Infostructures, the Internet and Urban Planning

By Steve Jones
University of Illinois at Chicago

Abstract: This article makes links between the development of the internet and online community to urban planning and zoning. It explores the common threads and themes pertaining to the evolutionary tendencies in community development, online and offline, to theorize about the internet's future as a medium for social interaction. While planning, development and zoning seem on the surface to concern real estate, it is noted that post-World War II planning took into consideration communication and made clear the shift away from planning concerning property toward planning of social spaces. That shift, it is argued, is also evident in the evolution of the internet.

Keywords: internet, community, urban planning, cities, development

While the study of online community has grown richer and more complex in the early 2000s (Jankowski, 2002; Kolko, 2003; Sunden, 2003) the need persists to ensure that online community and offline community are not arbitrarily and forcibly disconnected by those studying online community. As Wellman and Gulia put it, "many community ties connect off-line as well as on-line. It is the relationship that is the important thing, and not the communication medium" (1996). One way to ground this relationship, to prevent it from becoming abstracted, is to conceptualize the internet and its infrastructures within the framework of planning, particularly of urban planning. As a field urban planning has concerned itself with some of the same issues as those on the agenda of internet researchers. Matters of access, security, traffic, networks, and so forth, have been topmost for both urban planners and internet researchers, for example.

Considerable attention has been paid in the past ten years to the issue of the Digital Divide and internet access (Falling Through the Net, 1995, 1998, 1999 and 2000). That attention has primarily focused on "information have nots," those without access to the internet or to computers. Access has been conceptualized largely as a lack of a computer and/or internet connection. Yet it should be foregrounded that the digital divide is very much a matter of access to the physical structures of modern society. The matter of access in this respect can be understood as the possibility of engaging with, and of controlling, the encounter with public space, of enacting and enforcing boundaries between public and private, of availing one's self of people, services and places. Access is the strongest conceptual link between urban planning and internet research, and is what I wish to take up here in the context of urbanism and of the internet.

The hallmark of urban planning is, simply, planning. What is sought is order, "plotting of the grounds, the manner of their development, the placing of the buildings, the communicating avenues and canals and bridges, all exhibit(ing) a prevision, a plan, an arrangement of things with reference to each other," as John Coleman Adams noted after a visit to the World's Fair in Chicago (1896, p. 3). What is fought is chaos, "the mere units of an aggregation. The buildings were not a

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heap and huddle of walls and roofs; they were a noble sketch in architecture. The streets were not a tangle of thoroughfares representing individual preference or caprice; they were a system of avenues devised for the public convenience." (Coleman, 1896, p. 4). Frederick Law Olmsted, Jr., the pioneering leader of the city planning movement in the U.S. in the early twentieth century, laid out the basic principles of planning in the introduction to a textbook for city planners:

> City planning may conveniently be considered under three main divisions: The first concerns the means of circulation--the distribution and treatment of the spaces devoted to streets, railways, waterways, and all means of transportation and communication. The second concerns the distribution and treatment of the spaces devoted to all other public purposes. The third concerns the remaining or private lands and the character of development thereon, in so far as it is practicable for the community to control such development.
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> Facility of communication is the very basis for the existence of cities; improved methods of general transportation are at the root of the modern phenomenon of rapid city growth; and the success of a city is more dependent upon good means of circulation than upon any other physical factor under its control. (1916, p. 3)

For Olmsted communication and transportation are intertwined, they are the basis on which a community operates. They are also in tension with privacy, for, as Olmsted noted, "In a country which relies for its progress primarily upon individual initiative under the stimulus furnished by the institution of private property" public control of space, of access, is difficult, at best (p. 16).

The notion of access has implicit within it a form of control that is contradictory to individualistic democracy. To either gain access or provide access implicates a possibility of removing access. In regard to both urban planning and the internet, access is regulated by means of the construction of walls and spaces, some literal and some virtual. In the case of their virtual construction, computer passwords have traditionally been the bedrock upon which access was enforced. Increased, and in some cases new, uses of computers and the internet, (particularly in the late 1990s and early 2000s) found the consequences of numerous computer viruses creating interest in controlling access to computers as a means of preventing infection. Peer-to-peer file sharing and efforts to find and litigate against file sharers created interest in the same.

Such interests are embedded in the literal construction of access, too. It is easy to forget that the internet as a technology is not virtual. It consists of wires, cables, computers, routers, firewalls and other real (non-software) devices. Even wireless networks require physical hardware. And such hardware itself requires real estate and controlled access.

Some of the language of domestic space has been appropriated for use by computer and internet users. We have "home" pages and "back doors," for example. We use a "firewall" to keep away intruders from the outside. The metaphors of personal and private space are regularly used in reference to data space and virtual space. It is more than obvious that the very act of constructing a building necessitates the creation of walls and doors and thus a means of controlling access and creating boundaries. A more interesting template for the clustering of networks into an internetwork is the aggregation and planning for the clustering of numerous buildings into towns and cities. And we are now beginning, with internet sites like Friendster and Orkut, for example, to see a similar sort

of aggregation, and with grid computing, IPv6 and next generations of internetworking to see planning of more orderly networks and sharing of resources. We are quite far yet from seeing the shape online communities may take in response to these new forms of internet, but if history is any guide, we will see them develop.

Where geography had encouraged settlement (*e.g.*, the confluence of two rivers serving trade routes and providing food and water, or a hilltop providing a strategic overlook), once western feudal society evolved past the point of the military garrison or basic survival towns had to accommodate civilians. Indeed, towns often grew adjacent to the garrisons. Communities developed at the gates to castles, monasteries and fortresses, in no small part due to the traffic that encouraged commerce and required sustenance. This was particularly the case with pilgrims traveling to monasteries who required food and shelter *en route*. While most often there was little planning of these emergent communities, as time went on Beresford (1967) shows that planning came to consist of one of two types of plans: a grid plan (allowing "the best…to be made out of the limited space available" (p. 142)) and a market-based plan in which "whatever the shape of the market place, the…plots were concentrated around it" (p. 153).

In both cases the physical limits of the plan were of great importance, for it was "the defensive works…walls, ditches and gates (that) fostered the pacific activities that formed the centre of town life" (p. 179). Weber (1969) noted fusion of the military and the market meant that protection and security were paramount to the management of public life, a consequence in turn of the separation of property from power. The reverberation of that fusion was heard in the development of gated communities and of high-rise controlled access apartments. It can be heard too in Sennett's observation that "community has a surveillance function," (1974, p. 300) in the contradiction between openness and control, comfort and concern, and in the "rhythm of disclosure, disappointment, and isolation" Sennett finds repeating itself like a coda in western community planning. It is the theme underlining James Carey's reflection that "Americans are for ever building a 'city on a hill' and then promptly planning to get out of town to avoid the authority and constraint of their creations (2000, pp. 88-9).

A seeming counterpoint to this phenomenon appeared when in the late 1990s many large metropolitan areas in the U.S. underwent a significant transformation. Part of the change was quite visible, as new buildings (usually condominiums) were built on the immediate periphery (and sometimes very center) of a city, but part of it was less obvious, and involved the influx of new types of business and people. Part of the reason for the transformation was related to technology, both insofar as the "dot com" boom had brought some degree of wealth to several cities, and because these cities benefited from the overall buildup of the information infrastructure during the 1990s. But the main reason for it was that many American cities saw an influx of a relatively well-off population. In short, people with money wanted to move into the city to live. Most often these people had been ones living in suburbs for whom the suburban lifestyle had become less meaningful (e.g., "empty nesters" whose children left home for college) or for whom something was found to be lacking in everyday suburban life. Another group of people, typically younger, found well-paying jobs in the tech sector and wanted to partake of an urban lifestyle.

Along with this population shift has come an increased sense of civic pride, of community formation and of belonging. The American Housing Survey's findings from 1993 to 2001 (the last year for which data is available) show an increase each year in the number of respondents who

believe their neighborhood is "best" and an annual decrease in those who think it is "worst" (American Housing Survey, 2001). Still, as is clear from divisions that surface in state and national elections since 2000, there is still a sense of distrust of the myth of progress and modernity rooted in nostalgia for a pre-urban America. The phenomenon many have written about that began to be most noticeable during the 1980s, the creation of gated communities (Blakely & Snyder, 1997; Wilson-Doenges, 2000), has continued apace not only in suburban areas but also in urban settings with the increasing construction of "luxury condominiums," of what are essentially gated buildings. This phenomenon of course is not entirely new – apartment buildings have long had doormen (whose ancestry can be traced, incidentally, to the church doorkeeper or ostiary, necessary for added protection and security from the military and market) – but in some ways it has evolved. The doorman has in modern times been replaced in many cases by the intercom and buzzer or the surveillance camera. Most all newly constructed residential buildings also include parking, allowing residents to enter and exit without leaving their vehicle and encountering doorman, entryway or street.

During this period of urban influx one finds analogs built online. Online communities have long been studied and discussed, from early Bulletin Board Systems to Usenet to MUDs and MOOs and social networking sites like Friendster (Baym, 2000; Kendall, 2002; Jones, 1998; Rheingold, 1993). The connections between online and offline communities have received scholarly attention, too (Wellman and Boase, 2002; Wellman and Gulia, 1999; Wellman and Haythornthwaite, 2002). There is, however, a rather recent trend toward private, invitation-only networks, such as Orkut. And currently on the Internet we have what one might call gated communities, ones for which we have passwords (or most recently biometrics) and ones that, in the case of private networks, entirely exclude others. I have elsewhere (Jones, 2001) called these cyberspatial analogs of metropolis "micropolis," namely, increasingly smaller and more fragile groupings of people online that act as a substitute for a polity. They may come and go depending on the moment, issue, concern, much as they have recently done in response to the war in Iraq or to WTO protests, and they can be incredibly fleeting yet powerful, as is the case with what Howard Rheingold has termed "digital herds" and "smart mobs" (2002). They enable media-ready protests and make the primary task of "organizing" that of networking. Interconnected though a micropolis may be with other communities (virtual and otherwise), it rarely forms more than a momentary collective, instead serving groups just slightly different one from the other, forming, re-forming and fragmenting community as cable television, magazines, and numerous other media have already experienced. Simultaneous with this phenomenon is an increasing degree of social connectedness for internet users, as research by the Pew Internet and American Life Project has shown (Howard, Rainie & Jones, 2002). But one must wonder how we manage to be so socially connected. In a study of college students' Internet use (Jones, 2002) what was most interesting was the degree to which college students remain on a daily basis connected to friends from home and from high school, and to family, all while navigating new relationships formed in college. I suspect that for us, as with them, in contemporary society our sense of others is very wide, while our experience of them is not very long or very deep. The focus, for instance, is on the number of people to whom we are connected, as on Friendster or Orkut, but not on the meaning of the connection.

I have some of the same suspicions concerning contemporary urban life. What I find most surprising is the degree to which people want to live close to others but want to be left alone. The

phenomenon is similar to David Morley's notion of *heimat*, that "There is, it seems, no place like home - and apparently no place in that home for some who wish to dwell there. Our common European home remains to be built, but the stories we tell ourselves about our common (and uncommon) past are already shaping our understanding of how it should be constructed, how many floors it should have (a basement for the servants?), which way it should face, and who should have the keys to the door" (Morley, 1998: See also Morley and Robins, 1990; Morley and Robins, 1995; Morley, 2000). The offline analog of this may be the increasing size of the single family home in the U.S., in which it is possible to almost entirely avoid other family members but nevertheless "live together."

Population density is simultaneously reassuring and worrisome. On the one hand are the chiefly cultural benefits of it; scaling population up brings with it, as per the tenets of the "new urbanism" (Zucker, 1959; Wright, 1981; Whyte, 1988; Wilson, 1989) the opportunities derived from "mixed use" of property. Planning, it is believed, will mitigate the negative. "Conscientious design compensates for the higher housing density," is the way one designer put it (Musser, 2000, p. 31). On the other hand the citizen must find a way through a changing landscape, one in which planning, and therefore building, rarely ceases. While a goal of many new urbanists is "creating pockets of development that function much like the porch-laden towns that your grandparents remember," (Ward, 2002, p. 33) the reality is that space is more easily handled by developers than time, and the U.S. economy, with low interest rates spurring development, has, if anything, tended toward creating pockets of ongoing development and change nothing like what one's grandparents remember.

It is the planning mentality that interestingly links urban space and the internet. Network operators and internet service providers are invested in maintaining clean, easily and freely traversed networks. They must also maintain physical equipment in at least some proportion and proximity to population density insofar as density determines in no small way the number of network connections being made. The location of the equipment itself must be secure, and thus in addition to controlling network access there is also the need to control physical access. Nowhere is the actual overlap of online and offline community more clear, and yet opaque, as it is in the case of a network access point (NAP), one of the major internet traffic exchanges through which network traffic is routed. In the case of one such site in Chicago the building in which the network equipment is entirely non-descript, a beige, brick, sign-less and windowless building that seems virtually impenetrable. Something of the same can be said about most any site at which network traffic is routed, including the numerous telecommunications cabinets and closets found throughout office buildings and campuses that look like custodial closets. The technologies of the virtual reside in real space and contend with the consequences of residing there but seek as little as possible to interact with or make their presence known to human co-habitants.

On another level, the individual is as much desirous of controlling the urban environment as city planners had once been, and has found means of controlling it with internet technologies. The individual is engaging in what Christine Boyer, in her remarkable book "Dreaming the Rational City" (about the rise of the urban planning mentality in the U.S.), called simply "improvement," a desire to "amend the damaged harmony of the American city" (p. 8). One outcome of the desire to improve city life in this sense was the development of the concept of "zoning,":

> the division of the American city into a structure of cells, hierarchically controlled and rearranged…a technical solution meant to secure an orderly and stable development of the urban land market….Never meant to tamper with the ethic of private property, American zoning was intended instead to secure the interest of property owners by enhancing the economic stability of home ownership and promoting the speculative development of real estate. (p. 153)

One can ascertain much of the zoning mentality in the discourse concerning internet governance and "cybersecurity," as well as in the commercial realm's interests in ensuring the free flow of e-commerce (National Strategy to Secure Cyberspace, 2003). Even the terms used to describe vulnerable internet protocols mimic those of urban planning: Transmission Control Protocol, Border Gateway Protocol, Domain Name, routing, etc.

It is therefore important to note that in some ways internet technologies, and the codes of governance built into them via software on the one hand and behavior on the other (the "Leviathan" Richard MacKinnon identified in 1995), have their roots in notions of planning traceable to the grid plans and market-based plans of some of the earliest western land planning. They are, I believe, the electronic component of the triumvirate of technologies of the Fordist project of suburbanization. The first component was the development of the modern house, removed from the street, fenced off or gated from others. The second component was the automobile that allowed movement along a physical network of roads and highways that provide access to places outside the house while maintaining minimal contact with others. The third component, the metaphor of the internet as "information highway" thus resonates strongly with Fordist notions of efficiency, supplanting a mechanical system of transportation, distribution and and delivery with an electronic one. Instead of a mechanical process of movement that carries commodities, the electronic movement of data carries packets of bits for re-assembly.

Zoning might work for as long as there was a relationship between the zones and the city, but zones were defined as essentially autonomous in practice (both as regards the practice of real estate and the practice of politics as zoning intersects with political districting). Moreover zoning was about land and not about people. Even though its strongest proponents, like Olmsted, noted the need to contend with individuals, the focus remained in his work on management of land (albeit for the "public good"). Throughout the early planning literature one can see that planning quickly came to be about land and what one might term the "city machine," as various transportation schemas (mainly those of the automobile but let us not for a minute forget the transportation of goods and services by other means, e.g., natural gas, electricity, telephone, sewage, etc.) clashed with zoning ordinances (Olmsted, 1916). The city had become decidedly and almost unimaginably interconnected, so much so that it in fact operates like a machine in a mundane (and not only a political) sense.

Viewed this way one may imagine that in a society increasingly reliant on mediation and communication both as means of delivering goods and services but also as means of transportation that some, if not all, of the population shift toward the city occurred because it seemed easier, or at least as easy, to live in a place where the calculus between transportation, communication and community had dramatically shifted. (Indeed in some cities, such as Chicago, the traditional "rush hour" traffic on expressways has reversed course in the last 10 years, with delays outbound away from the city in the morning and back in to the city in the evening.) Internet penetration in rural areas

continues to lag behind penetration in urban areas by about 10 percentage points (Bell, Reddy and Rainie, 2004). As regards the internet it is not only due to availability of infrastructure that urban areas are more wired than rural ones, it is also due to the aforementioned reconfigurations of urban life and to the needs for connection that are created by what I call the "infostructure," that which marks and allows the sociability of life within the complex structures of the city machine by providing instantaneous electronic connection between and among individuals and communities.

There is evidence that points toward consideration of an infostructure in addition to consideration of property and real estates. Postwar urban planning acknowledged communication alongside community and transportation. As Boyer notes, no less imposing a figure in the rise of communication's prominence in academic and policy circles than "Norbert Wiener told the planning conference of 1954 that 'all good planning is in the nature of what is called feedback in the field of communication engineering and the design of control apparatus'" (p. 269). While Wiener in that example was arguing for feedback in regard to the failure and success of planning, the larger meaning of feedback as regards the nature of complex systems was not lost on those who understood that there was no possibility of repair of the "damaged harmony" of the American city. There was, instead, a shift by urban planners away from physical planning, from real estate, to social planning.

To put it another way urban planning encountered a modernist crisis from which neither it, nor the city, have emerged. Instead we have commenced a process of suburbanizing the urban by emphasizing the individual in the collective, the private homeowner in the city, amply connected by an electronic "front porch" built on interactive media technologies. The collective memory of cities that had been quite literally built into its structures dissolved into new and rapid construction of privately owned buildings and of street-level interaction akin to walks through a shopping mall. Thanks to zoning laws requiring the ground floor of multi-story buildings be occupied by retail stores, and thanks to developers' desire to secure leases far in advance from the likes of franchises such as Starbucks, Subway, etc., an effect is achieved akin to the Walter Benjamin's descriptions of the nineteenth-century Paris arcades. But rather than discerning and dispelling the commodity fetish of capitalism the effect here is on the commodification not of object but of brand. Indeed, the attention to objects Benjamin gave in his Arcades project is not possible in these contemporary urban scenes, for there are few objects, and many storefronts and brands.

I suspect a similar event occurring in regard to the internet, or, more precisely, in regard to the services, content and means of communication the internet may provide. While the technologies of the internet and the personal computer are in many ways malleable, the uses to which they are put are not ones that are informed by collective memory or experience. Rather they are founded on assumptions concerning anticipated needs for commerce, connection and for protection. Thus the internet as we have come to know it will diverge. Indeed, it began its divergence in the early 1990s when it became privatized, echoing the privatization of urban services (from security to sewerage, water to waste). On the one hand we will have increasingly easier access and higher bandwidth (thanks to Wi-Fi, among other technologies) as those are cost effective to providers, but we will also have increasingly private, dedicated and isolated networks for which people are willing to pay. The management of access (rather than distribution of access) is becoming a primary concern. The military, for instance, foreshadowed such a development with deployment of its own network for Gulf War II, a network based on standard Internet technologies but entirely disconnected from the Internet. And former White House cybersecurity chief Richard Clarke on numerous occasions

mentioned the need to build a new, secure network for government purposes. Virtual private networks (VPNs) are ubiquitous, and as worms and viruses increase (there has been a ten-fold increase of them from first quarter 2002 to first quarter 2003) and network traffic slows or stops altogether, connections among the group are likely to be judged more valuable than connections to the whole. The infostructure will accommodate the revaluation of connectedness, but the re-zoning of online social connections will come at great cost to the virtual estates we occupy.

Author: *Steve Jones has been Internetworking since 1979 when he was using and co-authoring educational materials on the PLATO system at the University of Illinois Urbana-Champaign. Author/editor of six books, including* Doing Internet Research, CyberSociety, *and* Virtual Culture. *A social historian of communication technology, his books have earned him critical acclaim and interviews national and international media. Jones, co-founder of the Association of Internet Researchers, has made numerous presentations to scholarly and business groups about the Internet and social change and about the Internet's social and commercial uses. He is co-editor of* New Media & Society*, an international journal of research on new media, technology, and culture, and edits* New Media Cultures*, a series of books on culture and technology for Sage Publications, and* Digital Formations*, a series of books on new media for Peter Lang Publishers. He has provided Internet consulting services to numerous corporations and not-for-profit organizations, and serves as president of the Association of Internet Researchers. He received his Ph.D. from the Institute of Communications Research, University of Illinois at Urbana-Champaign.* *Funding for the research on which this article is based came from the Great Cities Institute, University of Illinois at Chicago. The author is grateful for the institute's support.* *<sjones@uic.edu> <http://info.comm.uic.edu/jones>*

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