A city as a virtual community — Several perspectives

by Piotr Siuda

Abstract

We are currently dealing with the emergence of cities as virtual communities. They should be considered in terms of a specific relation of the local urban space with the cyberspace and rejection of dichotomy of the territory versus deterritorialization. The article characterizes city as a virtual community from several perspectives: 1) Resurgence of locality and changes in the nature of interpersonal relationships; 2) Changes in the understanding of public and private space; 3) The impact of the city as a virtual community on social capital; 4) The possibilities of big data generated within the virtual community; 5) Possibilities of involving city dwellers in the process of local governance; and 6) encouraging them to social activity. The Internet brings a huge change in the perception and experience of the city and we must do everything to use this change for the benefit of urban residents.

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Introduction

Anyone familiar with social urban spaces on the Internet knows that one can find information on almost every topic imaginable, including cultural, political and social events. It is a place where people can learn about everything going on in a given city and, in many cases, can also comment on these events or find people with similar views. Urban space on the Internet is vast, and I consider it to be made up of a group of online spaces with a strictly urban character. In reality, it is difficult to define and put this space within a rigid framework, to identify strict boundaries that would enable us to decide what belongs to it and what does not.

This space certainly comprises a number of official city Web sites, developed under the auspices of local authorities, acting as portals with information about all matters pertaining to a given city. This space also includes local companies operating in the city, providing various services, as well as all sorts of urban institutions. What is more, it also includes social media, such as Facebook and Twitter, as well as specialized social media dealing with gastronomy, cultural life and travel. The *modus operandi* of social media — providing details on personal activities, making friends, sharing impressions about various events — has led to the emergence of virtual communities, a well-describe phenomenon connecting people in the absence of physical contact with each other (Fox, 2004; Preece, *et al.*, 2004; Vries and Kommers, 2004; Werry, 1999).

One could say that, due to the Internet, the city itself has become a virtual community because people tend to use various Web sites to share information about what they do in urban spaces. Every self-respecting company and institution has their own social media profile. In other words, we are dealing with the broadly understood city as a virtual community, which is, again, quite difficult to outline it is hard to identify the specific boundaries that allow us to determine any precise definition (Siuda, 2009). The point is that Web sites and social media reflect local, urban life, building a local, urban identity of urban residents, along with their social, cultural and even economic capital (Alessandrini, 2006; Eldik, *et al.*, 2019; Hooghe and Oser, 2015). The city as a virtual community also links physical features — architecture, institutions — with the subjective, existing only in the imagination, which will be treated in more detail later in this paper. This is how I understand what is urban. In the case of the city, two dimensions are important: 1) the objective, tangible one, related, for example, to administration, including neighborhoods; 2) the meanings that people give to the city. These two complement each other (Krupat and Guild, 1980).

In this paper, I argue that the Internet changes perceptions and experiences of the city through the creation of urban virtual communities. I present six different perspectives on the relationship between online interactions and the city. My view is a positive one — I want to prove that virtual urban communities have a positive impact on urban life, and also indicate their hidden potential. To differentiate between ‘what is’, ‘what could be’ and ‘what should be’, I mark what perspective I take next to the titles for each section. Of course, this does not mean that, when I claim that a given process could be/should be implemented (‘what could be’, ‘what should be’), it does not take place to some extent already.

The arguments are based on the idea that the benefits of the Internet are greater than its drawbacks. This does not mean, however, that I am not aware of the dangers of using the Internet in an urban environment. I mention them in the conclusions, where I consider a critical perspective and take into account various factors which shape urban virtual communities. Analysis of power and what is excluded from the digital version of the city can be of great importance here — I will come back to this at the end. Here, I will only point out that my considerations relate primarily to developed Western societies, *i.e.*, the global north.

Renewing one's locality online ('what is')

The Internet was clearly designed to connect with the outside world without having to leave home or office and, these days, people take for granted the fact that innovative communications technologies enable them to overcome obstacles such as time and space. The telegraph, telephone, television, computer and, finally, the Internet, all these inventions have been used for exchanging information and stimulating interactions while alleviating spatio-temporal limitations (Haythornthwaite, 2005).

Lévy (1998) examined the process of virtualization in determining the relationship between man and technology, considering virtualization in terms of an ontological transformation. Lévy invoked Gilles Deleuze, who defined virtualization as a process opposite to so-called actualization. Hence, we are dealing with a transformation of the actual into the virtual.

Lévy's description of the virtualization of a company is quite appropriate. A traditional company has its geographical location, gathering employees around an actual geographic site, such as a building, with employees occupying specific places. For a virtual corporation, the physical presence of employees is replaced by telecommunications technologies. A virtual corporation no longer has a specific geographic location; it is nomadic and dispersed.

According to Lévy, virtualization means detachment from the here and now. Virtual entities do not have locations in a physical sense, because virtualization is accompanied by deterritorialization. This has numerous consequences, especially in the creation of new spaces. Lévy perceives space subjectively; there are as many private spaces as there are human perspectives. Moreover, time operates subjectively, so we are dealing not only with private space, but also notions of private time. Another important attribute of virtualization is the transformation of private space into public space. A good example is the virtual corporation; when an employee works online, the private space of a home becomes momentarily a public corporate space.

These ideas lay the foundations for assumptions that new mobile networking technologies lead to a certain 'disconnect' between social interactions and local communities (Crack, 2008a, 2008b; Kraut, *et al.*, 1998; Nie and Erbring, 2000; Nie and Hillygus, 2002; Stern, 2008). This concept is usually not expressed directly yet as research highlighting the benefits of the Internet in terms of communication does not directly mention other effects. On the Internet, individuals always have opportunities to meet other individuals interested in similar topics, generally not living locally but residing elsewhere, in different part of the world. As an overall result, there is less local interaction. Hence in a networked society, it is possible that the local may be discarded or ignored; this possibility was broached by Castells (2010, 2001).

It is too simplistic to claim that innovative communications technologies make local connections and relationships irrelevant and obsolete. In fact, technologies bring together those who are already close to each other, living in a given city or region, visiting the same restaurants and participating in the same sort of concerts and other events. The contemporary Internet indeed is based on the local, featuring numerous ways which exploit the social potential of networks and encourage relationships based on geographical proximity. In this sense, cultural trends based on a fascination with local and urban aspects are fostered and renewed.

Hardey (2007) described how new communications technologies provide new ways to experience and understand the city, leading to new "readings" and a certain remapping of the urban environment. Hardey demonstrated this with examples of blogs created by Londoners.

Like any other city, London has a number of bloggers living and working in the metropolitan area, presenting the metropolis from many different angles. The London blogosphere is often “based” on an actual urban space since bloggers showcase specific districts, even individual housing estates. In these cases, we observe constant “flows” between “real space” and “online space”. One example is a blog dedicated to public transit, a report of one Londoner, Annie Mole, on Tube experiences. Blogs serve as a platform for confirming and “rebuilding” one’s own urban identity by sharing experiences, photos and interactions. They can also lead to real relationships with other residents.

Being between public and private (‘what is’)

Humphreys (2010) took a closer look at Dodgeball, a social networking site, and explored how it influenced and shaped social interaction in urban public spaces. This defunct site enabled users to share information about their whereabouts in a city with their online friends. This feature enabled users to “check-in” at different locations, such as bars and restaurants. Dodgeball was aimed primarily at fostering actual meetings in the real world. The check-in was an invitation to join a person or group, with a message sent simultaneously to friends. Humphreys deliberated on the interactions fostered via Dodgeball, identifying three types of urban space — public, private and parochial (a hybrid space). In the first, people encounter strangers. The second is characterized by the primacy of intimate and personal relationships. The third exists somewhere between public and private. For example, there is a certain degree of similarity between friends or neighbors linked by a network of interpersonal contacts within a given local geography, such as housing estates or neighborhoods. Social media like Dodgeball enable a kind of “parochialization”, where public space became more personal. Dodgeball — and social media in general — share information about location, creating more personal spaces. Thanks to Dodgeball and other online services, individuals recognize public places as personal spaces, visited in by their friends and families. The result is a subjective transformation of public space into a hybrid one [1].

Humphreys’ study cast a new light on the understanding of the relationship between the public and private spaces, changing under the influence of communications technologies. Parochialization is only one of many concepts covering the well-diagnosed phenomenon of the blurring of the border between private and public spheres, as noted by Ford (2011) and many others. Some research has examined specific services (Facebook or blogs; see, for example, Burkell, *et al.*, 2014; Musni, 2014; Strauß and Nentwich, 2013; Youngs, 2009). Other studies have noted a blurring of boundaries in the cases of specific social groups, such as children and youth (Lieber, 2010; Livingstone, 2005; West, *et al.*, 2009). Diverse research has found evidence in the workplace (McDonald and Thompson, 2016; Sprague, 2011) as well as certain activities like selfies or mobile snapshots (Lee, 2009; Walsh and Baker, 2017).

Of course, the concept of a blurring of the public and private due to the use of the Internet is an important starting point for a discussion about how social media enable a city to become a virtual community in which people interact with each other in urban space. One could say that people become local and community-oriented in their privacy because, for many, a computer at home is where they get in touch with their urban surroundings.

Gordon (2008) described a notion of *network locality* to emphasize how communications technologies generate a sense of connection at any distance. These technologies contribute to a building of *local knowledge*. Undoubtedly, the way in which locality is perceived is increasingly dependent on mobile technology. In this sense, what is local is augmented by the technology (Gordon and Silva, 2011).

Some research has emphasized that the Internet is changing the very nature of the bonds between individuals (Kavanaugh, *et al.*, 2005; van Deursen and Helsper, 2018; Wellman, 1999). For many individuals, there are only small number of strong relationships, usually with family members or close friends (Baron and Gomez, 2013; De Meo, *et al.*, 2014; Ryberg and Larsen, 2008; Sandstrom and Dunn, 2014; Virk, 2011). The Internet facilitates contacts; hence there is a subsequent primacy of weak bonds. In cities, it becomes increasingly difficult to encounter neighborhood communities based solely on strong and direct relationships. However, our richer but weaker bonds allow extensive social networks. Thanks to the Internet, individuals know a broader range of people, although they do not meet frequently face-to-face, even if they all live in the same city [2].

Building one's capital ('what is', 'what should be')

The weakness of contemporary bonds does not mean that the theory of a sociological vacuum is valid (Nowak, 2011). This concept assumes strong identification with primary groups, such as the family, and the nation as a whole, with low identification with intermediate, local groups. This specific gap between what is the closest (family) and furthest (nation) determines the weakness of civil society, as well as social and cultural capital.

The use of communication technologies — and the re-imagining of the city as a virtual community — bridges this gap and fills a sociological vacuum (Barbosa Neves, *et al.*, 2018). What is important in this case is the “prosumer” element of online activity. “Prosumption involves both production and consumption rather than focusing on either one (production) or the other (consumption)” (Ritzer and Jurgenson, 2010). The Internet is a natural platform for prosumption, as it is based in large part on “products” made by users. Social media are based on diverse content shared via their profiles.

Prosumption is important because it gives a sense of agency and fosters a sense of community and local identity. Prosumption indeed encourages, even stimulates, social capital. Prosumer activities are also important for cultural capital as they stimulate a participatory culture (Jenkins, *et al.*, 2009, Jenkins, 2006; Lutz, *et al.*, 2014). Prosumption also strengthens economic capital, visible in networking activities of entrepreneurs and organizations affiliated with various local groups (Österle, *et al.*, 2000). All this is crucial from the standpoint of building a civil society, fostering participation, and encouraging an expression of diverse, even divergent, views.

The Netville experiment illustrated how communication technologies strengthened social capital at a local level; it was carried out between 1996 and 1998 (Hampton and Wellman, 2003). Netville was an estate of 109 houses in the Toronto suburbs connected to a local computer network with a transmission rate of 10Mbps, which at that time was considered

quite high. Residents were provided with access to digital mailboxes, Web browsers, local discussion forums and even online medical care. Research found a much broader social network among residents connected to the Internet. Individuals in the community recognized the faces of three times more neighbors than non-connected residents, talked to twice as many of them and visited their homes by half as many as those not connected. Furthermore, people with access to the Internet more frequently contacted relatives and friends outside the estate. The involvement of residents in the life of the local community also increased. Mailing lists and forums served as a form of social control within Netville. Most pro-social activities were moved from virtual (where ideas were usually born) to the off-line world so that unconnected residents could participate. This behavior resulted in a strong sense of belonging and commitment, exemplified by a protest against a dishonest estate manager.

A project on the research scale of Netville has not occurred, although there is supporting from more recent studies. Zajac (2008) conducted an online survey with users of forums in selected Warsaw housing estates, proving that forums play an important role in strengthening neighborly relations, building trust among residents and coordinating activities at a neighborhood level. Interestingly, the role of online forums in building social capital was stronger in newer, closed housing estates than in older, open ones. This may be due to the fact that, in the latter, some form of social capital already exists, created before the spread of computer-mediated communications. In new housing estates, whose inhabitants may be younger and better educated, digital technologies may be used more often to establish connections with neighbors.

The socio-demographic or personality traits of inhabitants may play an important role here, since the young are more predisposed to establish online social acquaintances, undertake social activities and express higher trust in others. Even if there is distinct generational difference, the potential of the Internet as a communication platform for communities should be emphasized. A forum — a place of virtual meetings of members of a community — can become a place to present ideas. Thanks to the Internet, these notions can spread to other residents. Of course, the active involvement of managers, administrators and other bureaucrats in a given community is extremely important. A given community forum should be considered as an official communication platform. The forum will encourage the growth of all sorts of ties in the community, both weak and strong.

Discovering the mechanisms of urban life ('what should be', 'what could be')

There is enormous potential for cities as virtual communities in light of prosumer social networks. The virtual nature of a city will permit new ways to study urban life in all of its complex diversity. Information collected about urban functionality will encourage the discovery of regularities and patterns of urban life, which in turn will have great significance for forecasting (Brosz, *et al.*, 2017). For example, geolocation information from social media may enable researchers to map cities and create visualizations, discovering previously unknown relationships.

An example of using urban data is the Livehoods Project connected with Foursquare (Cranshaw, *et al.*, 2012). The main feature of Foursquare was its ability to share details about

one's whereabouts in a given city, providing comments on companies, outlets and services. Pittsburgh was an early target of this research. Some 18 million Foursquare check-ins were available to the public on Twitter since users can link both services to automatically post status updates on the platforms simultaneously.

Research distinguished three patterns of urban life, identified as *split*, *spilled* and *corresponding*, connected with the administrative division of the city. The corresponding model perfectly resonated with this division, illustrating the significance of arbitrarily imposed boundaries. Nevertheless, the situation in the urban landscape was not as uniform and one-sided. The *split* and *spilled* models referred to the situation when what was observed in social reality stood in opposition to administrative boundaries. There were numerous examples proving that when it comes to human imagination and interactivity, numerous divisions within districts or housing estates emerged (the *split* model). In addition, top-down imposed boundaries were perceived as artificial, with human behavior often contradicting them (the *spilled* model). These discoveries are important from a standpoint of governance and development planning. The spatial and social image of a city does not always correlate well, as information from Pittsburgh uncovered.

Information collected as in the Livehoods Project could be made more valuable with parallel qualitative data, taking into account socio-cultural and other factors. This local information, in combination with big data, could add depth and detail, providing further insights into the dynamics of an urban landscape over time and space.

The potential of big data is nevertheless enormous, correlated with various aspects of urban life, such as culture, politics, economics, crime, pollution and education (Hasan, *et al.*, 2013; Shelton, *et al.*, 2015) [3]. Social media can have a very positive impact on the functioning of cities.

Communicating with local government ('what should be', 'what could be')

Municipal authorities can utilize a virtual community in many ways. Residents can access information and services digitally as well as report issues and problems immediately. Communication between residents and local government increases the involvement of citizens in decision-making processes, to the advantage of local government. In turn, these activities stimulated by digital connections build a positive urban image (Guillamón, *et al.*, 2016; Ho, 2002; Miranda, *et al.*, 2009; Sičáková-Beblavá, *et al.*, 2016; van der Graft and Svensson, 2006).

Municipal bureaucrats use both Web sites and social media. These digital activities are not *the* basic tool of communication, but rather seen as auxiliary to traditional apparatuses. However, many politicians are engaged in social media with residents and constituents, engaging in forms of public consultation (Eom, *et al.*, 2018; Gajowniczek, 2016; Giacomini and Simonetto, 2020; Lameiras, *et al.*, 2018; Szmigiel-Rawska, *et al.*, 2018).

Nevertheless, urban authorities underestimate the utility of the Internet as a communication channel. In order to build an urban virtual community, two-way communication is necessary,

where residents are in dynamic and digital communication with officials at all levels (Silva, *et al.*, 2019). Kowalik (2018a, 2018b) examined the presence of 66 Polish cities on social media, noting four types of posts by municipal authorities:

- announcing posts — announcements of meetings and city events;
- information posts — activities of city officials and organizations, awards received, reports on urban events (cultural, social);
- provocative posts — designed to trigger online responses (like, comment or share), as well as posts which have a strictly entertaining character;
- participatory posts — encouraging pro-social activities on the Internet or in the real world.

Announcing and information posts, which do not cause dramatic reactions, prevail, unlike provocative ones. Kowalik believes that these kinds of posts are effective elements in promoting a city, but are of little importance when it comes to stimulating the activities of resident. Participatory posts are definitely the rarest (Silva, *et al.*, 2019). Kowalik insists that profiles are just like tabloids, but it seems that, despite this, they fulfill their role in building an urban virtual community.

Unfortunately, urban authorities are struggling with numerous problems connected with their online presence (Al-Nuaim, 2009; Bisset, 2019; Romanowski and Szymkowiak, 2018). One can observe a lack of clear division of roles when it comes to social media. In some cases, it is not obvious who is actually responsible for publishing digital content. In other cases, many tasks are outsourced to IT specialists despite the fact that running a social media account requires communication skills close to journalism or public relations, not technical skills. Of course, the situation varies considerably from city to city. In some cities, there are special teams responsible for communicating with residents online. Other problems frequently mentioned in the literature are: 1) Poor frequency of updating Web sites and profiles; 2) One-way instead of two-way communication. Pages often contain only a digital version of printed materials, supplemented with audiovisual materials, but without possibilities for interaction; and 3) Copying content from Web sites unaltered and placing it on social media. In many cases, local governments are still just learning to use the Internet (Obrębska, 2018).

Being smart ('what should be', 'what could be')

There are many examples of positive and interesting initiatives to involve citizens in decision-making processes while strengthening the city as a virtual community at the same time. It is all about going beyond standard communication channels on the Internet and using tools to encourage participation, such as reporting problems in urban spaces. Bothersome holes in the roads, illegal waste dumps and crooked pavements can be documented on a site, marked on a map and reported for repair. The British FixMyStreet at <https://www.fixmystreet.com> (Pak, *et al.*, 2017) and American SeeClickFix at <https://seeclickfix.com> (Berkowitz and Gagnon, 2017; Yong, *et al.*, 2019) are examples.

Another example concerns the spatial planning of the city and the inclusion of local communities in these processes. Databases used in spatial planning usually contain

information about the legal status of plots and existing infrastructure, but do not take into consideration the needs of residents. Therefore, bottom-up geographic information systems to which residents could add information should be considered extremely useful.

One example of an urban GIS was developed at the Aalto University in Helsinki. It was created by Kytä, *et al.* (2013, 2012), combining insights, experiences and opinions of residents with data stored in urban repositories. These systems provide information to residents but often do not increase their participation in eventual decision-making. Many softGIS applications are already used by several cities and municipalities in Finland; their popularity can be explained by their apoliticality and successful attempts to engage residents in decision-making processes.

In participatory geographic information systems, residents can familiarize themselves with available data — satellite images, land ownership maps, planning documents — examining proposed changes, such as the route of a new tram or subway route. Questions can be posed to designers or take part in discussions similar to those on forums and social media. Solutions can be very different here. Their success naturally depends on many factors and is often not easy to achieve. For example, in the case of applications such as FixMyStreet and SeeClickFix, reports must be sent to appropriate units in the appropriate form. In addition, if the problem is not resolved fairly quickly, residents will be discouraged by the low efficiency of a given application.

Many digital tools are still at an early stage of development, struggling with poor input from targeted audiences. It is worth remembering that a basic condition for improving the quality of online participation tools is the involvement of local governments. Implementations with successes are needed. Appropriate attitudes must also be developed by users themselves; they must decide to use specific Web sites, services and portals more often. For this to happen, it is necessary to be aware of the profitability of the use of these tools. Cooperation between various parties in the creation of applications can certainly help, so that they meet the needs and expectations of the authorities and residents.

With a proper evolution of digital tools and their proper use, the Internet can become an important element in the development of *smart cities*, where information and communications technologies are used to increase interactivity and efficiency (Albino, *et al.*, 2015; Leleux and Webster, 2018; Sadowski and Pasquale, 2015; Taamallah, *et al.*, 2019). In a smart city, city dwellers — conscious and participating citizens — should be as smart as their technologies. Smart cities develop thanks to the opportunities offered by big data, but the technology is not exactly what matters the most. Some call for a move away from *smart cities 1.0* and *2.0* models [4], with changes fostered by ICT companies and public administrators. The search for technological solutions to problems in cities needs to be supported by the creative involvement of active residents, in a true spirit of prosumerism. Authorities would be primarily responsible for establishing and seeking spaces for open dialogue and deliberation. Naturally, social media and the Internet provide possible platforms as digital spaces.

Conclusions

The city as a virtual community is a clear example of the falsity of a dichotomy of the real and the virtual. It is becoming clear that there is no point in separating these two worlds, as the Internet should be perceived as an extension of reality and people must understand that it is firmly rooted in “real” social space (Tomita, 2015). Therefore, a city as a virtual community is not only a network of interconnected profiles and flows of information but also a community with material dimensions in the form of buildings and social structures, as well as administration and governance. The material state is “reflected” on the Internet, including social media. The online site shapes the material one because people often make decisions, based on suggestions found in social media. Social media shape and develop social interactions. We sometimes fail to notice one of the most important effects of social media, facilitating links and bonds between people and urban spaces, influencing in turn their experiences and forming the basis of concrete actions. We are certainly dealing with new ways of living and interacting in an urban environment, fostering the growth of social, cultural and economic capital.

There are many obstacles that hinder processes in the development of a virtual city, of a cultural, political or economic nature. The most serious concern the poor state of media education. Some schools still do not integrate social media into the curriculum, losing opportunities to educate users on appropriate uses of these technologies. There is much that needs to be done, both in schools as well as in changing attitudes of policy-makers, teachers and parents (Lim and Nekmat, 2008; Morze, *et al.*, 2015).

In this paper, I have adopted a positive perspective on the relationship between digital technologies and urban life, stressing that the virtual urban community has a great deal to offer. nevertheless, there are many threats and pitfalls associated with these technologies. There will also be variations in the utilization of these technologies. Not every community will be affected in the same way by virtual spaces and not every aspect of local life will be altered uniformly as well.

The considerations raised in this paper relate largely to Western societies, the so-called global north. The Internet and the city are influenced by conflicting interests and struggles for power. Castells (2010) noted that, in the absence of grassroots initiatives or social movements, thinking about locality could be dominated by a discourse of globalism. It should be remembered that the interests of global Internet corporations do not always have to go hand in hand with the revival of locality. For these corporations, urban residents are primarily consumers, not active citizens (Andrejevic, 2009; Petersen, 2008). A loss of privacy is a price paid for consumerism (Albrechtslund, 2008; Andrejevic, 2010; Fuchs, 2011; Proferes, 2016; Sadowski and Pasquale, 2015). An awareness of these processes (Fenton and Barassi, 2011; Gerbaudo, 2012) can lead to a potential release of benefits of a city as a virtual community.

This urban virtual community will need to vanquish a variety of problems such as the digital divide (van Dijk, 2006; Yu, *et al.*, 2016). There will be a need to develop appropriate competences (Chetty, *et al.*, 2018; Park, 2013). Structural, cultural and political factors are important as well. Marginalized groups are composed of various social minorities (Yoon, *et al.*, 2020), emigrants (Hajer, 2017; Merisalo and Jauhiainen, 2019) older individuals (Friemel, 2016) and women (Graells-Garrido, *et al.*, 2015; Shaw and Gant, 2002). There will be some efforts in order to make a virtual urban environment reach all members of a community; these efforts will not be easy or inexpensive.

A virtual community is not simply opportunities for consumerism. The growth of prosumption will provide opportunities that may not be obvious immediately (Siuda, 2012). Hence the most fundamental and difficult challenges that we face will be in changing social attitudes and moving away from hyper-consumerism towards hyper-prosumerism. Only then will virtual communities succeed.

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Notes

[1.](#) Another defunct social media Web site — Socialight — served a similar function, allowing users to create so-called *stick shadows*, virtual notes about specific places in a city. The service operated with technology similar to Google Maps. The notes could contain text, photos and videos and they would be shown on other users' smartphones in the form of *push* notifications when they were near particular locations. For example, people who passed by an acclaimed (or despised) cafe would immediately get a notification. In the case of Socialight, notes concerned public spaces, stores and service outlets, as well as any other location; for example, someone could tag a bench in a park and leave a note that this is where they met their loved ones. By doing so, people could make nearly all the places in the city their own (Melinger, *et al.*, 2004).

[2.](#) Social media can in fact stimulate face-to-face meetings, as demonstrated by Dodgeball, software eventually acquired by Google. Dating services that, thanks to geolocation, can inform users about the proximity of other users, whether on a given street, or in a shopping mall or restaurant. The rule is simple: thanks to these tools, individuals can meet others.

[3.](#) It is worth noting that research based on big data can be carried out by anyone. Mash-ups — applications that bring together online data from various sources — offer great possibilities in this respect. One of the most interesting examples is Google Maps and Google Earth, where users can alter maps of their cities to include different details. They can, for example, add photos or descriptions of their favourite places, mark undesirable spots, as well as point out the best venues. The potential of such tools is enormous.

[4.](#) The concept of *smart cities 2.0* envisions integrating the Internet of things into the urban fabric, utilizing large scale, smart sensors and controllers to assist urban governance.

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