Assimilation by Communities of Internet Technologies*

Geoff Erwin
Cape Peninsula University of Technology, South Africa

Wal Taylor
Cape Peninsula University of Technology, South Africa

INTRODUCTION AND BACKGROUND

Information and Communication Technologies (ICT) are posing fundamental questions for society, government and commerce in economic, social, educational, cultural and democratic processes within and across nation states in terms of access, equity and security. Electronic networks which can operate both inside and outside of nation states with hitherto unknown volume and velocity are challenging and changing the architecture of governance, power and culture (Bollier, 2003; Coleman & Gotze, 2002; Rheingold, 2004).

Many governments and global agencies have recognised the growing issues associated with inequitable ICT access and have provided funded programs aimed at addressing specific needs within nation states. However, there is growing evidence that many of these programs have failed to deliver on their desired aims and that the societal and community-based disadvantages resulting from uneven societal adoption of ICT are growing (see for example, Pigg, 1998; Hewitt & Pinder, 2003; Clement, 2000; Gurstein, 2003a, 2003b). There is now increased understanding that the provision of ICT access, either high or low capacity, through government and private sector efforts by itself is insufficient to address the substantial concerns that face society as a direct result of ICT (Gurstein, 2003a; Pinder & Hewitt, 2002).

Further, growing experience across the world in the application of ICT in the provision of government services (known as e-government) is showing that the electronic provision of government information and service as for example, through currently available physical ICT access within particular communities, does not appear to be sufficient to meet the broad challenges governments must address for individual societies to move forward in the information economy (Hewitt & Pinder, 2003). In almost all jurisdictions across the world, the take up of electronically enabled government services has been well below expectations even in situations where there are high levels of income, education and Internet connection across populations (Bertucci, 2003; Dutta, Lanvin & Paua, 2003; Riley, 2003a; Rohleder & Jupp, 2003; West, 2003). Fundamental to these issues is the recognition of concepts of:

- *Effective use* as opposed to *access* (whether this is based around physical, attitudinal, educational, disability, cultural, or integration concepts)
- *Civil Society* and a new contract that binds civil society, public and private sectors into a value matrix (Brussels-EU Chapter of the Club of Rome and Factor 10 Institute, 2002)

These issues provide substantial challenges for the traditional and familiar forms of governance and business education, as well as for issues related to the form and function of service delivery and forms of engagement with citizens, the private sector and civil society. The traditional incrementalist and efficiency-based approaches within specialist agency structures are now under pressure from increasingly ubiquitous ICT applications that have little respect for professional, organisational, nation state, social or cultural boundaries.

In recognizing these issues and their impacts on the developing world, the United Nations (UN) through the International Telecommunications Union (ITU) delivered the first World Summit on the Information Society (http://www.itu.int/wsis) in Geneva in December of 2003. Fundamental to this event and the planning for the next WSIS in Tunis in 2005, is the recognition of the concept of civil society alongside business and government as a triumvirate to deal with the huge problems of inequity that ICT poses across the world. In defining responsibility for civil society, planning processes have clearly defined higher education as an essential leader.

THE EMERGING CONTEXT FOR SOCIAL APPROPRIATION OF ICT

ICT are simultaneously both incrementally and fundamentally changing the working, social and personal lives

of many people in developed countries and developing countries alike. The technologically deterministic view of ICT diffusion, particularly in the development of e-government, is now being challenged. As the many examinations of "e-readiness" are finding, the major current impediments to adoption of e-government are in the demand and the aggregation of supply and demand domains. Many of the ICT applications developed for organizational use have not been successfully embedded into the demand and demand aggregation domains and are being found wanting in such areas. Hence the social appropriation of ICT refers to the duality of redefining application design and of embedding the technology in social processes in civil society (for example, see Surman and Riley, 2003). In short, it is about customer-driven technology.

In beginning to examine the emerging frame for ICT in a societal sense as opposed to through a technology or organizational-efficiency lens, it is useful to consider the comparatively recent evolution of Information Systems (IS) as a discipline and its alignment with Management Information Systems (MIS). This can then act as a basis for examining the emergence of Community Informatics Systems (CIS) and Civil Society (CS) as a key area of the Information Society. IS has been the overarching term used to describe the information software systems used for organisational applications. The traditional discipline of Information Systems is currently undergoing a major evolutionary step into societal applications, as opposed to organizational applications in business, education and service delivery. Harris (2002) has proposed a discussion framework for the emergence of Information Systems as a discipline (see Table 1). While the time frames therein can be considered approximate, depending upon location, and the descriptors used are unnecessarily prescriptive, Harris does, nonetheless, chart a development base for Information Systems as a discipline. The point that the Information Systems discipline is now increasingly moving outside of organisational boundaries and into society is also made. This society domain is much more difficult to define in terms of both form and function at the operational level. In doing so, Information Systems is mixing with hitherto separate and unfamiliar disciplines that include community engagement.

The term Community Informatics (Gurstein, 2000) has recently emerged to describe the use of ICT for local community benefit and more recently, international researchers and funding agencies have moved towards the term Community Informatics Systems (CIS) as a parallel for Management Information Systems (MIS). CIS is an emerging area of practice, teaching and research that fits within an Information Society framework alongside the more traditional areas of Business, Technology, Government service delivery and Contemporary Communication. There are several very distinct differences between MIS and CIS approaches. Community Informatics Systems focus on distributed systems and not aggregated ones. CIS favours collaboration over competition and sharing over hoarding. CIS is based on a premise of active interaction in the development, use and appropriation of the systems, compared to MIS which is predominantly based on a passive consumption of service offerings (Gurstein, 2003b).

THE ROLE OF HIGHER EDUCATION

There have been increasing calls over recent times for Universities to recognise their responsibilities in regard to life-long learning in their communities (Cumpston et al., 2001; Garlick, 1998; Gronski & Pigg, 2000; Harkavy, 1998; Nyden, 2001; Rice, 1996). In particular, there is discussion on the role of higher education in providing capacity to communities to address the imbalances between the private, public and the community sectors in the basic operations of a democratic society; facilitating an attitu-

Table 1. Information systems as an emerging discipline (Harris, 2002)

Dominant Technology	**Information Systems Locus**	**Work group focus**	**Dominant referent discipline**	**Scope**
1960–70 Main Frame Computers	Electronic Data Processing	Clerical Staff	Computer Science	The Organisation
1970–80 Mini-Computers	Management Information Systems	Managers	Management	
1980–90 Personal Computers	End User Computing	Knowledge Workers	Organisational Behaviour	
1990–2000 Networks	Strategic Information Systems	Shareholders	Economics and Marketing	
2000 The Internet	**Community Informatics**	Citizens	Social Science	**Society**