

Chapter 17

Humane Smart Cities

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Today more than 50% of the world's population lives in urban areas. There is no sign of reversion of this trend; United Nations studies point to a staggering 66% figure by 2050 (United Nations 2007 and 2014). China alone will place 300 million people in cities within this time frame—the equivalent of one United States! The impact of this change on “livability” (the sum of the factors that add up to a community's quality of life) in the cities and the earth's resources will be dramatic.

Most cities face severe urban problems like traffic jams, pollution, and social exclusion. It is crucial that cities of the future do not develop according to the old paradigm of spatial segregation of daily functions. It is time to shift our attention to designing a better living experience in our cities: They should be flexible and respond to their citizens' wishes and needs. Technology will help. But let us place the right questions now— all related to who is really important: people, rather than cars or cameras or control centers.

European villages in medieval times tended to be small, circa 1- mile radius. Within this geographical area people lived, worked, played, and prayed. One of the practical limitations to growth was water: villages not close to rivers would usually have one clean-water well in the main square, making it difficult to carry water home in heavy buckets. Centuries later, Paris was redesigned by Baron Haussmann in 1860 as a collection of four boroughs of around 1 mile radius each. In each of these boroughs people could then (and still can now) live, work, and play. The main change was brought about by the arrival of the car in the twentieth century. Cities were segregated spatially into residential, commercial, and entertainment areas as people commuted between them in cars. The end result is what we see today: traffic jams, pollution, accidents, and urban distress.

A new concept and field of study has evolved to study this issue: the humane smart city. It consists of all the interdisciplinary subjects that must interact in order to make cities more sustainable. A great deal of attention has been devoted in recent years to the idea of smart cities. Suppliers of technology in particular have been eager to push the smart city concept. A smart city is in general associated with technology: sensors, cameras, fast Internet connections, and control centers. While useful, technology should not be the central focus. A humane smart city addresses first of all people and their needs. Then comes technology and only in direct connection with these needs. The point here is to raise the right questions. Rather than needing a solution to traffic jams, we need a solution to the mobility of the people who today are trapped in the chaotic jams. Answers to these different questions are very different indeed and may lead to significantly different solutions.

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Introduction

Humane smart cities have been defined by the European Union around six fields of study: smart living, smart people, smart governance, smart mobility, smart environment, and smart economy (Giffinger et al. 2007). As the concept was transposed to emerging countries, a new field of study has been added to these six: smart social inclusion. It tackles poverty in cities and the problems associated with rapid growth and geographical expansion. In all of these seven fields there are good and bad examples to learn from, and cities are organizing themselves to exchange knowledge and share their experiences.

Solutions to cities' problems are inevitably interdisciplinary in nature. They involve the social sciences, with studies on people's behavior in communities (see the MyNeighbourhood project, discussed below), urban studies of spatial distribution of people and functions, and studies of social networks and their use in the context of cities (see the Periphèria project, discussed below). These solutions also involve studies of computer technology of sensors and high-speed connections, electronic and participatory government, and big data and business intelligence.

This chapter describes these aspects of humane smart cities and proposes pathways to those who are interested in getting involved in the subject. Cities can be great places to live, where one can find more opportunities for work and personal development. But problems are mounting as we insist on the current models of transport by private car and spatial distribution of the functions of live, work, and play. This chapter examines how we keep the good things we like in the city and avoid the bad ones that were brought about by poor planning and wrong models of urban development.

17.1 Introduction

Cities face challenges every day to create prosperity and ensure good quality of life. As the world increasingly adopts advanced communication infrastructures and other information and communication technologies (ICTs), social cohesiveness in the city environment appears to have been progressively lost (Fry 2011, p. 25). The uncertainty about what social models result from the digitalization of society calls for decisive participatory actions from public and civil authorities in cities.

Due to the steady urbanization of our societies, it is becoming increasingly difficult for city authorities to provide suitable services to address citizens' needs. Issues such as demographic shifts, health, security, sustainable housing, transportation, energy, and environment primarily affect cities and are perceived by citizens as key factors for their quality of life. City administration has to play a strategic role in the conceptualization, development, and implementation of adequate responses to local or global societal challenges they face today. This is particularly challenging in a context of crisis and mistrust between citizens and public administrations. Information and communication technologies ensure that critical infrastructures and utilities are managed more efficiently. But this is clearly not enough.

In the context of urban innovation, it is of paramount importance to place citizens at the core of strategic thinking. Cities are smart when they take full advantage of the human capital of its citizens, create innovation ecosystems where new dynamics of wealth and job creation take place, and promote new forms of participatory governance. In short, when they become humane smart cities.

Humane smart cities use technology as an enabler to connect and engage government and citizens, aiming to rebuild, recreate, and motivate urban communities, stimulating and supporting their collaboration activities. This leads to a joint increase of social well-being. In a humane smart city, people rather than technology are the true actors of the urban “smartness.”

17.2 A Brief History

In the typical medieval village all the work, living space, and entertainment were local. Villagers did not travel very often and certainly not for daily work. This arrangement lasted until the overall development of merchant trade and large cities evolved all over Europe and other regions in the East.

In mid-nineteenth century, the French emperor Napoleon III hired the then- mayor of Bordeaux, Georges- Eugène Haussmann, to redevelop Paris as a symbol of his empire. Haussmann planned Paris with four arrondissements (later 20, as today) and pulled down old buildings and dwellings to open large avenues, parks, and also to promote sanitation for the town. Although the urban concept was significantly different from medieval villages, Haussmann kept the arrondissements small (typically 1 mile square each). The large avenues we admire today, like the Champs-Élysées, were not built for cars but for the passage (and glory) of Napoleon’s troops.

Beginning in the late 1800s, and increasingly after the early 1900s with the arrival of the car in Europe and in the United State, urban development adopted the idea of segregating the main functions of working, living, and playing in different sections of most towns. City sprawl ensued. Cars became the preferred (and desired) means of transport mainly between residence and work. This worked well for parts of the population while the number of cars was small. Eventually it led to traffic jams, pollution, and accidents.

Even given its many problems, the car is accorded such reverence today that most people do not even question its cost, neither the public cost nor the private one. Local governments usually face no difficulty in approving a road enlargement, for instance. It is as if anything to improve the situation of the car were positive. Think of the cost of the car to our society in terms of health issues, accidents, pollution, urban land space, viaducts, roads, and so forth. In spite of that, in order to give incentives to local industries, governments tend to tax the car industry at a minimum. In Brazil, the overall tax on the supply chain of a car is 37%. In the supply chain of a bicycle, it is 43% (O Globo 2014). The private cost of the car is also overlooked. In emerging countries, the cost of owning and maintaining a car tends to be the costliest item in a family’s budget.

The humane smart city changes the focus from the car to the people and from segregation of the functions of live, work, and play into its full integration in every borough of the city.

17.3 From Smart City to Humane Smart City

The rapid urbanization of societies raised a completely new set of challenges related to efficient mobility and parking, sustainable environment, quality delivery of water, assurance of low levels of pollution, reduction of energy consumption, adequate lighting, and proper

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treatment of waste. The concept of the smart city emerged to ensure that the various urban production factors, including investments in traditional and dematerialized modern infrastructures, could be addressed through a common perspective and framework, making cities more effective and “intelligent” in addressing such challenges. Encouraged by a vision of the hyperconnected society, city authorities started exploring ICTs to increase their ability to observe, monitor, learn, digest, decide, and act on the various relevant factors that may make a city more effective.

Using the Internet of Things (IoT) all relevant data could be collected providing an integrated overview of all city processes. The intensive use of models and data analytics, processed most likely in computing clouds, would complete the understanding of the city as a machine, and allow for acting in the real world in order to adapt to new circumstances (see the concept in Fry 2011, p. 16). Cars can be directed to the available parking places; ambulances can be rerouted, avoiding congested zones; unnecessary consumption of energy can be rationalized; citizens can be warned in advance regarding environmental conditions, and so forth.

But the challenges are bigger and call for a more radical social transformation, affecting the way we all work, live, play, and build our future. This change in turn places a special burden on those holding the responsibility to govern such processes with an optimum usage of the public resources available. An expert analysis of a large number of smart cities implementations has led us to conclude that a mere technology-driven implementation of the smart city concept, although being an important step in the right direction, falls short in exploring the most important dimension of cities— their human and social capital (Woolcock & Narayan 2000) available in every citizen and collectively in the society (Oliveira & Campolargo 2015). In other words, it is important to return to the initial steps of the urban innovation process to reposition citizens at the core of the strategic thinking and planning of the modern city.

The creation of a participatory innovation ecosystem is the driving force for the establishment of an environment in which citizens and communities interact with public authorities and knowledge developers, in a collaborative mode, exploring the power of codesigned user-centered innovation services. This also calls for new governance models that lead to the urban transformation where citizens are the main drivers of change. Through their empowerment and motivation, major city challenges can be addressed. The great challenge is therefore not to install the infrastructure or adopt new technologies but to involve the public sphere in the civic life.

The humane smart city concept is built on emergent, sustainable models for urban living, working, and governance enabled by future Internet infrastructures and services. This perspective balances the technical “smartness” of sensors, meters, and infrastructures with softer features such as clarity of vision, citizen empowerment, social

interaction in physical urban settings, and public sector–citizen partnership. The approach must be interdisciplinary, with emphasis on composite knowledge. Thus we can label the study of the humane smart city in the *composite interdisciplinarity* field (Klein 2010, p. 18).

The humane smart city approach is gaining increasing support from city governments across Europe as well as from the research community (Marsh & Oliveira 2013). It more effectively addresses key challenges such as low-carbon strategies, the urban environment, sustainable mobility, and social inclusion (Murray et al. 2010) through a more balanced, holistic approach to technology. In this approach the government agrees to be engaged and involved in citizens' initiatives on the basis of an open, transparent, and reliable relationship.

Information technologies are used where appropriate to solve social problems and address economic and environmental issues, focusing on the well-being and happiness of the citizens.

17.4 The Seven Characteristics of Humane Smart Cities

The European Union, through one of its case studies (Giffinger et al. 2007) defined six characteristics of smart cities: smart economy, smart people, smart mobility, smart living, smart environment and smart governance. In order to cater for the special conditions in the emerging countries, we added a seventh characteristic: Smart Social Inclusion.

17.4.1 Smart Economy

The smart economy moves away from traditional industry and is concentrated in services, particularly those related to the “creative industries.” There are several definitions for the term “creative industry.” For the purpose of this chapter we define it broadly as the economic activity involving human work that is not repetitive. It is curious to realize that even the word “industry” is peculiar in this context, since it involves mainly “services” not “industries.” This reflects the fact that we still think of the private sector as “industry” although it is mainly involved with “services” today in most countries. Even the software sector, the paramount example of creative industry, likes to call itself the software “industry.” Perhaps this is a way to make it look more important, as if industry were the only sector that really mattered.

The smart economy is diversified and involves all sectors of the creativity industry—software, medical services, entertainment, the arts, consultancies, artisans, gastronomy, financial services, and so forth. And how is it “smart?” These sectors involve human work and activities that are nonpolluting and well-paid jobs. They also generate most new jobs today, since the repetitive work that used to be done at factories is being progressively replaced by machines (Costa 2000). These sectors are so important for economic development today that many governments on different levels are providing them with incentives in the form of tax breaks, subsidized loans, and direct investment in order to attract smart people to their jurisdiction. There is a competition for bright talent

now between towns in the same country and even between countries, all trying to attract creative industries to their shores.

17.4.2 Smart People

Smart people are associated with education— they have more years of study than the average— but that is not the only characteristic that is needed in the smart economy. There are artists, performers, artisans, painters, dancers, and other types of creative people. The two groups mingle very well in some cities. Through their interaction, they produce new

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goods and services that are characteristic of the new economy. The smart economy attracts smart and creative people to work in its geography through all sorts of incentives (Marques et al. 2015a, 2015b). And the reverse is also true: Places where the creative class (Kanter 1997) and the people exist in abundance are much more likely to develop a smart economy.

Smart people are eager participate throughout their adult life in many forms of knowledge- sharing courses and events. And they praise diversity: Richard Florida (2005) even states that smart people live in cities where heavy metal bands are numerous. Flexibility to adopt new ideas and concepts is also a common factor. Creative people move constantly, and it is a city's constant goal to keep them happy with all kinds of innovative services available so that they do not move elsewhere.

Smart people participate in their city's public affairs. They want to make sure that they are heard. A popular voice among smart people are the "greens," those who are particularly concerned with conservation of the environment. If someone in town is trying to cut down a tree, they appear in hordes to protest. The use of social media is strong among them, and they can mobilize a crowd in support of their arguments on their specific networks in a very short time.

A symbol of the decline in importance of traditional industry is the three- dimensional (3D) printer. As the technology evolves, 3D printers are capable of producing "industrial goods" that can be customized to the level of one per user, impacting every aspect of traditional industry. 3D printers are even capable of producing new 3D printers.

A change in behavior comes as a warning to large companies and city planners: Young and talented graduates tend to choose the city where they want to live *before* the company they want to work for.

17.4.3 Smart Mobility

A humane smart city is concerned with the mobility of its citizens to and from work, to and from universities, to and from amusement places. Henrique Peñalosa, the former mayor of Bogotá, coined a phrase that became popular: "A town has smart mobility not when the poor go to work by private car but when the rich go to work by public transport." The answer to the problem of traffic jams we face today is public transport. This change in perspective is not easy. Citizens are used to the idea that they have a right to drive their cars anywhere. And public parking (sometimes free) is in constant demand.

In Angra dos Reis, one of the most beautiful locations in Brazil on the southeast coast, the town is separated from the sea by a huge free public parking lot that hides the scenery from its inhabitants. When they have the courage to get rid of this, people will look back and think, “Why didn’t we do this before?”

Bike lanes have been built in many towns, but they should be segregated from car lanes. Where they are separated only by a painted lane, car drivers tend to behave badly: It is as if that precious real state was robbed from them. In addition to bikes and public transport, cities should pay attention to sidewalks, which should be the preferred mobility path. In many towns they are too narrow (cut short in order to make way for the cars), badly paved, and with many obstacles on the way, making the ride of a wheelchair, for instance, almost impossible. Urban planners should consider the public real estate as a most valuable commodity, to be used sparingly and in favor of those who use it most. Janete Khan, secretary of transport for mayor Michael Bloomberg of New York in the 2000s, measured how many people passed through Broadway throughout the day by different modes of transport. And found out that four times as many people walked on Broadway in relation to those that used cars. So she decided to prioritize and allocate space to pedestrians and bike lanes, and the new Broadway is there today to everyone’s pleasure and admiration.

Such changes will take time. But they have to be enforced with positive and negative incentives. On the one hand we can offer better public transport, segregated bike lanes, and good quality sidewalks. On the other hand toll fees for cars downtown, expensive parking, and annual taxes on cars are some of the new rules that should be established. The true cost of the car to society is huge and has to be taken into account: not only air pollution and used tire disposal but also, most importantly, loss of lives, public health, cost of car accidents, and so forth.

17.4.4 Smart Living

As shown in the preceding items, the seven characteristics of a humane smart city interact with and contribute to each other. A smart place attracts smart people who construct a smart economy, and so on.

A place is considered smart when people see it as a good place to live in. It is diverse, in the sense that it caters for different people’s wishes and needs. It also has interesting tourist attractions that contribute to the sharing of experiences and knowledge between the locals and outsiders. It offers good-quality services in terms of schools, hospitals, clinics and public safety. And it demonstrates social cohesion: Different income levels of society mingle in a smart place with little signs of class tensions or racial hatred.

Some places have built their “smartness” around a symbol, a monument or an urban redevelopment project. The Guggenheim Museum in Bilbao, for instance, changed the local feeling and the international perspective of the town from a conflict zone torn by civil war to one of the most visited and interesting places in Spain and Europe. The redevelopment of the old industrial district of Poblenou in Barcelona into the @22 initiative projected the town as an international model of “smartness” that is being copied everywhere. Rio de Janeiro has also developed its old harbor into a new area (the “Porto Maravilha”—“Marvelous Port”), a movement that occurred in many cities, on a massive scale. The old medieval village principle of live, work, and play locally is a common feature across all these examples.

17.4.5 Smart Environment

A place that intends to become smarter takes care of its environment. Some of this is a given: natural resources such as rivers and greenery. But the major part is a matter of control and active intervention. For instance, pollution caused by CO₂ emissions is a definitive measure and should be followed closely. Electric transport vehicles help; so do the implementation of penalties or tolls on the use of private cars. But there are also softer measures that can make a significant contribution. For instance, why do most cities stick to the rigid 9-to-5 work hours in every sector? This is a heritage from the industrial era, when all the workers on a production line had to be there at the same time. Today a flexible work time (anchored by

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flexible labor laws) could do wonders to avoid massive traffic jams at peak time—and also to reduce all the pollution that comes with it.

The green movement, even allowing for its excesses, made a major contribution to our awareness of the finite nature of natural resources. A smart environment place is noteworthy in the way it uses and conserves its natural resources (see the Save Energy project, below). Reuse of water, collection of rain water, smart buildings that consume less energy, LED lamps for public lighting, smart garbage collection, and recycling and disposal are all well-established technologies that can be used by many towns. And strikingly, they may cost less in the long run than the existing methods. But why are they not adopted by all? Inertia offers a partial explanation. The fact is that governments tend to spend money on projects that are obviously visible and thus may lead to votes. For instance, a new LED-driven public lighting system does not register on public consciousness and does not add to the mayor's popularity.

The trend of city sprawl should be avoided. It is very expensive to provide public services over a long distance. And since most distant boroughs use downtown extensively, transport (mostly by private cars) adds to all the already existing problems in the town. In the words of Washington Fajardo, a city official in Rio de Janeiro: “the best city that exists is the city that exists already.” Let us use the town that exists in a broad and interdisciplinary sense (Fry 2011, p. 26) to its full potential before moving to the outskirts.

17.4.6 Smart Governance

Considering the poor reputation of different levels of government (local, provincial and central or federal government) in many countries, citizens tend to gather this characteristic as the most difficult to develop. This should be no excuse for inaction though. With the advent of new IT tools and systems, it is increasingly easier to provide better services to society and many governments are pursuing that path. But the main change that is necessary in government is in the mindset of officials: from gate keeper to service provider; from authoritarian government to participatory government; from secret data to organization and full availability of data to citizens and companies; in a nutshell, from talking to listening.

17.4.7 Smart Social Inclusion

This characteristic is not part of the original six categories proposed by the European Union. But as the concept of humane smart cities has moved into less developed countries it becomes crucial. In the process of growing, sometimes at a very fast pace, cities in emerging but also in developed countries attract people from the hinterland and from abroad in search of better work opportunities. They cannot afford prices in town so they live in the outskirts, sometimes in dire conditions in slums. These communities need to be integrated into the local fabric of society as the city becomes smarter.

Priority number one (maybe two and three, as well) is the education of the young. But there are a variety of other initiatives worth pursuing. Job opportunities for the poor do not have to be necessarily related to manual labor. It might be better to consider arts and crafts that in the creative world can find a distinctive niche. Ethnic diversity may lead to opportunities in gastronomy, music, arts and crafts, and many other cultural manifestations.

Housing is a major problem for social inclusion, and some towns faced the problem with the provision of low-income subsidized rents. In this way poor workers do not have to travel many hours a day to get to work. Planning from City Hall is essential: The principle of live, work, and play in the same area should be open to all.

17.5 Examples of Interdisciplinary Projects

The National Academy of Sciences (2004) identifies in *Facilitating Interdisciplinary Research* four drivers of interdisciplinarity, as cited in (Klein 2010):

1. the inherent complexity of nature and society,
2. the desire to explore problems and questions that are not confined to a single discipline,
3. the need to solve societal problems,
4. the power of new technologies.

All these drivers are present in the study of human smart cities. The second driver may be stressed further and described not as the “desire” but the “urgent necessity” to explore problems that are not confined to a single discipline. Architecture and urban planning are being questioned as to their role in our changing societies and cities (Fry 2011, p. 16). The urge for new interdisciplinary— or more accurately described, transdisciplinary—projects in our universities is overwhelming, and human smart city projects constitute one prominent example. Yet, with few exceptions, universities tend to focus on subjects that are comfortably confined in their respective departmental silos. When the United States and some allies started the obviously interdisciplinary Manhattan Project in 1942, they went after the best knowledge that existed. And that was found at the independent Institute of Advanced Studies in Princeton, neither at the neighboring university nor at any other university for that matter. The situation has not changed much since.

The humane smart city concept aims at developing a citizen-driven, smart, all-inclusive and sustainable environment, with a new governance framework in which citizens and government engage in listening and talking to each other. And it is important to point out that the implementation of the humane smart city can be made through the

use of frugal technology and does not always require sophisticated and complex infrastructures. This fact is relevant especially in what concerns the scalability of the solution. Simple and creative solutions can emerge from the local communities, which allow, for example, big cities to extend their strategies and include broad metropolitan areas, or small cities to integrate new strategies. This is an important advantage for city administrations, which enables the creation of humanly smart services without having to make significant investments.

17.5.1 Periphèria Project

The European Union's Periphèria project aims to deploy convergent future Internet (FI) platforms and innovative services for the promotion of sustainable lifestyles and work styles in and across emergent networks of smart peripheral cities in Europe. The project states that

Examples of Interdisciplinary Projects

through the convergence of the sociotechnical elements that make up the new FI paradigms it is possible to reach more ambitious targets for economic, social, environmental, and cultural sustainability.

Central to this project is the concept of community interaction of people- in- places as the driving force of FI convergence (Weissbourd & Bodini 2009). Periphèria situates this interaction in six arenas— archetypical urban settings with well- defined social features and technological requirements— which become the “Living Lab” (Oliveira & Campolargo 2015) environments where codesign and integration of public services unfold. To each arena, an identified city partner is associated: Smart Neighbourhood, where media-b ased social interaction occurs (Malmö, SE); Smart Street, where new mobility behaviors develop (Bremen, DE); Smart Square, where participatory civic decisions are taken (Athens, GR); Smart Museum and Park, where natural and cultural heritage feed civic well- being (Genoa, IT); Smart City Hall, where mobile e- government services are delivered (Palmela, PT); and Smart Campus, a new arena formed by the Milan Polytechnic (project partner responsible for the arena modeling activity) as an extension of their original role in the project.

17.5.2 MyNeighbourhood Project

The MyNeighbourhood project is part of the European Commission ICT program in the field of smart cities. It aims at recreating and strengthening the social ties and interactions within the neighborhood. Paradoxically, the same ICT trends that have helped— in conjunction with other urban trends—t o erode our connection to urban neighbourhoods and communities also have the potential to help reinvigorate them. A neighborhood, in most urban traditions, is an area shaped or determined by a social group that is created through bottom- up local processes (Meroni 2007). In the MyNeighbourhood project the aim is to promote qualitative and innovative solutions as well as the identification of a set of opportunities that will not only influence the neighborhood but the surrounding ecosystem of the city.

The MyNeighbourhood solution integrates new technologies and methodologies, such as social gaming principles (gamification), with the Living Lab methodologies to help create and strengthen existing ties and resolve communal issues in the real life of the neighborhood. The solution is rooted in an open MyNeighbourhood Platform that combines the data and functionality of existing “City Transformation Apps” with new tools that connect people locally, both on and offline. It uses gamification techniques to encourage people to get involved with their own neighborhoods and engage their family and friends to do the same.

Through this platform the city government can better implement measures such as participatory budget (citizens help decide what to do in the following year), citizen data mapping (to produce new services, even by the private sector), well-being services, participatory decision taking, and complaints management. These methodologies can bring huge social progress to the city, which aims, in the end, to promote democracy, listening and talking to the citizens.

17.5.3 Save Energy Project

According to the International Energy Associations World Energy Outlook 2008, 67% of global energy is used in urban areas, and cities are responsible for 76% of energy-related CO₂ emissions. The Save Energy project has developed evidence from its five pilot studies in public buildings in cities around Europe that substantial energy efficiency savings (in some cases over 20%) can best be achieved through engineering solutions in combination with changes in user behavior. The Save Energy project focuses on ICT provision that enables such user-behavior-changing solutions required to be most effective. The return on investment of these solutions ranges from 6 months to 4 years.

The Save Energy Green Paper (available at <http://goo.gl/xtQckR>) presents policy options to be implemented within the European Union and also internationally, in order to help cities implement this strategic role in public buildings. The main focus of the policy options is to assist in changing behavior through the range of tools and implementation process defined by the project.

17.5.4 Smart Campus Project

The Smart Campus approach builds on and improves the methodology used in the Save Energy project, which involved a centralized platform for metering energy consumption and providing real-time information to the users. Previously this communication was one-way only, that is, from the building to the users. Smart Campus also makes use of real-time information on energy consumption, but users have the possibility of actively interacting with the building energy management system that controls heating ventilation and air conditioning, lighting, and other equipment. The Smart Campus approach is thus based on interactive intelligent energy management systems with which the users can negotiate and define the building’s environmental impact conditions. The results indicate that consistent savings derive from user behavior transformation.

Users are involved in the codesign of the energy-saving pilots in their campus (see, for instance, Helsinki Metropolia—University of Applied Sciences). The pilots themselves act as decision guidance tools, as they make it possible to show, compare, and increase the awareness, knowledge, and skills on energy efficiency. Decision guidance is also exercised by the “eco-motivators”—skilled people that integrate each user group

associated to each pilot. The eco- motivators use information on the Smart Campus Portal to advise, discuss, train, and motivate all the user groups. The Smart Campus project disseminates and uses questionnaires, leaflets, project information, presentations, social media, posters, competitions, energy- saving tests, workshops, and exhibitions to enact decision guidance toward users involved in the different pilots.

17.6 Conclusion

The humane smart cities concept proposes the use of technologies as an enabler to connect and engage government and citizens, aiming to rebuild, recreate, and motivate urban communities, stimulating and supporting their collaboration activities, leading to a general increase of social well- being.

Humane smart cities call for new governance models in which public authorities listen to and speak with citizens. Policies and supporting services make the city government more

Conclusion

transparent, participatory, and efficient and a mirror of the citizens' will. Humane smart cities empower citizens to codesign and cocreate solutions for their wishes, interests, and needs, recreating a new sense of belonging and identity, leading to a better and happier society.

The practical projects described in this chapter are based on the premise that citizens and neighborhoods represent a heretofore untapped, yet powerful, catalyst for humane smart city change. They aim to transform the city governance by engaging citizens in an open, transparent and trusted dialogue, enhancing and easing the interaction with the city administration. This makes it easier for citizens and businesses to transmit priorities and needs to city administration, reduces the need for time consuming face- to- face interactions with city administration, and removes the burden of bureaucratic processes by facilitating greater neighbor- to- neighbor exchanges.

The power of the humane smart cities concept and its proven impact on society calls for a strategic mechanism to be created or reinforced to celebrate achievements, share best practices, provide role models, and network like- minded city administrations engaged in the promotion of humane smart cities. Networks of cities will evolve and should be welcomed by us all.

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