



# IDSS COMMENTARIES (72/2005)

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## **The Promise and Peril of Information and Communication Technology (ICT)**

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PERHAPS the most remarkable aspect of the rise of modern communications technology is the way in which most people have incorporated it into their everyday life so effortlessly. All the more remarkable given the fact that things like e-mail, SMS, wireless networks, and the ubiquitous internet had virtually no role in the life of anyone even ten years ago. Perhaps in no other time in history has such a technology had such a rapid and widespread effect on our society. But what exactly does it all mean?

The implications of this rapid development are not only far-reaching, but also reveal conflicting tensions. While some claim the power of ICT to unite humanity in authentic forms of democracy, others point to the role such technologies may play in centralising the authority of the state in an Orwellian sense. Still others point the possibility of anarchy erupting due to the disruptive effects such technology may have. The question is whether any single explanation can capture the complexity of this social development?

Considered together, these contrary messages all point to the social uncertainty that surrounds modern life. To wit, all are true to a certain extent and none completely correct. Essentially, ICT exhibits the promise and peril of modern existence in its ability to both unite and fragment, to centralise power even while providing opportunities for those seeking to challenge authority.

### **Radical new politics?**

The initial development of ICT in the form of both electronic mail and the World Wide Web supposedly heralded a radical new politics in which individuals could break the stagnant bonds of traditional politics. With new sources of information, and linked together through a ubiquitous medium of electronic communication, novel constellations of political interest could form, even spontaneously. Political discourse and choice would be liberated from the pre-determined structure imposed by modern party politics. ICT thus would be inherently democratising in its ability to free the search for and dissemination of information from the bonds of traditional sources of authority.

The poster child for this development was the spontaneous emergence of informal groups committed to challenging the supposed effects of globalisation. What was novel in this development was the wide range of interests that spanned the participating groups -- from the concerns of Western agricultural communities, to those troubled by the industrialised destruction of the environment, or those who sought to challenge the dominance of global

corporations. The agendas of these groups had oft been denied an opportunity to be heard within traditional representative democracy, dismissed by the derogatory label of “special interest”. But ICT allowed these groups to both propagate their message and attract followers. ICT also permitted the organization of mass protests, such as those that took place in Seattle, Genoa, and Quebec City against the “faceless” and unaccountable international organizations that, they argued, threatened to undermine democracy.

### **The centralization of power**

Nevertheless, the same technologies that permit groups of disaffected and disenfranchised individuals to organize and propagate their demands have also permitted just the opposite effect -- the centralization of power in both the organs of the state and in corporations. ICT has permitted the realisation of Francis Bacon’s axiom on knowledge and power in totally unprecedented fashions. The collection of consumer data by corporations has enabled specialized niche marketing that confronts us daily as we log onto our favourite web sites and surf for information.

More seriously, the computing power afforded by increasingly sophisticated databases threatens to lead to a surveillance society. Such power was recently demonstrated in the search for the terrorists who attacked the London underground in the summer of 2005. Face recognition technology, combined with smart cards embedded in a variety of devices from public transit cards, cell phones, and even private vehicles, suggests not the development of greater democracy and freedom, but rather its reverse in the nightmarish manner dreamt by Orwell nearly 60 years ago.

### **Digital anarchy**

Even as groups who seek to establish greater communitarian efforts compete with the centralized goals of the state and corporations, ICT has also permitted the rise of those that would deny both and seek to impose a situation of anarchy on society, whether civil or state. Hackers and other on-line anarchists seek to undermine authority and control through the infiltration and disruption of secure systems. In this they use the tools of modern society to challenge its technological foundations. In some cases, the periodic waves of electronic viruses, Trojan horses, and worms attacking the sinews of electronic society reflect the efforts of those opposed to the omniscient states and corporations described above.

However, “Denial of Service” attacks shut down not only electronic commerce, but also gateways to information, and more worrisome, the provision of a whole range of services increasingly dependant on the electronic routes of the internet. “Critical Infrastructure” in terms of electrical grids, power stations, water systems, logistical services, and transportation control systems are all increasingly dependant for their continued functioning on communications carried over the internet. In this manner, hackers threaten not only the state and corporations, but also society itself through their anarchical attacks on services.

### **ICT and the military**

If one looks to the realm of the military, the impact of ICT has been as profound.—Western militaries, the US armed forces in particular, unveiled novel forms of warfare throughout the 1990s involving the use of ICT in the form of “network centric warfare”. In this, they have attempted to replicate the power of the civilian “web” in a military context, permitting the

establishment of “information dominance”. The force with superior information may decide faster and thus move faster than any of its opponents, leading to “Full Spectrum Dominance” on the battlefield. The result is quicker decisions and fewer casualties, both friendly and enemy. This was amply demonstrated in several conflicts throughout the 1990s where the speed and enormity of operations conducted by the US and its partners virtually paralysed opposing armed forces. The term “Shock and Awe” seemed to capture well the impact that could be created by these technologies in conventional warfare.

However, just as democratising technology has been challenged by centralised databases -- and both of these by digital anarchists -- the military has found that emerging insurgent forces have adopted asymmetrical tactics, often exploiting the same ICT both to propagate their message (in a similar fashion to the democratists, but with decidedly different aims) as well as raise funds and adherents.

Using disinformation as their source of power, these groups are often able to “shape the battlefield” by seizing the initiative and forcing conventional militaries to react to their agenda. In fact, small, decentralized, non-hierarchical organizations may enjoy superior advantages in using the opportunities provided by such technologies. Those who have no need for a rigid command structure and all the social restrictions such hierarchies impose on human agency can exploit the freedom provided through ICT to a much greater degree.

Thus we come full circle in this story about the enabling power of ICT. It starts with groups seeking to reintroduce democracy to disenfranchised citizens and ends with admittedly disenfranchised groups that have no commitment to the universal and humanistic goals of westernised society. The problem is that ICT enables human action without regard to whether the actor seeks greater democracy, safer military operations, or widespread chaos. Herein lies the promise and peril such technologies bring with them.

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