Communications technology is changing the way our cities are designed and the way we live in them. Gary Gumpert and Susan J. Drucker say this raises important social and policy issues.

Communication
and urban life

Cities have long been the traditional sites of culture, excitement, and economic energy, but changing patterns of housing, transportation and communication have and are redefining traditional patterns and expectations of the urban realm. The shift is more than a change in physical accommodation and convenience. The transfor-mation involves the radical modification of social and economic values. How and where we communicate with each other has had to adjust and accommodate the com-munication technology that facilitates interaction. The city once existed as a multi-functional communication cornucopia. But the public square has lost its role in bringing people together and accommodating their voices and complaints. Instead we gravitate to virtual squares. Local idiosyncratic shopping has been devoured by chain stores and repeatable malls. Cybershopping is decimat-ing local book stores and forcing those boutiques that once thrived on the basis of browsing and serendipitous shopping out of business. Sidewalk talk and cafes are

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URBAN COMMUNICATION - THE CHALLENGES FOR SCHOLARS:

• Investigate and track how communication technol-ogy alters architecture and design – i.e., the home, the workplace, and the social space.
• Develop a broad research program that examines the human need for and the means to achieve sustain-able communities. Track fundamental changes in the nature and need for com-munities.
• Develop a program that examines the communica-tion elements and implica-tions of architecture and design.
• Add urban planning, sustainability, and trans-portation development as domains for the application of communication princi-ples.
• Develop a research para-digm in which sustainable media environment and sustainable development are unified and coordinated.
• Develop a program examining communication dimensions of quality of life initiatives.
• Examine privacy as a changing value associated with quality of life in sus-tainable communities.
• Evaluate the effective means that foster civic engagement in planning and policymaking. How successful are e-govern-ment initiatives? What con-ditions foster valuable face-to-face civic engagement?

threatened by zoning restrictions and the necessity of creating unencumbered paths for automotive traffic. Commuting into and out of the city for work and the rise of outsourcing and telecommuting creates different priorities and needs for the city. The fall of the movie house to the tyranny of DVDs and cable systems redefines the older traditional urban zones of delight and entertainment.

The Urban Communication Foundation was recently established to promote and support research into urban communication, sponsor activities, encourage young scholars, and reward outstanding work. The study of urban communication is based on the notion that cities are inherently places of communication, meeting spaces for interaction and observation. It has been established with the recognition that urban centers and suburbia (closely and intimately connected) are facing a critical time. What can communication experts contribute? What can communication research and theory provide in the study and design of vibrant urban centers? Should city planning and media planning be linked and coordinated? The Urban Communication Foundation is not based upon a luddite mentality, but seeks to encourage research and policy that choreographs new communication technology and preserves traditional communication needs.

THE CALL TO COMMUNI-CATION EXPERTS

Without research and creative work linking the role of social interaction, communication, and the design of the place, the hope for a humane balance between traditional commu-
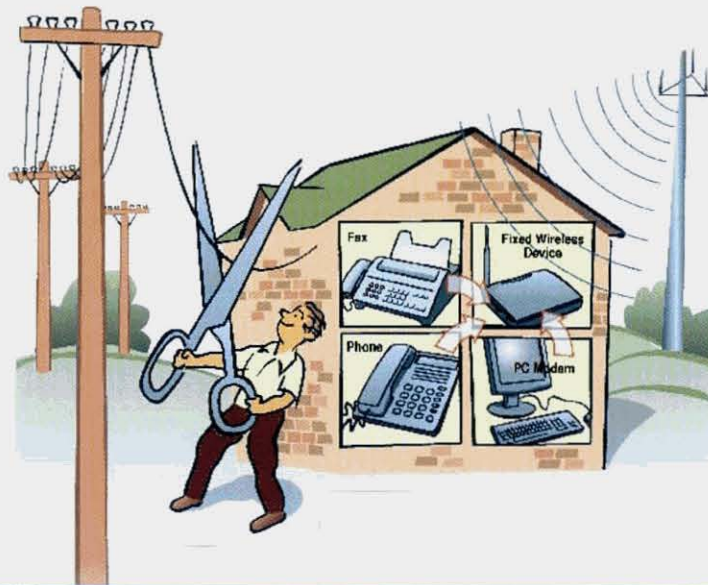
Source: PR Newswire/Tellular

Technologies like fixed wireless access can have wider social consequences

nity and multi-grounded series of media constructed communities appears hopeless. Place based communities become accidental, incidental, or exclusive. Cities, towns, housing developments, residential units are being designed layering technology upon technology with broadband and wireless access being the latest innovations. Whether necessity or luxury, media technologies are being integrated into the fabric of place, often by security systems experts rather than communication and design professionals. Technologists and designers have ceded their planning leadership to technicians.

The new urban infrastructure is disconnected from the planning and design of the urban and suburban social and economic landscape. From this realization grows a host of public policy issues confronting municipalities and regulators. For example, what is universal service? Should zoning and districting of land use be re-evaluated? Can telecommuters be taxed by a local authority for the income generated via con-

tacts over the Internet? What are reasonable expectations of privacy and what are appropriate security measures attendant to mobile internet access via public internet access points? What are the implications of this new urban infrastructure for telecommunications industries seeking markets and potential public/private sector partnerships?

DIGITAL DIVIDE

The dependency upon communication technology will increase, but so will the digital divide between those who have access to the technology and those who do not. In that sense a technological future is irrevocable. This polemic carries with it an agenda of a critical and research nature for communication scholars. (See box)

The city is being reformulated by technologies that permit and encourage communication through connection. The suburb and edge city, an outgrowth of economics, communication technology, and transportation, forecast the future digital city by offering

a technologically based social alternative. Community once tied to geography has been positioned in opposition to social life linked by communication technologies.

In the preface to Thomas A. Horan's Digital Places: Building Our City of Bits William Mitchell discussed the significance of the digital revolution:

I suggested that digital telecommunications networks would transform urban form and function as radically as piped water supply and sewer networks, mechanized transportation networks, telegraph and telephone networks, and electrical grids had done in the past. By supporting remote and asynchronous interaction, these networks would loosen many of the spatial and temporal linkages that have traditionally bound human activities together in dense clusters, and they would allow new patterns to emerge. We would see the fragmentation and recombination of familiar building types and urban patterns. (p.xi, Horan)

Much has been made of "Recombinant Architecture" focusing on computer mediated collaboration and the changing conditions of architecture in the information age. Recombinant architecture has at its heart issues of reorganization of the functions of buildings, transportation systems and computer networks (Mitchell, 1994).

A number of questions are raised, and should be raised, by the exuberant adoption of communication innovations. What is community in a technological age? Is it possible to retain vibrant place-based communities while recognizing the absolute dependence upon digitalization and the increasing significance of digital communities? To what extent do Information Technology (IT) rich environments influence behavior in virtual and physical environments? Is there a symbiotic relationship between the two? What do the burgeoning capabilities of the Internet, mobile and wireless communications mean for our concepts and experiences of public and private spaces in the city? What do they mean for the street and the home, and for the complex interplay between private and public spaces in the city? How might policies and practices of urban design and planning best address the changing nature and experience of urban space by integrating information and telecommunication technologies into their views of the world?

Source: MGM/PRNewswire

A planned cinema and leisure development in Las Vegas

WHAT IS A COMMUNITY IN A DIGITAL AGE?

Cities and communities come in all sizes and variations that now include: digital communities, virtual communities, online communities, wired cities, digital cities, smart cities, virtual cities, and online cities et al. Such variants all have one thing in common—a reconstituted paradigm of place and location facilitated by digitalization. Digitalization alters and irrevocably modifies the nature of relationships between individuals and their environment (Gumpert & Drucker, 2004). The relationship of non-mediated and mediated communication activity is recombinant in the sense that William Mitchell has used the term to describe the phenomenon of digital technology recomposing homes, office, communities, and cities.

THE NATURE OF MEDIA

Communication technologies, the basis of recombinant architecture, are never neutral. They do not simply serve as conduits of distribution, as means of transferring information from place to place. Each medium is primarily defined by its unique technical characteristics. Further, economic, institutional and regulatory forces shape media forms and content. The combination constitutes the

media environment.

Media are distinct languages - calling for literacy in media grammar (i.e. an understanding of the use of technical features and production variables within each medium). Media Literacy entails competencies that increase understanding of how the media work, how they produce meaning, how they are organized and how they construct reality. This is an approach helpful in evaluating the relationship between digital and physical communities because it helps understand human-environment interaction. The media literate 21st century citizen has absorbed techniques, grammars and expectations into their media psyche. Each person functions with a complex series of communication expectations. Each individual has social expectations tied to where they live, work and play. Such expectations are linked to technology of communication that shape expectations. The city of old provided an infrastructure of communication but that infrastructure has been radically altered.

Twenty years ago Joshua Meyrowitz wrote *No Sense of Place: The Impact of Electronic Media on Social Behavior*, at which time he observed that "Our shared sphere of interaction is informational rather than physical." Further, Meyrowitz stated, "We bypass many previous generations' dependence on physical location as a prime determinant of access to people and information."(Meyrowitz, 1985, p 315). The traditional neighborhood community of place has certainly been altered, weakened, perhaps displaced. Each medium has a unique set of codes and conventions (i.e. a grammar) which become part

of our media consciousness. The order in which such grammars are acquired produces a generational world perspective uniquely defined by those available and inherited technologies (Gumpert & Cathcart, 1985). "The grammar or essence of each medium distinguishes one medium from the next which are also built into the expectations and attitudes of a public that has inherited a set of communication technologies that characterize the temporal and spatial relationship of individual to place" (Gumpert & Drucker 2005).

THE PARADIGM OF THE "TERTIUM QUID" CITY

The reconstituted city, altered by communication technology represents the tertium quid. Tertium quid is defined as a "third thing", "some thing related but in some way related to two things but distinct from both" (Random House Dictionary of the English Language, 1966). We suggest the term

Airports are now designed with WiFi in mind

"tertium quid city" is useful in describing the city of new expectations, a placed composed of its physical and elec-

tronic parts but distinctive and greater than the simple sum of its parts. The new city would provide complementary physical environments and media alternatives.

Unlike the recombinant city with its reorganization of human activity into new and mediated forms, the tertium quid city infers and requires the preservation of the old with the new and the rediscovery of the physical environment experiences through all the senses. Unlike the digital city and the inherent acceptance of new technology, and unlike the recombinant city and its understanding of the impact of media technology upon existing architecture and infrastructure, the tertium quid city is a normative term describing and advocating an environment reshaped by media but accommodating the preservation of the old social environments.

The challenge is to design the tertium quid city, encompassing the values of traditional cities. The people who inhabit digitalized cities are of a new media generation. They are people with a digital con-

THE EXPECTATIONS OF THE DIGITAL GENERATION

1. Interactivity/Interaction – action of the user generates a response either from another human being or computer program at the other end of the media connection. Interactivity is associated with action-reaction or command-response exchanges. Interactivity allows a user to make choices that will result in a variety of responses. Interaction and interactivity is associated with person-to-person contact and interactivity is associated with person-computer exchanges.

2. Immediacy of Response – the relative ease with which a sender receives a response to a specific message. Swift feedback becomes a norm. The expectation of immediate connection and prompt response results in willing interaction with either a constructed artificial response system or a human being—sometimes they are indistinguishable.

3. Privacy – control of personal contact and information. We have witnessed the ascendancy of privacy as a value in tandem with new opportunities for privately accessed interaction. While "private social space" is an important constituent of the media environment, surveillance technology suggests that privacy of information does not exist. Concern for privacy has stimulated a great deal of media coverage and commentary where repeatedly the message was that "legal, technological and cultural changes have undermined our ability to control" our personal information (Rosen 2000). In the face of an ever-increasing awareness of the diminution of privacy, the illusion of privacy is fostered by the increased control of contact and content afforded by digital media.

4. Anonymity of Interaction – the nature of the medium makes it possible to hide or fabricate identity. Anonymity is extremely effective in promoting freedom of expression but anonymity hinders some methods of controlling the actions of other people. Alternatively, digital environments offer opportunities for pseudonymity. A pseudonymous user may be more responsible for his or her actions than the completely anonymous user but is still liberated to a degree from accountability. In reality, what is experienced is more aptly described an illusion of anonymity.

5. Increased Sense of Control – choice of contact, channels and time is an essential component of the media environment. Digital media offer "bi-directionality". Data can flow in both directions. The increased ability to "block" or "pull" in data or programming on demand promotes a sense of control.

6. Access Regardless of Distance – space and location are less significant if not irrelevant with connection a primary goal of a digital environment. Local does potentially become global and global local.

The Eradication of Time – The global standardization of time was a development of the late 19th century. Before that, all time was local time. "Before the railroads, each city and region kept its own time by the sun" (Solnit p. 59). At 9:00 a.m. in New York it is 7:45 p.m. in Bangalore. The "outsourced" service force of Bangalore is synchronized and coordinated to serve the United States work force. The relative immediacy of transmission juxtaposes time zones. This aspect of time with regard to etiquette and effectiveness is media dependent. Each medium has conventions linked to fixed features. While one is able to make phone connections across multiple time zones, there remains sensitivity to the location-based nature of time when determining how and when to use the medium. Some media appear appropriate irrespective of time when asynchronous communication meets the needs of the communicator.

7. Simultaneous Channels of Communication – simultaneous or concurrent activity via multiple channels of communication is promoted through media convergence. Multi-tasking facilitated by a transparent interface promotes gliding from medium to medium.

8. Control of Digital Properties – the transition from analog to digital brings with it the ability to control and reconstruct discrete binary elements that constitute any given content. This feature introduces all sorts of questions regarding authenticity, authorship and property rights (Gumpert & Drucker, 2004).

sciousness and expectations. They are not the same as those who inhabited the traditional city yet; sustainable communities and social cohesion remain positive goals of development. The social and political institutions structuring and governing the lives of the digital generation are shaped by, and in turn shape, the digital city.

The tertium quid city infers some degree of balance between the innovation and tradition, between the old and the new, recognizing the transitional stages from old to new media. Inherent there is a recognition of the centrality of the human as communicator gliding between physical and media environments, functioning in each based upon the needs served in each. Suggested is the need to recognize the significance of global media connection alongside local community media. The goal is the planning and design of complementary landscapes in which the physical balances the media environment, and in which global contact supplements local relationships.

MOBILITY, WIFI, ET AL
One simple exemplar of the new city is the integration of wireless data technology, WiFi, in which hot spots are transforming the use of airport waiting lounges, college campuses and coffee shops. By providing immediate high-speed wireless electronic connection for a mobile data generation, the physical environment provides a transparent interface between physical and media environments. But in accommodating the digital generation, societal impact can be anticipated. The technological infrastructure required for such a wireless environment is receiving the attention of planners and urban developers who view WiFi as a device to attract commerce and individual users back to the city – that such an innovation might serve as a tool for urban renewal in which cities offer free wireless access to downtown areas and provide some a means of reconciling community and 21st century urban/ technological developments. There is a sense of paradox in these developments in which a renaissance in the physical is contingent upon access to the digital.

CONCLUSION: THE IRREVERSIBILITY OF TECHNOLOGY
Because communication technology is not reversible, one cannot un-discover the technology or eradicate awareness of it from human consciousness, digital media must be understood and considered as a force with potential transformational influence. Digital media individuals and institutions cannot merely be superimposed on traditional cities but the fixed features of digital media must be integrated into the new tertium quid city.

The initial activities of the Urban Communication Foundation are being designed to encourage more interest in urban communication research and acquaint external constituencies and communities with the value and relevance of communication research to their work (e.g. community leaders and organizers, architectural and design experts, relevant policy makers, community advocates, community media etc.). **IM**

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Portable data storage devices like MP3 players and USB memory sticks are revolutionising consumer electronics but they are also an enormous threat to data protection, warns Magnus Ahlberg

The enemy in the pocket

Source: PR Newswire/Memorex

The rise of the mobile data market has been rapid, lucrative and dangerous. Long gone are the days when you needed identical tape drives and software on both computers. The traditional floppy disk market and local tape markets were superseded by the super-floppy and zip drive. Now even they are disappearing as the mobile data storage market evolves.

Thanks to their large capacities, portability, and simplicity, removable media have become one of the most popular types of storage devices around today. You've only to go down to one of the big computer shows to be offered a free memory stick as a stand give-away. If you take part in an IT training course, you might be given one with all your computer course notes stored on it. They are so cheap it's the obvious way to store information, business proposals, accounts, client's details, marketing plans etc

The arrival of the MP3 music player has had a significant impact on the market. While Apple sees music as the only reason for owning an iPod, their competitors have simply created large USB stores with some built in music software. An increasing number of people now view the MP3 player as both a data and entertainment tool. The danger here is that as an entertainment device it falls below the radar and with storage capacities set to exceed 80GB by the end of 2005, it is a serious threat to data protection.

Think about how easy it would be to remove corporate data:

• The average word processing file is 3 pages in length and between 25k and 30k. That means that a 20GB MP3 player could hold over 750,000 documents.

• The majority of corporate networks do not audit what data a user copies to a local machine or attached device.

• New compliance legislation means that you must develop a policy for the use of devices or risk being fined by regulators.

• 99% of users who use mobile devices to transfer data use no encryption to protect their contents.

During the 1980s the fear

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was that people would be able to save the customer or company price lists onto a floppy disk and take it to their next employer. Today, they can not only take that information but also your entire customer database showing purchasing prices and history on a single device.

The advent of fast Internet access in the office meant that employees used the company network to download files. Increasingly, that has meant people pulling down illegal content as well as installing peer-to-peer (P2P) networks on their desktop computer. With P2P installed, they can move files between the office and home on CD, DVD or other removable media. The danger to the corporate network is that file sharing through P2P exposes the company internal structure.

WHAT CAN BE DONE?

Preventing people bringing devices and media into the office is an extremely difficult problem. Look at the physical size of much of this media and it's easily missed in a pocket, briefcase or handbag. Short of instituting an invasive and very workforce unfriendly search policy, keeping devices out of the company is virtually impossible.

The solution then, appears

> **The average word processing file is between 25k and 30k. That means that a 20GB MP3 player could hold over 750,000 documents**

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10 THINGS YOU PROBABLY DIDN'T KNOW ABOUT REMOVABLE MEDIA

1. The first Compact Flash Drives began to appear in quantity five years ago and started at 8MB. By 2004, Lexar had released an 8GB device aimed predominately at the professional photo-market.
2. USB Pen Drives are now often hidden inside pens making them very difficult to detect by security teams.
3. Seagate now ships a proper, very small form factor 5GB USB disk drive. It is less than half the size of a Yo-Yo and features a real disk drive spinning at 3600rpm.
4. 4GB USB pen drives are expected to reach capacities of over 8GB by mid 2005.
5. New mobile phones can use memory cards holding in excess of 1GB
6. Research in 2004 suggested that a modern office worker carrying an MP3 device and a mobile phone would be capable of storing over 20GB of data.
7. MP3 and mobile video player company Archos will soon launch a 100GB device.
8. The new 1-inch hard disks are expected to reach 100GB within 12 months.
9. Blocking the USB port would prevent all devices from working and with operating systems like Windows XP, is easy to circumvent.
10. IDC predicts that the sale of very small hard disks will explode from less than 18m in 2004 to over 100m in 2008. Most of those will be in portable devices that could be carried into offices.

If this doesn't scare you then you clearly are not responsible for looking after corporate security.

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to be one of management. The first step here is to decide on what you can and cannot enforce. Remarkably, few companies actually realise how limited their powers actually are, especially with respect to current privacy and human rights legislation.

For example, preventing employees from bringing their MP3 player to work and then using it during lunchtime would require draconian terms of employment that are almost certainly illegal. Companies that have tried similar experiments with regard to camera phones have found it hard to police and enforce.

What you can do, however, is ensure that all members of staff are aware that their employment does not allow the connection of non-company devices to their computers or other peripherals. This means banning people from downloading their photos to that nice colour printer. No swapping music with the person who sits next to you if that means connecting to the computer and using it as a transfer point.

TECHNOLOGICAL SOLUTIONS

Administrators need to create security solutions that log the amount of data that a user

> **Nightly sweeps of hardware to find MP3, WMA, and JPG file extensions would seem a simple thing. Unfortunately, all of these formats have legitimate work uses**

downloads. It is already acceptable to search an employees hard disk for illegal files but few companies do this. Nightly sweeps of hardware to find MP3, WMA, JPG and other file extensions would seem a simple thing. Unfortunately, all of these formats have legitimate work uses and are often used by software packages for saving business files.

If you are to allow data to be transferred over removable media then you should consider how to secure it. There are several vendors with encryption solutions in the market. All of them have different advantages but whatever you choose should have a minimum set of features.

• Work with policy files to allow data to be locked after a given number of password attempts.

• Have a mechanism so that data can be encrypted once and then accessed where required without having to install software on the receiving computer.

• Be backed by an administration program that would allow for the recovery of lost passwords.

• Will work on a range of devices and removable media.

• Be simple to use, implement and manage.

The latter is all too often overlooked when deploying security solutions. There is a belief that security means complex, it doesn't. To ensure that people use a solution it must be simple, effective and deal with all situations. If you have to give encrypted files to someone who needs a copy of the software, then it becomes a case of either give them a licence for the software or don't encrypt. Many people will opt for the latter.

Files need to be self contained as an executable where the level of encryption is still high enough to thwart all but the most extensive brute force attack. There are products that fall into this cat-

> **...almost every month a new piece of regulation over data protection and access appears. If you don't sort this out now, the regulator will fine you...**

egory and they are worth finding and deploying in order to minimise the risks. One possible solution is to ensure that you encrypt everything that is downloaded from a computer onto any removable media.

Your corporate data has never been so insecure. The ease with which it can now be removed from the office surpasses anything in history. There are approaches that you can use but they must encompass protection of content and system management simply banning devices will not work.

Remember, we are now in a world where almost every month a new piece of regulation over data protection and access appears. If you don't sort this out now, the regulator will fine you large amounts of money and you'll still have the problem. **IM**

Image courtesy of Apple

This new iPod can store up to 60Gb of data

Thousands to Millions

The New Diversity in Broadcasting and Telecommunications

The 36th International Institute of Communications' Annual Conference
in association with Chatham House

Monday 10th October 2005 – Tuesday 11th October 2005

This conference will examine the drive towards convergence in telecommunications and broadcasting, explore the emerging 'thousands to millions' world and assess the impact on business and the consumer. Topics for debate will include:

→ How can business strategies balance the possibilities opened up by new technologies against funding uncertainties and the economic cycle?

→ What will be the impact of a multiplicity of channels and media on public interest broadcasting?

→ How can regulators effectively protect the public interest and the consumer interest?

→ What does the diversity of channels and media mean for advertising and subscription revenue?

→ What will bring about commercial acceleration? Which business models offer the best chances of success?

For further information please email
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