From virtual communities to smart mobs

Some futures have a way of coming back.

Well before the Intenet took off, Howard Rheingold, former editor of *The Whole Earth Review* and author of *The Virtual Community* (Perseus, 1993), envisioned computer bulletin boards evolving into planetspanning voluntary networks of individuals, formed for commercial exchange and mutual support-in short, a radical transformation of society, where "neighbours" would be people who shared common goals and interests, not geography.

Now, a decade later, social transformation via the machine seems at hand once more. In his latest book, Smart Mobs, Rheingold explores how handheld wireless phones, linked to the Internet and capable of transmitting images and printed text, can radically transform the way groups and individuals relate to one another and get things done.

Cell phones have already changed the lives of many teenagers and young adults in Scandinavia and Japan technologically advanced urban centres where wireless phones and service are relatively cheap but privacy at home and places to hang out in public are often hard to find. Cell phones made it possible for kids to congregate, exchange news, and share personal experiences in real time without physically meeting. As the phenomenon spreads, Rheingold notes, many young cell phone users come to consider anyone they are connected to by phone as being present, and even prefer phone exchanges to live conversation.

As psychologists discovered when computer chat was new, text messaging often feels somehow safer than speaking aloud. Adolescents in particular are liable to express emotions and share intimate details of their lives more freely in printed messages – even to relative strangers – than talking face to face with adult advisers, family members, or close friends.

Wireless phone connections can help individuals make sense of what is going on around them, even in chaotic situations. One dramatic example occurred on September 11, 2001, when passengers aboard United Flight 93, using their cell phones, learned about the other hijackings and decided to take action. In January of that same year, relayed waves of cell phone text messages guided thousands of otherwise unconnected citizens to join the spontaneous street demonstrations that forced Philippine President Joseph Estrada from office.

From Portable to Wearable

Handheld wireless is only one technology driving the social revolution Rheingold sees ahead. Other elements include computers and video gear designed to be worn like clothing or jewellery, and microchips, equipped with sensors and communications devices, built into cars, buildings, and objects of every kind.

Already, a few individuals make small computers and video cameras routine parts of the clothing they wear every day. One such self-styled cyborg (cybernetic organism) is Steve Mann, a professor at the University of Toronto. Since the early 1990s, when he was a graduate student at MIT's Media Lab, Mann has worn ever more refined versions of a computer helmet equipped with video cameras. Video feed from these cameras -the only images that reach Marin's eyes-are all filtered through computer circuits. This enables him to mediate reality on command-for example, by making selected objects stand out from their background or disappear entirely from view. Walking the streets of Manhattan, Mann can instruct his helmet cameras to blank out all the billboards or placards he approaches, immunizing himself to commercial advertising.

Mann considers his computer helmet self-defense against what he sees as ever-greater intrusions by government and business on his personal space and freedom. He distrusts efforts to create a smart environment, where buildings and machines have built-in microchips that detect the presence of human beings and react to commands or even anticipate them. Rather than accept such a world of electronic control, with "cameras and microphones everywhere in the environment watching and listening to us in order to be 'helpful'," Mann wants tomorrow's wearable computers to function exclusively under the wearer's control, in order to "create and foster independence and community interaction."

One example of what Mann calls community interaction, also known as peer-to-peer (P2P) computing, is Napster, the notorious Web site that helped users exchange recorded music over the Internet without paying royalties. Another is SETI@home, the project by which PC users permit remote access to otherwise inactive circuits in their machines. Linking up small amounts of unused processing capacity from thousands-even millions-of individual PCs creates the functional equivalent of a supercomputer.

And this enables radio astronomers engaged in the search for extraterrestrial intelligence to sift rapidly through mountains of raw data for possible evidence of advanced civilizations among the stars.

But P2P applications go far beyond looking for messages from outer space and trading hit recordings. P2P has become a cause-a seemingly all-win approach to problem solving, where many individuals cooperate in projects that cost each one very little. Because the cost is low, and so little conscious effort is required, people feel free to risk impulsively enlisting in projects of many

kinds, whether to potentially benefit humanity or just make someone smile.

Millions of people allow the use of the background space on their personal computers for advancing cancer research, finding prime numbers, forecasting weather, designing synthetic molecules to produce new drugs, and generally tackling problems and simulations so complex that researchers could never attempt them before. But this sort of cooperation requires trust. From blind dates to global diplomacy, people tend to cooperate only when they have reason to believe they can trust each other.

Commercial transactions on the Internet at major sites like eBay are made easier and less risky by the use of buyer/seller rating systems that establish a personal track record or reputation for participants based on their past behaviour. One more important aspect of the social revolution that Rheingold looks for in the next few years is that wireless cell phones and wearable computer gear will give people meeting for the first time face-to-face anywhere in the world power to instantly verify each other's identity and check one another's background using online sources.

Transparency, Trust and Treachery

Providing a reasonable basis for trust in real world situations could go far toward making a true global village out of what has come to seem more like an overcrowded global subway car crammed with mutually suspicious and menacing strangers.

But the impending era of wireless computing and communication has its dark side, too. Rheingold's own ambivalent feelings are revealed in his book's title. "Smart mobs" suggests both new opportunities for strangers to increase their collective intelligence by rapidly exchanging information and the ominous new power that anonymous masses on the move, linked by mobile communications and able to tap the vast resources of the Internet, will gain for committing violent and disruptive acts.

That swarm of eager adolescents in the streets of Tokyo or Stockholm chatting and texting on their cell phones could soon just as easily be a gang of toughs in Hamburg or New York City stalking potential victims to mug or rape. The same technology that helped Philippine crowds turn out en masse to topple a corrupt politician in 2001 also helped violent demonstrators evade police and coordinate acts of vandalism two years earlier in Seattle during protests against the World Trade Organization. The line between democracy in action and irresponsible disruption is unclear at best, and new technologies are never guaranteed to serve the public interest.

Permitting outside access to memory space in your computer can involve the harmless swapping of tunes among music fans, but it can also enable unscrupulous hackers or criminals to secretly store their stashes of pornography or stolen business files on your hard drive without your knowledge. The same distributed processing through multiple PCs that helps legitimate scientists distinguish radio signals from background radiation can just as easily be used by terrorists to help design a bomb or calculate the most destructive way to spread biotoxins through a city subway system. The smart devices promised for the coming generation of appliances and buildings to ensure comfort and convenience in our homes and public places could conceivably be turned into an inescapable net of surveillance cameras and hidden microphones directed by some Big Brother agency in government or business, or perhaps simply vulnerable to savvy hackers and voyeurs.

Howard Rheingold and Steve Mann offer alternate ways of dealing with the social implications of new wireless technology. Mann sees wearable computers as a kind of body armour – an equalizer that individuals can use to defend their independence in an age of big government and giant corporations. Rheingold looks rather to the opportunity that wireless communication offers for an individual to locate and cooperate with others to achieve desirable outcomes great and small.

Both men underscore the need for caution. However fast wireless Internet and P2P communications spread, we clearly need to do some serious futures thinking. As we enact new laws and set binding universal standards for cell phones, distributed processing, wearable computers, and smart buildings, governments and private citizens alike will need to clarify their vision of a desirable future world.

Now more than ever, technology has the potential to dictate the pace and define the norms of daily life for decades to come. It may be hard for many of us to imagine a world where mutual benefit beats out greed as the driving force determining individual behaviour. But the potential for such change does exist, and if consumers and regulators alike begin to ask more questions and become more proactively involved in setting goals and limits, there is still time to shape a humane and sustainable communications environment.

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