

# Smart Cities + Smart Citizens = Civic Intelligence?

This is a preprint. The file that was actually submitted is formatted differently for journal

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The title of this chapter is admittedly a little cryptic. It's an algebraic way of introducing the relationship of three broad concepts which naturally won't succumb easily to simple relationships that "+" and "=" imply. The question mark at the end suggests that the relationship might not always hold. When faced with algebra problems, the basic goal is to isolate the unknown variable, which for the purpose of this exploration will be "smart citizens", and by the rules of the algebraic game we can always subtract equal quantities from both sides of the equation. Thus we can subtract "smart cities" from both sides of the equation in the title which results in a new view of the same equation:

Smart Citizens = Civic intelligence - Smart Cities?

The purpose of this chapter then is to use the concepts of civic intelligence and smart cities to determine the value of smart citizens. It is this "value" of smart citizens that we must learn, and then — moving out from the algebraic realm into the real world — contemplate how we ensure that we have sufficient smart citizens to make up for what the smart cities approach is unlikely to provide in our pursuit of civic intelligence.

## Civic Intelligence

From age-old problems like inequality, oppression, and natural disasters to the new ones like bio-terrorism, resource depletion, mass surveillance, nuclear annihilation, and climate change, problems seem to be growing faster than their solutions. If this indeed is the case, then our current approaches to governance are clearly insufficient. That, of course, seems to be at the root of many of the demonstrations, citizen outcry, and overall dissatisfaction with governments around the world. Things seem to be changing too quickly for the processes that we've historically relied on for them to be effective as quickly as they're needed. One way, in theory — the one that's explored here — would be for governance in a broad way to diffuse into the general population.

Of course, on some level the idea that people should play a strong role in their own affairs is non-controversial. This rhetorical perspective is quite common yet not always earnestly pursued. For this idea to take hold would mean renegotiation on many fronts between multiple sectors, between citizens and business, citizens and government, the powerful and the powerless. Business as usual would not be an option.

“Know the enemy and know yourself; in a hundred battles you will never be in peril.”

— Sun Tzu

The world, particularly the problems we face and the social web we now inhabit, is becoming more and more complex and we, as a society, must become more complex in our thoughts and actions in relation to it. Troublesome situations are often the result of myriad factors, many of which are hidden. These situations don't have a single solution, won't be solved all at one time, or for all times, and they can't be solved by one person or small group acting on their own. One doesn't unravel 21st Century problems with obsolete blunt instruments, nor even with trivial uses of sophisticated systems, clicking "like" on Facebook, for example. (See Morozov 2013). Sun Tzu's adage above clearly captures this point: if we don't know the enemy — the problems we collectively face — and we don't know ourselves — our skills and our limitations, we have put ourselves in peril.

## Will We Be Smart Enough, Soon Enough?

Time is critical. If we don't have the civic intelligence that we need soon enough, we will all pay dire consequences and, of course, some will pay more dearly than others. That this doesn't mean we need to run screaming down the street — even though that might be a perfectly natural reaction. Although that reaction may spur more people to pay more attention, it's not really likely to help clean up the messes we've created for ourselves. The time would be better spent trying to figure out how to be better coordinating our collective ability to address our problems. Each day that we delay in this task makes the tasks of addressing our problems more difficult.

While it may be true that we will know more tomorrow and/or be better suited for implementing the good ideas that we do have, those possibilities do not preclude the necessity of acting today. The problems based on our bad decisions — including not acting on good ones forcibly enough — are already in motion. Clearly the impetus is not just for doing *anything*, but instead, for moving forward with the aim of addressing our problems — and the aim of improving our ability to address our problems.

## Civic Intelligence is a Good Name for the Unidentified, Yet Critical, Resource

Whether our problems become more tractable will depend on the ability of people to solve their problems equitably and effectively by working together. We don't presently have a concept that is widely recognizable for describing this ability. The absence of this important concept makes it difficult to talk about it with others and, hence, to consider it as a critical cultural resource. I use the expression civic intelligence to mean the ability of a society, or even a small group, to comprehend the problems that they are faced with and develop approaches towards solving the problem that are equitable and effective. Civic Intelligence is an expression that has been used sporadically for over a hundred years in ways that were generally compatible with our use. Our hope is by popularizing the concept, it could help to inform and mobilize collective action.

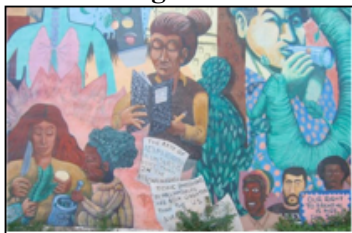
One half of the idea of effectively addressing problems means efficiently making the consequences of the problems less severe, while diminishing the ability of the processes that maintain the problem. But effectiveness does not tell the whole story. The word effective can assume a variety of meanings. Unfortunately, effectiveness is often characterized by a sort of efficiency, which can be evaluated mathematically in terms favorable to economic and political elites. That is why *equitably* is also key to the definition. This highlights the fact that the "solutions" to our problems aren't really solutions at all if they're not equitable to the people (and the earth) who are directly imperiled by the problems. Moreover, the types of problems we face, (especially the ones that are spurred forward by presumably inherent human traits like human jealousy, cupidity, or hatred) are not problems of logic or mathematics where there typically is an *answer*, and after the answer is found, the problem is solved. If we solve the problem of what is the result of multiplying two numbers together, that problem is solved forever. Time will not erode the answer nor will the people revolt (or vote) and establish a different answer. We do, however, suspect that it's possible to *reduce the damage* from our inherent — though somewhat ill-adapted for current needs — baser instincts, that are supported and magnified through a variety of social processes, institutions, and ideologies.

The idea of civic intelligence suggests that everybody has a role to play in the process of addressing shared problems. Civic intelligence needs to incorporate research to a large degree, but it has to be socially directed and followed through with action. This acknowledges that the research agenda is something that has to be negotiated and is not something that one needs credentials and an academic position to do. In all of our everyday lives we maintain implicit hypotheses of what we believe to be true which we are informally *testing*. Because of the massive impact of the economic sector, its activities need special scrutiny. Business needs of course to be considered within the civic intelligence perspective, but they are not the only player in terms of either provider or recipient.

Civic intelligence is applied to groups of people because it is through their interactions that public opinion is formed, decisions are made or at least influenced, and actions are taken. It applies to groups, formal or informal, who are working towards civic goals such as environmental amelioration or non-violence among people. This vision is related to many other concepts that are currently receiving attention (to a large degree, due to the actuality and potential unearthed by new information and communication systems) including collective intelligence, distributed intelligence, participatory democracy, emergence, new social movements, collaborative problem-solving, human smart cities, social learning, and Web 2.0.

Intelligence is systematic: it uses what is known and innovates for new situations; it requires both thought and action; it acknowledges that we must plunge forward even when we don't know everything. (Although we do know quite a bit about some things and we can also use our awareness of our ignorance to be intelligent!) If civic intelligence didn't exist, it would be necessary to invent it. Fortunately, it exists to some degree in all individuals and groups, and at the same time it could always be stronger!

## Civic Intelligence ~ An Example



### Civic Intelligence

Civic Intelligence describes how well groups of people address civic ends through civic means. It asks the critical question: *Is society smart enough to meet the challenges it faces?* Civic intelligence requires learning and teaching. It also requires *meta-cognition* — thinking about and actually improving how we think and work together.

The image and text above is from *Liberating Voices* (Schuler 2008), which contains 136 *patterns* for promoting civic intelligence. Each pattern acts as a seed that different people and groups can use in different ways. The Activist Road Trip pattern, for example, can be something as simple and non-threatening as taking a tour of local, social service agencies, or as dangerous and historically significant as the efforts during Freedom Summer in the southeastern United States to help register African Americans to vote in the 1960s. Our first pattern, *civic intelligence*, is both an example of an overarching topic and one "pattern" among many that is designed to help prompt people to be more engaged in civic research and action. The Civic Intelligence pattern can be used to spur just about any type of project from organizing a neighborhood event, to conducting a multi-national campaign — and everything in between and beyond. The sole constraint is that it helps to equitably and effectively address a shared problem collaboratively.

The graphic associated with this pattern is a section of a mural that's in a low-income neighborhood in New York City. The mural illustrates the risks that are associated with asthma, and shows all of the main elements of a repeating cycle including causes of the disease, symptoms, testing, treating, and possibly dying from the disease. It also presents a doctor and the health care system. One doesn't need to be able to read to understand the story, and the images in the mural are all drawn from the local community. As such, it's an excellent example of homegrown civic intelligence. The case illustrated by the mural also is reflected by several other patterns as well including Citizen Science, Power Research, Tactical Media, and the Power of Story.

## Capabilities of Civic Intelligence



*Fig 2. In December 2013, Alicia Capp, a student in the Social Innovation and Civic Intelligence program at The Evergreen State College, depicted the five main categories of civic intelligence capacities in terms of interacting systems in a human form. She mapped Knowledge to the head, Attitudes and Aspirations to the heart, Relational Capital to the outstretched arms, Organizational Capital to the core, and Financial and Material Resources to the foundation we stand on. I used Da Vinci's famous Vitruvian Man sketch, which is in the public domain to demonstrate Alicia's characterization.*

Based on our experience and research exploring the idea of civic intelligence for over a decade, we developed a framework that depicts the basic capabilities of civic intelligence. These capabilities have been suggested by a variety of studies from the perspective of various disciplines, each of which illustrate parts of the broader scope. The graphic above illustrates the main categories of these capabilities, which are discussed in more detail in (Schuler, 2014) from which the following summary is drawn.

- Knowledge; including a variety of knowledge-based capacities such as theory, knowledge of problems, skills, resources, self-knowledge and meta-cognition (thinking about and improving one's own thinking);
- Attitude and Aspiration; including a variety of capacities that are typically seen as non-cognitive but are essential for civic intelligence such as values, civic purpose, and self-efficacy;
- Organizational Capital; including the processes and structure of the collectivity that are needed to complete tasks effectively, such as personnel, work practices, and access to resources;
- Relational Capital; including reputation, social networks, trust, opportunities; and
- Financial and Material Resources; including money, buildings, land, etc.

People need to have knowledge, which is basically the sole purpose of current education. But without certain types of attitude and aspirations, the necessary pro-social focus may be lacking. And without organizational and relational capital, our ideas can't become realized.

While the use of the categories can be useful in the analysis of historic civically (or non-civically) intelligent activities, it is important to note that it is only through dynamic and interdependent employment of the capacities that any civically intelligent action is actually enacted. The capabilities are used together. One use of the framework would be in planning while another

could be used in diagnosing or assessing a given group or organization for its ability to use and apply civic intelligence.

The framework encourages us to think about intelligence in a broad way. People who work with seniors talk about the importance of self-efficacy, for example, the idea that people need to feel that they have some control over their lives, that they have agency, and are capable of doing things — completing tasks, succeeding. This is a very important part of civic intelligence, which seems to get lost when people are focusing on technology. If people believe that they are incapable — especially if society also encourages this feeling — they are unlikely to initiate anything new. There are some strong cultural memes that maintain social apathy: “That’s boring! It’s not fun to think about an ecological or a social problem.” Worse, it’s not “cool.” Although there are millions of exceptions, the stereotype of youth is that the right clothes, music, and digital devices constitute the basic markers of coolness. However, cultural slavishness is not only an attribute of the youth. To buck the ideologies and folkways of one’s peer community takes an exceptional person. William Gates (the father of multibillionaire Bill Gates) seems to be genuinely interested in building an equitable society at the same time that many members of his peer group seem to be obsessed with amassing more fortune. Unfortunately they are also successful in establishing ideologies that privilege wealth and the wealthy — and the policies to back them up — that power is something that can be purchased and those with money worked hard and deserve what they have and more, while the poor, through laziness or other inherent failings, deserve their lot. (Piff 2013).

### **Civic Ignorance Interlude**

Any study or deployment of civic intelligence necessarily introduces a counter force at the same time: *civic ignorance*. Civic ignorance, the collection of forces that discourage and degrade civic intelligence, is always present but not always considered. Neither civic intelligence nor civic ignorance is a precise thing, capable of being characterized with a number. We need to avoid the belief that we can be certain about either. (Which would show civic ignorance!) Civic ignorance and civic intelligence are inextricable aspects of human existence. At the same time, it's important to work towards improving our civic intelligence and discouraging civic ignorance and dampening its effects. Like civic intelligence, civic ignorance comes in various forms (Proctor & Schiebinger 2008). Some amount of ignorance is inevitable and even natural: we simply don't know everything — and we never will. We forget information, make errors in reasoning, and disregard ideas that don't conform to our beliefs. Some civic ignorance however, seems to be more conscious, calculating, and nefarious. This includes what could be called “the professionalization of ignorance” — when vast amounts of time and money are expended on campaigns which public ignorance is the sole objective. The campaign in the United States to downplay the health hazards of cigarettes, the deadliest artifact in history, is an important example, especially since many of the confidential documents that the cigarette companies produced have been made public. The current campaign cover-up and disparage scientific findings in relation to climate change (Bennett) is a good example of this due to its absolute relevance today into the magnitude of the damage it can potentially cause. At the same time it's critical to note that civic ignorance is being perpetrated – consciously and subconsciously– every day and at all levels. It's absolutely critical to note that acknowledging civic ignorance — even in ourselves — and endeavoring to understand it further — is, somewhat ironically, key to the development of improved civic intelligence.

### **Smart Cities**

While centered in Western Europe, the Smart Cities Movement is a worldwide phenomenon. It presents an innovative and important theme in relation to the infrastructure of cities. It generally means using “smarter” approaches, basically through the use of computers and sharing information. The idea is to use data and data processing to get more efficiency, less waste and pollution out of utilities such as electricity, road systems, water, etc. While very few people would disagree with those aims, there are significant questions that need to be raised in relation to this movement. These will be taken up in the next section, but for now, it should be mentioned that this is clearly a technologically focused argument. Moreover, it is most strenuously advanced by technologically focused corporations, whose primary mission is selling hardware, software, and technologically-oriented services. The definition below from the Smart Cities Readiness Guide was developed by the SmartCitiesCouncil (2013), whose lead partners include AT&T, Bechtel, CISCO, GE Digital Energy, IBM, and Microsoft.

“A smart city uses information and communications technology (ICT) to enhance its livability, workability and sustainability. In simplest terms, there are three parts to that job: collecting, communicating and “crunching.” First, a smart city collects information about itself through sensors, other devices and existing systems. Next, it communicates that data using wired or wireless networks. Third, it “crunches” (analyzes) that data to understand what’s happening now and what’s likely to happen next.”

We are reminded of the mythical young boy with the hammer who sees “nails” (or something that needs hammering) everywhere he looks. To a computer company every problem that we face is crying out for a computer program to solve it. Note that “collecting, communicating, and crunching” would also be part of the civic intelligence perspective. After all, using a civic intelligence requires that people perceive (“collecting”) problems, talk about them (“communicating”), and interpret information (“crunching”) but these chores cannot be accomplished solely with software — no matter how smart it may be. The complex and nuanced process of interpreting information should not be downgraded to the mechanical act of “crunching.”

The Smart Cities Readiness Guide offers other definitions of smart cities. A U.S. Office of Scientific and Technical Information

report states that “a city that monitors and integrates conditions of all of its critical infrastructures — including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings — can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens.” While mentioning the idea of “maximizing services” the predominant focus seems to be on monitoring physical structures and systems. Forrester Research goes beyond that with the assertion that “smart computing technologies” will make city services such as “city administration, education, healthcare, public safety, real estate, transportation and utilities — more intelligent, interconnected and efficient.” While computers can undoubtedly be put to good use in those areas, the implication that increased reliance on technology will yield greater and greater benefit is dishonest, whether or not it is intentionally implied by the Smart City proponents.

The guide does acknowledge roles for people through three “supporting practices” that help ensure that the technology is “planned, deployed and managed correctly.” The first is policy and leadership, and the second is finance and procurement. It is the third one, citizen engagement, that factors most directly into the themes of this chapter. Within the citizen engagement supporting practice, there are three points: “Continuously pursue two-way communication with citizens on deployment; offer an integrated, personalized citizen portal for services; and disseminate timely information about public safety, public health, transportation and other services that impact the public.” While mentioning citizen engagement is promising, the actuality is anemic. It implicitly asserts the view of citizen as a consumer or customer, not as a citizen. It reinforces the idea that the experts will save us.

### **What’s Wrong with “Smart Cities?”**

Certainly elements of smart city plans are thoughtful and creative and will help us address many of our urban issues, especially the ones that can be more-or-less reduced to *technical* problems. The main problem with the smart city orientation is that it is an incomplete solution masquerading as a complete one. It can divert our attention in two basic ways. The first, if the smart city approach is seen as a total solution, it is more likely to get the lion’s share of the resources. And why shouldn’t it? If it solved everything it says it will solve, then it’s probably worth a lot. The second implication is that it pulls attention away from deeper problems which are likely to grow worse while we focus on technology. Both implications can lead to diminished resources (of economic and human capital) that we can use.

It also asserts that social issues will go away if, for example, it becomes easier for us to pay bills online. Left unchallenged, the smart city orientation is a form of technological determinism. It’s what Evgeny Morozov calls “solutionism” (2013), the idea that a complex problem can be entirely solved — presumably for good, often with a simple remedy, and usually through some mechanistic and non-negotiable approach. Arguments that offer total solutions are arrogant and dishonest. My main objection, however, is that they are stultifying; they cut off discussion where discussion matters most.

It’s true that some, if not many, of the smart city texts mention the important role of people. Often, however, it seems like a second thought, and was added because someone had noted that it had been omitted. And even when the text is present, the bits about the citizen engagement aren’t always incorporated by the governments that purchase the advice and technological development from the smart city vendors. The smart city expectation that “data” is sufficient for city infrastructure management ignores the fact that social science “data” is not absolute, nonnegotiable, without politics, or unequivocally and discreetly translatable into something else. The bad news for those who would prefer a clear and unambiguous world is that it’s not true that we know precisely what social science data truly “means.” It becomes dangerous when it is assumed that complex social situations can be addressed through data crunching. Bill Gates is guilty of this when he claims that good (or bad) teaching can be strictly demonstrated via empirical testing. And his belief that “bad teachers” are responsible for all inequality could and should be used to drive educational policy is of the worst kind — especially if technocratic enterprises successfully sidestep the public arena. Calling education a type of infrastructure runs the risk of invoking this type of thinking (I’m wary of this when I use the expression *civic infrastructure* — which I sometimes do.)

How would we characterize the type of smart citizens we need to make up for the smart city deficiency in our equation? (We believe that this type of person is more likely to emerge when a stronger democracy (Barber 1984) is called for and people and groups feel that they are more valued and have a larger stake in the future.)

### **Smart Citizens**

“Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody.” — Jane Jacobs, *The Death and Life of Great American Cities*

It is not the intent of this chapter to bury the idea of smart cities — even if it could be done. The hope is to help challenge and inform in a vigorous and somewhat radical way. This discussion ultimately must ask the question, *what is a citizen?* If the citizen is seen solely as a customer or consumer, then the government’s job means providing services efficiently at a low cost. (Although we know that “efficiency” in the educational or social services sector takes different forms as seen from different perspectives; somebody who lives in a gated upper-class community and somebody who is a recipient of government services are

not likely to see eye-to-eye on for example, what is benefit and what is waste.) Moreover, if the citizen is seen only as a periodic (or sporadic) voter who ratifies decisions merely by not paying attention, then government may be swayed by other voices, and citizens get in the habit of apathy and ignorance.

We know groups have some civic intelligence, but some groups have more civic intelligence than others. Although there is apparently a sort of inertia in play, the breadth and depth of civic intelligence does not remain constant. One of the most important things about civic intelligence is that although the path can't be always charted exactly, it can be improved. One obvious approach is to actually ask people to describe the problems they face. The next step would be to work with them to envision ways to help address the problems. Note that computer technology could — and probably should — be used to support this approach, but computer technology is not essential to this and the smart city imperative is not likely to prioritize this difficult-to-quantitize route.

Not focusing on humans can also lead to less usable and effective systems. It would miss the most interesting and important part: the relationship of people to technology — affects their lives directly and indirectly. Also if the focus on technology succeeds in eclipsing the, ideally, complementary focus on the social, it is quite possible that it will lead to solutions that really aren't as effective — nor as equitable — as they could be. The downside is that the efforts and the resources were put into a technological solution while ignoring the most important aspect, the human element. This is a pattern that we seem to repeat over and over again. It's a combination of commercial pressure and promises and the seeming inability for decision-makers to adequately view the richness of the situation. Perhaps we need to talk about *civic infrastructures*, to emphasize both the smartness and the degree of engagement of the citizenry as critical aspects of an enlightened city — that cannot be provided through technology alone.

The significance of Human Smart City (March 2013) and other related efforts is that they aim to challenge and change a techno-centric approach into one that is more centered on the human aspect and less motivated by profit. Adding “human” avoids the misleading view that technology “solves” problems by itself. It asks how we can set up technology platforms that help make urban social systems more equitable and effective at the same time. It is a long-term, incremental, participatory design process that integrates experimental, educational, community mobilization, research, and policy work within a shared.

A smart city without smart people is impossible, but “smart” can't just mean the ability to solve mathematical or logical puzzles quickly since our problems are of a different sort entirely. The idea that merely the existence, identification, or creation of smart people — those who test higher on IQ tests, have demonstrated ability to solve puzzles, or have skills in science, technology, engineering, or mathematics (STEM) — is what the world needs now is commonplace. It is up to them to hold the beacon aloft for the rest of us. Moreover, a significant part of our ability to address our big problems is social — because addressing real problems in a real way means addressing them collectively. Addressing climate change, to choose an obvious example, will not be “solved” by a small group of elites who will do it for us — even if they are all geniuses. We clearly need “smart” people for our smart cities, but our hope is that their smartness is augmented with something that is closer to what has been traditionally called wisdom — and what we're calling here, civic intelligence.

Smart citizens are not merely the tenders of the smart city apparatus. Every stage and focus of a smart cities deployment must be scrutinized, but it doesn't end there. The entire enterprise must be examined not with the aim of stopping it, but to inform the effort and to surface critical omissions and intervene appropriately.

### **Civic Intelligence in the Urban Environment**

At some point in the last few decades a remarkable turning point was reached: the majority of the earth's population for the first time inhabited cities rather than the countryside. With urbanization, we have seen many changes including the way we observe the city. The urban/rural divide has become more pronounced. This shift in relative populations has helped enable much broader shifts than had been anticipated, both qualitative and quantitative. For one thing, the new concentration of people has magnified the opportunity for idea circulation and economic innovation. Also, power is centralized in cities and although cities obtain food and vast amounts of resources from outside the city, there is a perception that cities don't rely on the actual (physical, mostly non-urban) environment. Civic intelligence is a general perspective that can be applied to any collectivity, but one important focus is the city because the urban system is enormously influential.

Most decisions regarding finances and economic priorities are made in the cities. Media production is centered in cities as are virtually all political wranglings. While resources from non-urban locations are absolutely essential, the conditions under which the extraction (minerals, coal, trees, fish, food) is conducted are largely determined by people living under vastly different realities. While the first victim of this asymmetric relationship will likely be those living where the needed resources are found, and the land and other living things proximate, those living in cities, presumably immune to events elsewhere, will ultimately feel the pain of ill-considered abusive policies that were passed down.

### **Maintenance of Society, Culture, and Civic Intelligence**

Institutions, both formal and informal, are needed to help perpetuate culture and societies — and these can promote or retard

civic intelligence. Societies and cultures are created and recreated by their institutions and their members. They can also be degraded when this recreation is interrupted as it is periodically as a result of natural disaster, war, poverty, epidemic, prolonged political struggle, mass displacement, or various addictions. The bottom line is that some critical mass of individual people in those societies must have certain conditions met and the culture — and its civic intelligence — will falter or fail depending on them.

At the most basic level, people need to be safe and have the ability to earn a living. Beyond that, people need to feel that they belong in society and this will be accompanied by feeling the society, on some level, is legitimate. This promotes a feeling of purpose and puts them in a position where they're more likely to contribute ideas and other resources, and more broadly, to participate in the direction of society and culture. In other words, they become active, participating citizens.

Building on this, it should be possible to provisionally identify indicators that reflect these basic needs — and the level of civic intelligence in a given collectivity.

Although it's probably impossible to actually measure civic intelligence, there are many interesting directions to go in which meaningful, though not definitive, indicators can be developed. Even though civic intelligence is probably best evaluated with actual cases, if one looks at cities, regions, and countries one could hypothetically get an idea how civically intelligent they were by some of these indicators:

- Knowledge of the environment — natural and otherwise
- Social (political, educational, cultural) engagement
- Social capital
- Health and well-being
- Economic and other opportunities
- Relative equality of inhabitants
- Transparency/lack of corruption
- Good neighbor

At this point, we are not interested in boiling this down to one or two generalized values that seemingly account for the sum of civic intelligence in a city. In fact, some values may be hard or impossible to pin down, in which case the others can stand in. For example, according to Stephen Bezruchka (20\_\_), “Nothing affects the health of populations as much as the amount of social and economic hierarchy observed in that population. The greater the gap between the rich and the poor, the worse the health, as measured by mortality figures or by self-reported health.”

Whether they seem that way or not, these indicators are measurable (or at least discernible) and are both the result of social processes and key engines (or enablers) of social processes. And the indicators are interrelated and interactive. For example, if there is a high level of social engagement and knowledge of the environment there is more likelihood of addressing problems, hence more civic intelligence. Health is one of the important and central indicators. The holistic/systemic nature of these indicators is reflected in an important article, “Owning the City” (de Lange and de Waal 2013): “To engage people with communally shared issues, it is essential that people envision themselves as part of the urban fabric, and understand that their individual actions make a difference to the common good. They also need to trust other urbanites to act accordingly.”

Finally, it is necessary to consider the good neighbor indicator, which focuses on interactions with those outside. Something that examines the external interactions is indispensable because no human settlement is autonomous. For example, in wealthy neighborhoods in the U.S, one could look at the other indicators (health and opportunities, for example) and conclude that they must have a lot of civic intelligence. Unfortunately, it may be the case that they are exporting their problems to other neighboring cities that don't have as much money or using more than their fair share of resources or barring, or even expelling the less fortunate from their premises. Moreover, it could be the case that they are actively exploiting other regions. Having low good neighbor indicator would remind communities with more resources (financial or expertise) they were not benefitting communities with lesser resources and ought to improve. Low levels of this type would be a good measure of diminished civic intelligence possibly coupled with high levels of corruption. If there were no “good neighbor” requirement, a rich, gated community might demonstrate the pinnacle of civic intelligence. Crime could be low, health factors high and generally little rancor to spoil the enjoyment of what money can buy — fine food, art, leisure, travel, and health. Furthermore, the side effects such as unacknowledged privilege and a skewed sense of reality could mitigate away from any willingness to help address problems — and towards the exporting of problems. This is one area in which sustainability measures and programs are directly relevant.

While these indicators can (we suspect) describe the state of civic intelligence in, say, a city, these indicators are also likely to be useful as a broad aspirational focus. In other words, they can be used to establish goals in addition to evaluating progress on meeting social objectives. And last but not least, it's important to remember that the responsibility for improving the seven measures above — and improving civic intelligence in general — is not the sole responsibility of the government alone.

## Smart Steps

### We're All Laboratories Now! (or at Least We Should Be)

Fiorella De Cindio has asserted that Italy could be thought of as a *laboratory*, basically a location where experiments are conducted (2011). Italy, a well established democracy that recently “has suffered from “democratic anomaly” where the prime minister is also the owner of a large media empire” is the location of ideas and projects under consideration and many others in progress that are intended to address social ills. For De Cindio, who has worked on public discussion and deliberation systems for two decades, the Internet provides a good portion of the raw medium upon which society experiments with new ways of organizing, challenging, collaborating, telling stories, and, in general, being active and engaged citizens.

Some of these labs may succeed and some may fail. The amount of experimentation may be high because the society has a culture of experimentation. It may also be because there is a shared perception that there is an urgent need for new approaches. Universities, civic groups, and institutions are all working in this field. I think that Italy is not the only laboratory, there are different forms in different countries, but we have to be part of the solutions, people need to be involved, we can not ask the institutions to solve problems for us, it does not work well because the authorities pay no attention if there is no involvement or interest shown. We have to have our eyes on the future, not only on today.

Sassen (2011) reports, that “Wherever I go in the world, I find at least some technologists, urbanists, and artists who are beginning to ‘urbanize’ technology.” She goes on to say that “When this happens, the city becomes a heuristic space; it talks with the average resident or visitor rather than simply commanding them.” But the amount of experimentation and development of new policies, services, artwork, and computer applications is not determined solely whether a city, region, country, or planet is a “lab.” (nor can we simply begin calling our cities labs and congratulate ourselves as Monsieur Jourdain did when he was struck by the insight that the words he had been uttering all his life were actually *prose*.) De Lange and de Waal (2013) warn that artistic and other urban interventions often “remain highly temporary and stick to oppositional politics.” They argue for an alternative approach to “urban design with digital technologies that focuses on the active role of citizens and uses the city itself as the test bed for experiments.”

The basic necessity of the lab is the consciousness regarding its purpose, activities, and strategies. Reflection is key. Generally, the activities of the lab are to be purposeful. This means that some possible future is desired and some criteria will be applied — at least at the end — to judge success. A “lab” also seeks — and creates — knowledge and employs resources to this end. This also means that a critique of the present state — although this is often implicit, i.e. the desired state is *not* the current state that is flawed.

When we think of our society as a lab that is consciously launching experiments, we are reframing the world in our minds as potentially a vast experiment in progress (and although on some level it is an experiment in progress, it’s not a particularly useful experiment since we seem to learn so little from it!). With this type of reframing, we do fewer things only for private gain or just to see what happens. We incorporate civic intelligence into a new type of “civic infrastructure” with citizen think tanks or civic intelligence labs.

### Ideas and Recommendations

Computer companies regardless of their vast resources and their can-do attitude should not be running our cities. The direction or trajectory of technology should not be left to the technocrats. While not sacrificing the idea that efficiency (for example) is important, we need to be exploring concepts that enlarge the scope and depth of civic necessity, potentiality, and possibility, in a word, civic intelligence. Rather than dead-end progress via the solutionism of the software vendors, we need to be considering our urban future reality as an opportunity to evolve. The vendors could be involved with this as well. Although some type of cultural clash may be inevitable given some basic differences in perspectives, they could work in concert with activists and other citizens on applications and with our rural counterparts and each other in a mutual learning process.

Unfortunately, people in the technological community are more likely to think in terms of solutions. At the same time, people in the non-tech community are often cowed by techspeak, impressed by the confidence and assurance that often accompanies the technological sales approach. At the same time theory are hopeful of solutions. Also, unfortunately, the “solutions” of the non-tech variety are not “solutions,” per se. Like many of the suggestions here are not advanced with certainty. Often in fact, they only suggest vague directions and more conversation in plotting the way forward is needed. But the conversations suggested here are not merely chit-chat. They are reflective purposeful and action – sometimes small and sometimes vast – is always the intended outcome.

The primary job is to expand the conversation and to put these efforts on the public agenda. The new technology has enabled an amazing amount of new development as well as new opportunities and ideas. Unfortunately, both the intellectual inertia and the investment inertia are arguing against democratic engagement and control. (To get an idea of the magnitude of the inertia, think back on the time from 1995, not two decades ago, when all commercial activity was forbidden on the Internet, to now when commercial activity is the norm, and the commercial entities seemingly, call all the shots.) Promoting citizen engagement



including that around technological deployment will not become part of the conversation without effort. City governments need to make commitments in advance to public involvement and oversight. Citizens should be placed on committees. Cities could make grants available to neighborhood groups with creative ideas who wanted to get involved with new approaches through technology or non-technology oriented projects involving the increased understanding of city systems. And city governments should sponsor public meetings with vendors at public locations like libraries.

The opportunities afforded by new technology although overshadowed by commercial activity—largely entertainment-based—have not been obliterated but in the era of "big data" in which highly educated technology experts devote their careers to analyzing people's online behavior on Facebook or Twitter in order to sell more services and merchandise, it's easy to become distracted away from things that really matter.

One approach that today's problems seem to demand is transdisciplinarity which involves "close collaboration between researchers and community stakeholders who work together to understand and ultimately resolve societal problems" (Stokol 2013). According to Stokol, drawing from a variety of studies, "Cross-disciplinary teams have become increasingly prevalent across many research domains, owing to the growing recognition in academia and society at large that the world's most complex and intractable problems—including global climate change, poverty, war, famine, and disease—can be better understood and ameliorated from a broad interdisciplinary perspective than from the narrower vantage points of separate fields." In the same work, Stokol also states that the "scholars who possess diverse knowledge sets drawn from multiple fields, as well as the inclination to integrate multiple analytic levels in their work, are more likely to generate highly radical innovations as compared with those whose knowledge and conceptual strategies are more narrowly circumscribed." Although these new collaborations are not trivial to institute or sustain, they are vital. It will be important to work directly with mediators — civil society organizations, and the media, but also to directly work with artists, educators, designers, community health workers, social workers, business owners, activists, and with marginalized communities.

Transparency of information is a good antidote to possible excesses of government and business, including the future deployment of smart city ideas and systems. This means access to the communications, agreements, transactions, and meetings, but also access to what the systems themselves produce: data about electricity, pollution, and street usage patterns, for example.

While opening the discussion and introducing new ideas is crucial, it's also vitally important to consider the work of artists, researchers, educators, activists, community advocates and other people who have thinking about and working within this context for years. Some of the more intriguing ideas around technology, the city, and people include work in participatory design, in which people are engaged in the design of systems and artifacts that affect them. A variant of this is participatory sensing which, for example, allows people to investigate pollutants in their own neighborhoods,.

Saskia Sassen (2011) and others have advanced the intriguing idea of making the new infrastructure *visible*. Although the traditional infrastructure generally took a palpably visible form (pipes, wires, bridges, roads, etc.), the new digital based infrastructure that is increasingly conjoined with the old could be made more visible. This could be done in a variety of ways, making them more visually or aurally intriguing, for example — as well as educational in the sense that the flows, switches, nodes, etc. of the new overlaid technology would reflect the actual use within the city. (Some of these ideas harken back to Stafford Beers' proposed Cybersyn project in Chile in the 1980s (2011), while many now are realized in cities around the world today in various control centers or monitoring centers.)

The idea of "community networks" whose popularity crested in the 1990s still seems plausible — or at least desirable — today, but with caveats. The first is because information and communication technology has entirely changed. The second is because the forms that the new networks should probably change. One approach would be to actually develop deliberative (and other collaborative) systems. These ideally could promote the collective building of *things* — including decisions and ideas. New wireless community networks are also being constructed around the world. These projects are likely to many of the same challenges as the earlier generation. [FIX] The ability to launch new communities / networks that are transdisciplinary will be crucial if civil society is to successfully organize itself to promote civic intelligence and engage with the problems we face and mounting successful challenges to the powers that be.

One intriguing idea alluded to earlier is reconciling the urban lifestyle and the urban perspective with deeper, meaningful relationships to the people and territory outside the city. What resources are we taking from outside and what impacts are there? In our increasingly urbanized world, we should also continue to build collaborative networks of urban professionals and citizens. We should evaluate policies that cities adopt and compare them with the rest of the world to have suggestions and avoid mistakes that other cities have already committed. Examples can be identified in the decisions relating to forests (deforestation), to oceans (pollution) and many others. Reestablishing our urban/rural links and redesigning a less exploitive relationship is an important step for cities.

Many social problems are universal get assume different forms depending on their context. Corruption is one such problem (Cockcroft 2013); it can be endemic in one location and be absolutely paralyzing, and be much reduced almost "under control"

in another. At any rate, rooting out corruption is both a local and a global activity in which citizens could play important, though potentially risky, roles working, for example, with media outlets and government offices where appropriate and with each other.

## Challenges

The challenges we face are enormous, partly due to the two aspects that are at play. The first is that the world itself is beset with bewildering complex problems. The second is *ourselves*. To address these issues we must change ourselves. If this required an entirely different type of human we would be in deeper trouble. It is my *belief* that individuals around the world would need to change their activity only slightly for more major change to take place. People are already working towards positive change, for the rights of others (including the natural world), and against oppression. They are already thinking about how their lives can affect others and what changes they could make in their own lives they are already reaching across national class, and ethnic boundaries to mend fences and work together. Now, *if*, more people would do this and do a little bit more themselves and they were smarter about it – in other words, using civic intelligence — change on a broad scale would indeed be possible. We need to collaborate, directly and indirectly. Collaboration is crucial and how smart we are about how we collaborate is probably even more crucial. While metacognition is something that separates experts from non-experts at the individual level, it's especially critical to consider this at the collectivity level. The new technology can help with that but it won't do it for us.

Cities are not machines. But like machines, people use them and breathe life into them. Humans must take care not to be enslaved by them or forget their own worth and influence. Cities are places that are built, inhabited, and modified by people. People animate cities and cities — whether they are smart or not — are merely ruins in the absence of people.

We need smart cities. But without a vigorous, aware, ubiquitous, and diverse contingent of smart citizens, we won't acquire the civic intelligence we need. And our equation won't balance! To address the problems before us we will need creativity, dedication, humor, reason, and compassion. Fortunately, people often have these attributes!

Remember that governance is not solely a technological matter. And that the market or side effects won't solve our problems for us. But citizen engagement is not "one size fits all." Different contexts require different approaches. Nor is it a "silver bullet" that is guaranteed to work.

The informed contribution of citizens is an indispensable element of governance. Citizen engagement ideally provides both impetus for social change when it's needed and a bulwark against tyranny and oppression when that becomes necessary. These are absolutely key roles and their importance highlights the need for civic intelligence. With strong, engaged citizenry we may be able to address our problems. Without strong, engaged citizenry we won't be able to address our problems.

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