18 illus. in color., Hardcover

ISBN: 978-3-319-58576-5