Information and Communication Technology

Transforming Human Service Organizations

Christine Simmons-Physick

Vice-President, Child and Family Services
Kids Help Phone, Toronto

McGill University, Montreal, Canada

February 2003

Contents

Abstract

Abstract: Present-day information and communication technology (ICT) is transforming human interactions and changing societies at a global, national and local level. This paper explores the impact of ICT on the voluntary sector, and shares some perspectives on how ICT can both support and hinder voluntary sector organizations with respect to operations, efficiency, innovation, development and organizational culture. Kids Help Phone of Toronto presents an interesting case of a human service organization that has embraced and embedded technology in every aspect of its operations, delivering human services exclusively via telephone and the Internet. Starting with an exploration of the global culture of materialism from which ICT has emerged and the "obsession" with efficiency and productivity that is the mindset of globalization, the author discusses voluntary sector organizations' gradual adaptation to the use of ICT and examines more directly the technological and human interface, using examples from the Kids Help Phone organization, and finally suggests appropriate management strategies for leaders and managers of voluntary sector organizations.

Note on Terminology

For the purposes of this paper, “technology” means present-day electronic information communication technologies (ICT), including computer hardware and software, telecommunications, the Internet, robotics, information systems and knowledge management systems.

“Human services” means health care services, social services and the various services that voluntary sector organizations provide.

“Knowledge workers” are educated people whose value to their respective organizations lies in the expertise and knowledge they bring to their work.

The expressions “voluntary sector” and “nonprofit sector” are used interchangeably to denote organizations that are concerned with social, economic, cultural, environmental and political issues and do not make profits.

Every few hundred years throughout Western history a sharp transformation has occurred. In a matter of decades, society altogether rearranges itself – its worldview, its basic values, its social and political structures, its art and its key institutions. Fifty years later a new world exists. And the people born into the world cannot imagine the world in which their grandparents were born. Our age is such a transformation, only this time the transformation is not confined to Western civilization; it is a worldwide transformation.

PETER F. DRUCKER (1999)

1

The Mindset of Globalization: Efficiency and Productivity

Over the last five centuries, the catalysts of major periods of historic transformation have been technological innovations such as the printing press, the steam engine and the telegraph. Over time, increasingly sophisticated systems of transportation and communication have facilitated the movement of people and information across larger and larger geographic spaces. As the web of connections grows, the world seems to shrink. Today it is information and communication technology that is increasingly bringing people, communities and nations together. Envision for a moment countless threads that radiate around and across the globe, enabling linkages to occur and information to reach its destination in seconds. People can now interact with a person on the other side of the world as easily as they can with a person in the next room (Friedman 2000).

In the present period of worldwide transformation that we call globalization, with its shrinking of distances through increasingly dense and complex networks of economic, technological, environmental, social, cultural and political processes that connect and then integrate the layers of today's societies, while at the same time mutually reinforcing changes in established structures, languages, values and institutions, information and communication technology is creating a new era of transparency. Information about every conceivable issue and event can move anywhere in the world instantly and is made visible and accessible to those who have access to technology. There are many examples in which isolated or marginalized groups have harnessed telecommunications technologies to self-organize or assert themselves politically, ensuring that political confrontations happen in full view of the television cameras. There exists a new potential to connect people in one region of the world with other people in distant locations, and to connect people with information and knowledge that can be applied to improving the human condition.

Technological innovations fundamentally change ways of thinking and doing things; invariably, they are experienced by some people as beneficial and by others as detrimental. When change is substantial, societies can become destabilized and their members can experience widespread feelings of anxiety and uncertainty. In contrast, there is also a strong sense of hope and optimism that the potential exists for technological innovations to begin to solve problems with which the human race has struggled for centuries.

Opinions are divided about the benefits and shortcomings of today's information and communication technology. For some, ICT holds the potential to support global community restoration and promote environmental consciousness. For others, technology as it is evolving today threatens the possibility for democratic and just societies, particularly for those who have been marginalized in our society due to race, culture, unemployment and poverty. These people are being excluded from even being able to participate in the telecommunications revolution.

Information and communication technology is more than a tool; it is a system that involves procedures, symbols, language, values and a mindset. As a result, the characteristics of the system that supports ICT influence the people and organizations that employ the technology. The information and communication technology of today provides the infrastructure, particularly through the World Wide Web, which provides the connections that support and enable globalization.

The mindset of globalization is corporate and the concerns about it are now well publicized. Globalization is characterized by a language and discourse of efficiency, cost-effectiveness and productivity, which are used to justify a trend of corporate downsizing, outsourcing and relocations of plants to countries that often have fewer and less-stringent environmental regulations and employment standards. Corporations are being accused of replacing human labour with machines and robots at an accelerating rate because machines are more efficient and can increase productivity. This is contributing to unemployment and underemployment in developed countries and the exploitation of workers in some developing countries where lax labour laws result in a proliferation of sweatshops. Technology is the means to achieving global efficiency and productivity.

Some believe that the mindset of globalization is beneficial – the key to future world economic development – and also inevitable and irreversible. Others regard it with hostility, even fear, believing that it increases inequality within and between nations, violates human rights, threatens employment and living standards and impedes social progress. The consensus in the literature is that there will be an even bigger gap between the information haves and have-nots in this era.

Activist Vandana Shiva argues the inappropriateness of modern western knowledge and technologies for developing countries. She argues that the north's approach to science and technology has led to western systems of knowledge and technology that are based on a particular culture, class and gender. She challenges the claim that these systems are "universal." "Emerging from a dominating and colonizing culture, modern knowledge systems are themselves colonizing." She is concerned that western technology is displacing local knowledge and experiences. In her view, when a dominant power subjugates all others it is undemocratic. She suggests that we require a new paradigm of science, technology and knowledge that allows people to maintain control over their technology (WNSP 2003).

Globalization has served to intensify competition among many sectors, but particularly the corporate world. The reduction of trade barriers in the 1950s was a significant turning point that was closely followed by the elimination of restrictions of the flows of capital and the deregulation of financial markets. More and more national economies are being integrated into a single global marketplace through trade, finance, production and a dense web of international treaties and institutions. Information and communication technology provides the network that permits a single global marketplace to function.

The mindset and values that drive globalization are permeating every country in the world and this includes Canada. Janice Stein, an expert in international security, calls this phenomenon the "cult of efficiency." Efficiency is the official slogan of the global markets. Leaders of these newly powerful international institutions have enshrined market liberalism as official doctrine and they promote efficiency in their programs and through their regulations (Stein 2001). Some scholars believe that efficiency has been so extensively promoted in Canadian society that it has become a central value (Heath

2001). “When means are disconnected from ends the call for efficiency becomes a cult” (Stein 2001).

The language of efficiency also dominates the current debate about which sector can most efficiently deliver public goods and services, the voluntary sector, the state or the market? Contemporary reformers allege that the public sector, insulated from the discipline of competitive markets, is incapable of “efficiently” delivering public goods and services – even though less than a century ago, the public sector was instituted to administer the delivery of public goods and services because it was seen to be the most rational and efficient system, largely through a professionalized civil service that was immune to political corruption.

Government in Canada over the past decade has downsized dramatically, and has moved away from the provision of public services, shifting instead to the creation of public markets (Stein 2001). Public markets are created when government uses public money to contract public institutions, private firms and not-for-profit organizations to provide public goods and services. Whether public markets do indeed improve efficiency is a matter for further research and debate. Nonetheless, there is growing pressure on the voluntary sector to fill the gaps created by the private sector’s downsizing and governments’ withdrawal from the delivery of public services. As a result, the voluntary sector has grown in size and economic clout and is gaining recognition as the “third sector” (McMullen and Shellenberg 2002).

2

The Voluntary Sector: A New Vision for Canada

There is a sentiment among Canadians that they are weary of corporate domination and frustrated with government's abdication of responsibility for the delivery of highly valued public goods and services, particularly health care and social services. There are concerns that rising inequalities can create pressure on social cohesion. Pervasive social pressures and economic stresses may erode the sense of community, trust and equity necessary for a civil functioning society. Persistently high unemployment and cutbacks and feelings of alienation from families and communities are manifesting in various ways (OECD, 1997).

Citizens are regaining an appreciation of the importance and value of human services that were largely being taken for granted. Frustration with the current state of affairs is creating space for the emergence of new ideas and a new vision for Canada.

> The third sector vision offers a much-needed antidote to the materialism that has so dominated the twentieth century industrial thinking. While work in the private sector is motivated by material gain and security is viewed in terms of increased consumption, third sector participation is motivated by service to others and security is viewed in terms of strengthened personal relationships and a sense of grounding in the larger global community. (Rifkin 1995, 95)

The voluntary sector also provides an opportunity for people to actively participate in civil society through volunteerism. Human capital refers to the strengths, resources and capacities of people. There is growing recognition that every person, household and community no matter how impoverished has assets. These assets can be leveraged to promote economic and social well-being. Social capital is created when people come together for the sake of a shared purpose or goal that produces more than individual benefits to them alone. The expectation is that the voluntary sector supported by hundreds of thousands of volunteers throughout the country is in the best position to deliver human services most efficiently and effectively (Putnam 2000).

> Organizations in the voluntary sector play three key roles: delivering services, testing innovative models and providing ethical leadership. (Torjman 2001)

The voluntary sector in Canada is made up of some 180,000 nonprofit groups and organizations. Many have been founded in the past thirty years (Drucker 2002). Approximately half of the 180,000 are quasi-public institutions such as schools, hospitals and public infrastructure. These organizations range from small, unstaffed groups to large, complex organizations. According the Workplace and Employee Survey, in 1999 there were 900,000 paid employees in Canada's nonprofit sector and a payroll of $22 billion. Most employees in the nonprofit sector are well educated and professionally qualified: some 30 percent of nonprofit employees and 40 percent of quasi-government employees hold university degrees. In the for-profit sector, by comparison, only 15 percent of employees have university degrees (McMullen and Schellenberg 2002).

Nonprofit or voluntary sector organizations are concerned with social, economic, cultural, environmental and political issues. They play a critical role between the formal economy and the government, assuming tasks and performing services that the private and public sectors are unwilling or unable to handle. They often act as advocates on behalf of groups and constituencies whose interests are being ignored by the marketplace or compromised in the politics and bureaucracy of government. Some nonprofits provide services, including day care, literacy and certain health care programs, that are paid for by government but delivered through the voluntary sector. Others are funded through corporate and public donations, and are frequently run by a combination of volunteers and paid staff.

Government cuts to social services in the past decade have increased the pressure on the voluntary sector to pick up the slack. Many quasi-government organizations (schools, hospitals, universities, colleges) have experienced funding cuts and have turned to the private sector and to philanthropic donations to make up the difference. Consequently, these organizations are now competing for funding against the nonprofit organizations that were funded through other means. At the same time, all voluntary sector organizations are under pressure to expand their services to deal with growing demands for services.

This has created some tension in the voluntary sector, particularly among organizations that have similar mandates or that provide services to a particular population such as children or the environment. Big Brothers and Sisters, for example, finds itself competing against Boys and Girls Clubs organizations for dollars from the corporations that are interested in supporting children's charities.

Voluntary sector organizations have seen themselves, in theory at least, as carrying out two concurrent or parallel missions: advancing their own particular causes, while at the same time working to further the voluntary sector's common vision of improving the well-being of all humankind. As a result, competition, a core value in the corporate sector, is increasingly becoming a dynamic to be contended with in the voluntary sector. This has placed it at a critical juncture. How competition is managed by the voluntary sector will have a long-term impact on its culture and solidarity. It could be a positive development and result in greater accountability on the part of organizations, promote more choice for consumers and improve the quality of services. However, there is also the danger that the sector might slip into individualism and protectionism.

Growing pressure on the sector to do more and increasingly stiff competition for funding are causing organizations to look for ways to economize and to increase capacity and productivity. As a result, information and communication technology, mechanization and automation, which have been the means of achieving efficiency and increasing productivity in the corporate sector, are increasingly being adopted in the public and in the voluntary sector, and for the same reasons. Although the smaller voluntary sector organizations are frequently at a disadvantage in respect to resources, they have the advantage of being flexible and are not bound by the top-heavy rules of private-sector organizational hierarchies (Torjman 2002). This flexibility places the voluntary sector in an ideal position to attempt innovative models such as technology-supported and technology-based human services.

Information and Communication Technology: Transforming Service Delivery

Pathways, networks, data banks and portals created through information and communication technology are transforming human services. These technologies are the

first since the advent of the Industrial Revolution (when the invention of the steam-powered printing press, inexpensive paper production, the telegraph and the railway produced the first modern information explosion) to have radically expanded the collection, codification and dissemination of information and knowledge to individuals and groups. Today, individuals who are isolated by age, illness or disability, or by language and geography, can transcend these physical and psychological barriers and gain access to information and services in ways that were not possible before.

Traditional services are being augmented and replaced by virtual support groups, community learning networks, telephone and Web-based counselling services and professional on-line forums. These media are enabling marginalized and isolated individuals to receive much needed information and support. People living with physical and mental disabilities, victims of violent relationships, victims of child abuse and individuals that are geographically isolated or lonely are experiencing a new-found hope for a future that accepts and includes them as equal and active participants in their communities.

The telephone and Internet afford the anonymity, physical distance and personal control that allow reluctant and fearful individuals to feel safe enough to take the first step towards seeking assistance. Kids Help Phone answers 1000 calls per day from children, 15 percent of whom are victims of violence – physical, sexual or emotional abuse. ICT is also helping to bring together people who share interests or challenges such as disabilities. Children who are isolated in home or hospital due to illness or disability are participating in Internet forums that provide them with empathetic support and camaraderie. For some of these children, this on-line connection is their first opportunity to develop peer relationships.

Because the Internet can make information available worldwide on any conceivable topic, it can be readily used to organize social justice movements. The women's movement, the environmental movement, the peace movement and the movement to ban land mines all use the Internet to share information and to develop and communicate strategy. The disability movement is an example of what can be achieved when people who share a common interest combine their efforts and advocate for legislated changes to building codes and infrastructure. In the past twenty-five years there has been substantial

innovation in designing barrier free equipment, buildings and public spaces responsive to the needs of people with physical disabilities. Much of the impetus came from disabled citizens who organized themselves to assert their needs or who helped investigate or evaluate design solutions (Sclove 1995, 96).

Ensuring that people have access to information is one way of empowering them, enabling them to make informed decisions. Kids Help Phone was one of the first services in Canada that provided children and teens access to information that was next to impossible for them to obtain anywhere else.

Although it is becoming increasingly possible to build knowledge-based systems that can support a broad range of issues and services, ICT solutions are far from being perfect or complete. Most Internet users today would agree that the sheer quantity of information available on line is no guarantee of quality. Moreover, as several authors have pointed out, information and knowledge are not synonymous. Most of what we call “information” is either captured in writing or recorded as data; yet most of the useful knowledge that human service workers acquire and communicate in practice is “hands-on”; typically, skills and abilities are gained directly through experience with clients or are picked up and shared between colleagues. In most human service organizations, only a fraction of this knowledge ever gets written up, and when employees leave, they take their knowledge with them. In organizations that experience high turnover, training new workers can therefore be a lengthy hit-or-miss process. This is a matter of considerable concern in services such as child protection agencies, which have very high worker turnover rates, and in which it is presently more common for a client to encounter an inexperienced worker than an experienced worker. The stories of abused children who have died tragically while the child protection authorities remained unaware of their plight despite having them “in the system” and being in communication with the abusive parents or foster caregivers, illustrate all too clearly the dire consequences of having inexperienced human services workers rely upon information systems for investigation and reporting. Information systems to date have not proven to be very successful in solving these serious problems of human services delivery, though some new work is being done in developing knowledge management systems for human service practice – systems capable of capturing and disseminating information that is typically shared in meetings, case discussions and informal exchanges, but is never documented.

ICT systems nonetheless allow valuable knowledge to be captured in many forms: text, graphics, pictures, video and animation. For example, a practice database can provide inexperienced child-abuse investigators with pictures of the types of bruising to look for. Often clients that become involved in the social service system have multiple problems and are looked after by more than one service. Information systems can be used to transfer and exchange approved information among the involved organizations.

ICT also offers a convenience factor. While people typically prefer human interaction, they prefer technology-based interactions to no interaction at all. Long-distance travel, time constraints, the need to balance working life and family life – all make technology-based services appealing. Some of the social assistance and family benefit programs in Canada have restructured their systems and are now using a call centre model. The idea was to simplify and speed up the application process for people who were already under considerable stress. Not having to apply in person also protects the individual's dignity.

In recent years, the call centre concept has taken off. Businesses have adopted it to sell products and services over the telephone. The call centre is a growth industry and has now moved into insurance, banking, computer technology support and a whole range of product support and services. Some predict that in future a significant proportion of the workforce will be working in call centres (Mitchell 1995).

The call centre model is also increasingly being used as a model to deliver human services such as counselling and information help lines, telehealth services, employee assistance programs and community access centres. Telecommunications media hold much promise for improving access to services and for creating information and knowledge systems and networks that support these services. They also change the nature of service delivery, causing a re-evaluation of management practices as well as service policies, procedures and ethical practices for delivering "e-human" services.

Barriers to ICT Use in the Voluntary Sector

Over the past quarter of a century, most segments of Canadian society have integrated information and communication technology (ICT) into their processes and services. The voluntary sector has generally lagged behind the for-profit sector in this regard, but is

making progress (Schoech 2002). Although some voluntary sector organizations have proven to be leaders in the creation and use of innovative ICT applications (Sclove 1995), typically human service organizations have struggled in this regard.

Twenty years ago, ICT was not viewed by most nonprofit organizations as an essential method of modernizing administrative activities or improving efficiency and productivity in the workplace. “Interesting, maybe important, but who has the time or money?” Many nonprofit organizations work with limited human, financial and technological resources. Investing in ICT is initially expensive and requires ongoing maintenance, software upgrades and equipment replacement every few years. Consequently, in the face of competing needs and interests, the more immediate and compelling needs of clients or constituents take precedence over the organization’s desire to implement new technology or upgrade outdated systems.

The majority of nonprofit organizations are small. A Canadian Policy Research Network study of human resource issues in the nonprofit sector found that three-quarters of Canada’s nonprofit organizations have fewer than ten employees. Large organizations with fifty or more employees are more common in the quasi-government sector. Small organizations may simply not feel the same pressure as large organizations to automate their systems, plus, the benefits measured against the costs may not justify the financial investment in technology (McMullen and Schellenberg 2002).

The limited literature that is available on technology applied to human services is riddled with stories of frustration and failure (Schoech 2002; Coe and Menon 1999). Even ten years ago, executive directors of human service organizations were still reporting that it was difficult to convince many front-line workers to exchange the tried-and-true pen and paper for a computer and a keyboard (Miller-Cribbs 2001). It is not unusual for people to feel intimidated by computers when first introduced to them, or to worry that they may make a serious mistake and irreversibly damage the machine. Most front-line human service workers, however, simply did not believe that computers would save them time, since learning to use a computer is usually a time-consuming process of trial and error. Initially, computers actually slow people down.

Gender-related issues also may influence a voluntary sector organization’s ability to implement and adapt to advanced ICT, or even its decision to adopt new technology in

the first place. Women account for three-quarters of paid employees in the nonprofit sector, compared to about two-thirds in the quasi-government sector and slightly less than half in the for-profit sector. We know from learning theory that gender plays a role in the learning process. Research that examined the effectiveness of computer training programs indicated that men and women tend towards different learning styles. Women prefer an orderly linear process and men are comfortable with experimentation and trial and error (Turkle and Papert 1990). Therefore, the fact that women make up the majority of the nonprofit sector and are disinclined to trial and error learning may pose a barrier to the adoption of technology and adaptation to using ICT systems in human services.

Two other variables that are correlated to openness or resistance to ICT are age and prior socialization. Age is almost always correlated to an individual's technical adeptness. Applications of communication technologies are second nature to individuals born in the last twenty years; but 39 percent of employees in the nonprofit sector are age 45 or older, so we can predict that challenges and barriers will persist in relation to ICT applications for another ten years or so, when the Baby Boom generation either adjusts or begins to retire.

Feminist historians point out that technology and technological innovations have historically been cast as male activities. Women's contributions to new technologies have even been left out of the history books. For example, during the industrial revolution women invented and contributed to the invention of such crucial machines as the cotton gin, the sewing machine, the small electric motor and the loom. Women have not been socialized to see themselves as designers and operators of technical equipment and tools. ICT has largely emerged from male dominated sectors. Recent educational statistics report a small and declining proportion of women entrants to science, technology and engineering courses. Historian Judy Wajcman (1991) suggests that "women's alienation from technology is accounted for in terms of the historical and cultural construction of technology as masculine." More recently, cultural analyses of technology propose that we should abandon our simple-minded "woman equals technology illiterate" formulation and instead focus on developing new knowledge and perceptions so as to create a new culture for technology that includes women (Henwood 1993).

3

Automation and Mechanization: Changing the Nature of Work

> *As we shift into the post-industrial age, knowledge has replaced other factors of production as the most significant commodity; the advanced economies now lead because of capacity to innovate, to create and to draw on and expand existing knowledge.*
>
> – Janice Gross Stein (2001)

Although technology has been shaping human societies and cultures since the beginning of time, the notion of *efficient* technology is comparatively new. At the turn of the twentieth century, engineers applying the new scientific field of thermodynamics in their experiments with power-driven machinery began to use the word "efficiency" for the evaluation of measured energy flows and energy losses. Efficiency thus came to mean the maximum yield that could be produced in the shortest time, expending the least amount of energy, labour and capital in the process. The man most responsible for popularizing the notion of efficiency in the economic process was Frederick W. Taylor, whose quantitative approach to workplace efficiency, first introduced in the 1890s and published in *The Principles of Scientific Management* (1911), became the standard method of organizing the workplace – and was soon to be used to organize the rest of society. According to economic historian Daniel Bell, "If any social upheaval can ever be attributed to one man, the logic of efficiency as a mode of life is due to Taylor" (Rifkin 1995).

When we speak about technology in the modern world we think of it in the context of the industrial production of goods. This was implemented in two distinct but interrelated systems of operation: (1) mechanization, in which workers perform standardized tasks that are strictly controlled by the machine, thus reducing human labour and maximizing production and (2) automation, which takes this process one step further, minimizing not only human labour but also human control and thus further diminishing human involvement in production. Technology enables humans to master and manipulate and to

exercise power over nature. The paradox is that humans become enslaved by technology (Elliot 1993).

Jeremy Rifkin, in *The End of Work* (1995), reports that, in most industrial nations, 75 percent of the labour force engages in work that is little more than simple repetitive tasks. Automated machinery, robots and increasingly sophisticated computers can perform many, if not most, of these jobs. He predicts that in the years ahead, more than 90 million jobs in the United States labour force of 124 million are potentially vulnerable to replacement by machines.

Today, all sectors, public, private and voluntary, are being impacted by restructuring, re-engineering and automation. While some economic analysts prophesy growing unemployment in our future, some economists point out that re-engineering, eliminating layers, compressing job categories, creating work teams and implementing computers has resulted in an impressive 2.8-percent increase in productivity, the largest rise in two decades (Rifkin 1995). Productivity remains the foundation of contemporary theories of economic growth. The belief is that those economies that are productively efficient grow and create wealth for their members.

The debate continues as to whether or not technology is creating as many jobs as it is replacing or eliminating. In the past, when technological change threatened a loss of jobs in one sector, a new sector emerged to absorb the surplus labour. Earlier in the century the emerging manufacturing sector was able to absorb many of the millions of farmers displaced by the mechanization of agriculture. Between the 1950s and early 1980s, the service sector was able to employ many of the blue-collar workers displaced by automation. The only sector that is predicted to grow in future is the knowledge sector and there is little confidence that this sector will be able to absorb large numbers of unemployed.

Information and Communication Technology: The Tool of Knowledge Workers

The meaning of productivity is changing as we shift into the post-industrial society where knowledge has replaced other factors of production as the most significant commodity.

There is consensus in the literature that knowledge has become the most significant commodity today (Menzies 1995; Rifkin 1995; Sassone 1992; Stein, 2001). The concern is that in a knowledge-based society, highly skilled people do well; it is the unskilled, semi-skilled, clerical and maintenance workers who will increasingly experience unemployment and declining wages. Some authors foresee that a large majority of the people being displaced by the new technologies will not have the skills or the capacity to be retrained. Their fear is that if massive unemployment of a kind unknown in history were to occur as a result of the sweeping replacement of machines for human labour, the world will experience widespread social upheaval – poverty, violence and probably open warfare (Albrecht, p 35). Therefore, there is general agreement that if we are to avoid growing social tension workers will need to become more productive. Peter F. Drucker (2000) believes that the knowledge-based society will inevitably become far more competitive than any society we have yet known.

The knowledge-based society is a society of organizations that operates on the flow of information. The purpose and function of every organization, whether public, private or voluntary, is the integration of specialized knowledge into a common task. The majority of people in a knowledge-based society will make their living as employees. Skills that make people effective members of an organization are the ability to present ideas orally and in writing, and the ability to shape and direct one's own work, contribution and career.

The importance of knowledge to organizations is changing the way organizations are structured and how they operate. To build successful knowledge-based organizations, power and rank must be replaced with responsibility. In the knowledge organization, mutual understanding and responsibility replace the traditional hierarchical structure. When the goal was making and moving things the focus in increasing productivity was on work; in knowledge and service work the focus must be on performance, defined in terms of both quality and quantity. There is more to increasing productivity in knowledge work and service work than defining the task, concentrating on the task and defining performance. The people involved in the work are the experts, not the managers. Therefore the relationship between employees and management must be a partnership.

> The only way that an organization in a knowledge-based economy and society can excel is through getting more out of the same kind of people; that is, managing knowledge

> workers for greater productivity. “This will be the biggest and toughest challenge for managers for decades to come.” In making and moving things, capital and technology are factors of production, to use the economist’s term. In knowledge and service work, they are tools of production. Whether they help productivity or harm it depends on what people do with them, on the purpose to which they are being put and on the skill of the user. (Drucker 2002)

In the Industrial Revolution humans were encouraged to operate like machines to improve productivity. In the knowledge-based society, machines are not productive on their own; people make machines productive. Drucker’s suggestion that technology is a tool that *can help or harm productivity* is a critical point that calls for further examination.

When computers were introduced thirty years ago, the belief was that this would result in massive reductions in clerical and office workers. To some degree this has happened. Support staff have been reduced in many organizations; the secretarial pool for example, is a thing of the past. Today, most employees and more and more executives do their own administrative work. Computers, e-mail, photocopy machines and faxes have drastically changed the office environment. Technology was supposed to increase efficiency and productivity and save money. Whether they have or not is debatable. Some argue that in many cases ICT has reduced efficiency as managers and middle managers are tied up with administrative activities that take them away from more important tasks (Sclove, 1995).

Health care settings have changed dramatically in the twentieth century. Originally they were not much more than bricks and mortar and beds. Today they are capital-intensive operations with sophisticated diagnostic technology that requires highly skilled and highly paid people to operate it. This has meant hiring more people, not eliminating people. Hospitals are increasingly more productive; but they are also significantly more costly to operate. Some would argue that they are more productive because they are shifting the burden of care to inexperienced unprepared relatives who are expected to help care for their family members during short stays in hospital and provide most of the care during recovery at home.

Many voluntary sector organizations have faced struggles in relation to technology, whether it is the high costs, lack of technical expertise, or employee resistance to change.

However most organizations have succumbed to the pressure to implement technology in order to improve organizational efficiency and productivity.

The "Cult of Efficiency": Blue Pumpkin Rules

Most people will agree that it is important to use efficient and cost-effective means in organizations that deliver human services, so that the organization's funds can be stretched as far as possible. While few people would openly argue with this sentiment, there may be suspicions about the "real" intent. Often, when technology is introduced as a way to improve efficiency and productivity in the workplace, employees worry that really it is a covert ploy on the part of management to reduce workers and/or increase their workload.

In an industrial context, efficiency and productivity are based on quantitative measurement; but quantitative measurement is too simplistic and not always meaningful when applied to the work that a human service organization provides. For example, in attempting to determine if counsellors are working efficiently and productively, we compare the activity of two counsellors who are working during the same time period at Kids Help Phone. One counsellor handles six calls of approximately ten minutes each. They are all important, but none is of a particularly serious nature. Another counsellor handles one call for the full hour and saves the life of a suicidal caller. If the number of calls handled is the singular variable being measured, it is irrelevant. Efficiency is a much more complex concept that must consider several variables such as the quality of the interaction and the value the call had for the caller. Could the call have been handled just as effectively in less time? How many callers had to wait? ICT systems require sophisticated analysis to determine if they are in fact "efficient."

Efficiency has been a part of our consciousness and discourse for centuries and it has had different meanings. To the ancient Greeks, efficiency was seen as one of several instruments that create a virtuous society. For them efficiency was a means to higher ends. Already in the fourth century B.C. Plato recognized the concept of specialization, arguing that work is accomplished more efficiently when everyone works at a single craft to which they are best fitted. In this context, efficiency means that individuals contribute

the most to society when they are assigned to naturally suitable tasks. Efficiency was tied to values and accountability.

At the dawn of the modern age, the mechanistic world view associated with the thought of Descartes and Newton created a language of the measurable, the quantitative and productive. Machines became progressively more lifelike and humans more machine-like. The human body was believed to be an inherently and superbly efficient system that converted energy into work. At the same time, advances in machinery and engineering began to extend the horizon of human possibilities, first to control and then to master nature, and enabled a discussion of efficiency as increasing productivity, as an almost limitless capacity to produce more and more at the same cost.

The modern concept of efficiency developed in the context of the rationalist spirit of the Enlightenment and the bustling commercial activity of eighteenth-century England. Adam Smith pointed out that if one worker did all the tasks involved in making a pin he could make no more than twenty pins a day; but when tasks were divided among different workers, factories could produce about 4,800 pins per worker per day. Efficient practices increase productivity. This became known as the division of labour that left a legacy of dissatisfied workers doing little more than performing simple, repetitive tasks (Rifkin 1995; Stein 2001).

Productivity is the amount of output created (whether of goods produced or services rendered) as measured against the inputs required to produce it. Embedded in the concept of productive efficiency is an assessment of quality and effectiveness as well as quantity. Efficiency can mean productive efficiency or cost-effectiveness, when either the maximum amount of service is produced from a given set of resources, or a given service is produced with fewer resources. Either way, the best possible use is made of available resources to achieve important services that benefit people. When voluntary sector organizations are considering using technological tools to improve efficiency and productivity, the technology should be assessed on its potential to help the organization achieve *productive efficiency*.

This year Kids Help Phone implemented workforce management software called “Blue Pumpkin.” Scheduling employees in the counselling centre is a time-consuming

administrative task, one that is complicated by issues such as the need to ensure a mix of genders, language and adequate coverage to match call volumes that fluctuate by hour, day and by season. Increasingly we were aware that the health and vitality of our organization were strongly linked to the strength of the relationships of the people in our organization. Therefore, we were looking for ways to free our front-line supervisors from administrative duties so that they could spend more time building relationships with counsellors.

A long and extensive search for an appropriate software package finally concluded with the discovery of Blue Pumpkin, which promised to simplify Kids Help Phone's scheduling process, reduce errors, store data, analyze historical call volume data, predict future call volumes and recommend schedule patterns that would offer the most effective and efficient coverage. But there was one significant drawback: Blue Pumpkin was priced at $175,000 – which was about $173,000 over our budget. Unexpectedly, the company decided to donate the software to us if we agreed to pay the training and annual maintenance fee. We were delighted to exchange our paper-and-chalkboard "technology" for this new electronic and digital "solution."

Four months after implementation of Blue Pumpkin, scheduling had never been in worse shape; the counselling service was either understaffed or overstaffed. Blue Pumpkin schedules never seemed to match who actually arrived for work. It was humiliating for all involved. Supervisors were spending twice as much time as before entering data and trying to solve problems. Instead of supporting employees, the supervisors were tied to the desk and were complaining that they had become data-entry clerks.

We learned that the software demanded perfection on the part of the user. The entire Kids Help Phone team had to be able to use the Blue Pumpkin system because it was a fundamental operating system for every shift. But with six individuals working in the system, errors were inevitable. Forgetting one click to lock the system, or making one small error in the data, could have dramatic results; data was lost or shifted into a default position. In the old chalkboard-and-paper system, errors could be spotted and fixed quickly.

The literature speaks of similar technological failures in other nonprofit organizations. Technology may improve efficiency in the long run; but it rarely does so initially, and only becomes efficient when the people using the technology know what they are doing. Many technological systems when examined for context and overall design are poorly designed for people. Yet invariably, when technological systems go wrong, people are seen as the problem and technology is seen as the solution. University of Toronto professor Kim Vicente, a recognized expert on "human factors engineering," says that although it seems obvious that technology should be adjusted to fit human nature, "in practice, it rarely works that way. Those who design technology are in thrall to it . . . while everyone else is tyrannized by its overly complex and ever changing systems. Worse yet, when something goes wrong, we're the ones at fault. After all, how could a computer be to blame?" (Hurst 2002).

Training and expertise are critical components to implementing technology effectively. Organizations report that their employees' computer skills vary widely. These skills should be assessed and brought to a common base level before beginning training for a new technology. This can be a time-consuming process. It may be necessary to hire an individual with the expertise to get the system up and running.

The term efficiency is overused, misused and misunderstood, especially as it applies to information and communication technology. It is clear that technology has made some things better; frequently, however, it causes frustrations and demands more, not less, human work.

Kids Help Phone's frustration with the Blue Pumpkin software application is almost a textbook example of the collision of expert scientific and technological "solutions" with the facts of everyday human experience. What is remarkable is that instead of trusting our own experience, we bend over backwards to obey the experts. Blue Pumpkin "says" Kids Help Phone needs two people to work in the morning; the supervisor, who has been doing scheduling for the past ten years, thinks we need three people in the morning. Which do we believe: the machine or the human? Is the machine able to consider all of the variables or just the variables it has been programmed to consider? For example, we know the average number of calls received on the morning shift, and the average length of these calls; judging by these facts, it would seem that scheduling two counsellors is enough.

But though morning is not a particularly busy time for in-depth calls, there are a large number of hang-ups and prank calls. If the stress these calls create is factored into the equation, then three counsellors is probably a better option. Efficiency is only one aspect of effective service delivery. Effective service needs to incorporate quality into the equation and a human factor that Blue Pumpkin can't determine when deciding appropriate coverage. We do not yet know how to analyze the process in jobs in which performance predominantly means quality. It is important then that we work in partnership with the people doing the work (Drucker 2002).

4

Delivering Human Services: The Technological-Human Interface

Voluntary sector organizations that decide to use technology to deliver human services will want to be aware that there are both significant benefits to clients and significant challenges for the organization. There are three key aspects to consider: (1) the experience of the client, (2) the experience of the service provider or practitioner, and (3) the challenges that arise for the organization in relation to liability, quality control, ethical considerations and human resources management.

Although the literature on technology is vast, nearly all the authors writing on the topic are ostensibly deliberating about the implications of the technological-human interface. One author went so far as to say that technology is changing what it means to be human (Franklin 1999). There are specific themes that appear consistently throughout the literature – technology as progress versus technology as regression; technology as empowerment or exploitation; and the paradox that technology creates both links and distances (Abram 1996; Berry 2000; Elliot 1993; Franklin 1999; Hurst 2002; Menzies 1995; Mitchell 1995; Postman 1992; Sclove 1995; Tenner 1996).

Several writers discuss the notion that every time we create new applications for information technology we need to be aware that at the same time, we are creating new ways of social interaction. When human activities incorporate technical interfaces, the modes of human interaction change (Franklin 1999; Menzies 1995; Postman 1992).

Risks and Benefits for Clients

Information and communication technologies have opened up new avenues for providing services. They are usually more accessible and more immediately available to individuals and groups than traditional services. They can assist communication, but they can also distort it by filtering out different parts of the information that would be exchanged in a

face-to-face encounter. The telephone, for example, heightens auditory senses and eliminates visual information. E-mail and chat further reduce sensory data by eliminating auditory and visual information (Franklin 1999).

Telephone counselling and e-therapy services are becoming more prevalent. Clinicians, however, are divided on these techniques' effectiveness. The immediacy of telephone services is accepted as making services more accessible to people and serves to demystify the counselling process. Typically people use these services when their circumstances force them to do so; talking to a counsellor on the telephone may well be preferable to remaining on a long waiting list for face-to-face service, especially if the person's problem may have worsened or lost relevance by the time the service finally becomes available. Telephone counselling services have been in operation for more than fifty years and are credited as having made significant contributions to the development of crisis intervention theory and the prevention of suicide.

There is, on the other hand, significant evidence that clients' responses in face-to-face counselling have served as helpful feedback in fine-tuning the counsellor-client relationship. However, physical appearance and facial gestures might also be misinterpreted. Clients who wish to remain anonymous or ensure confidentiality frequently prefer telephone and Web-based services. At the same time, serious risks may arise if clients misrepresent themselves or minimize their distress. If a practitioner is assessing a client by way of telephone, chat room or e-mail there is less chance of knowing if what the client is communicating is true. The client could be speaking to a clinician and acting on a suicidal impulse at the same time and the clinician wouldn't know it.

Some troubled individuals can also take advantage of the anonymity that these media afford. Clients can distort or fabricate the facts and misrepresent their age and gender. For some telephone services, up to 50 percent of the total calls received can be categorized as hang-ups, pranks, redundant or abusive. Technology-related addictions are a growing concern. Pedophiles and other predators are a genuine risk to vulnerable populations on the Internet. These types of calls are costly to organizations because they are an unproductive use of resources and can wear service providers down and as a result may impair their judgment.

Technology applications in human services bring unique benefits and new challenges, which require new solutions. ICT applications to services have enabled isolated individuals access to services. The young, the fearful and the hopeless have emerged from seclusion and found help through telephone and web media. ICT applications to counselling have inspired the development of new ways to counsel that leverage the benefits of the telephone medium and attempt to modify the challenges. The brief, time-sensitive, client-driven approach to counselling promises significant relevance for telephone counselling. As the nature of telephone counselling is conversational and more often conducted within a limited time constraint of one call, the operating principles and efficient methods of brief interactional therapies offer significant utility (Duvall 2001).

Implications for Practitioners and Managers

Given the controversial nature of ICTs and their doubtful effectiveness in many human situations, particularly situations that may require face-to-face control, leaders and managers of voluntary sector organizations that are providing human services must be made aware of the need to effectively manage the dynamic that is created when human service practitioners and technology are paired.

One approach has been to understand technologies as either holistic or prescriptive. Holistic technologies are analogous to traditional skilled trades – the crafts of the potter, weaver or smith, in which the skilled craftsperson controls the process from beginning to end. In prescriptive technologies the work or task is organized as a sequence of separately executable steps. The control over the work moves to the organizer or manager. Therefore, prescriptive technologies have been associated with workers feeling dominated and exploited. Most technologies in use today are of the prescriptive type (Franklin, 99). Prescriptive technologies, which create feelings of domination and exploitation in the workplace, are contrary to the principles of mutual understanding and responsibility that are usually considered essential for productive performance among knowledge workers and in knowledge-based organizations. In order to lessen the potential for conflict, a new relationship needs to be constructed between human service workers and prescriptive technology.

The call centre has been discussed as an example of a model that is increasingly being used to deliver human services. Call centres are automated systems. They are designed to handle large volumes of calls (or contacts) that are distributed to workers by the technology. The system is designed so that as soon as a call is completed the next call is immediately sent to the worker. Practitioners do not control the pace of work. The call centre model when applied to a human service joins a holistic craft – counselling – with a prescriptive technology – automated call distribution. Some call centre employees report experiencing psychological stress that is very similar to what assembly-line workers describe (Simmons-Physick 1994). It would appear, then, that even when people have control over the entire process (counselling, producing a product from beginning to end), some individuals might experience psychological stress if the process is automated.

Automated telephone and Internet-based systems substantially change the nature of communication in relation to the variables of control, time, space, reciprocity and synchronicity (Franklin 1999; Mitchell 1995;). Whenever human activities incorporate machines or rigidly prescribed procedures, the modes of human interaction change. Technical arrangements reduce or eliminate reciprocity or give-and-take. Once technical devices are imposed they allow a physical distance between parties. At Kids Help Phone, for example, even though clients and counsellors are engaging in a very human interaction, a therapeutic conversation that is a holistic process, the fullness of the human exchange is distorted by the lack of visual information. A caller's voice tone might indicate a feeling of calm, but her facial expression might indicate something else. If the counsellor were able to see the facial expression he might take a different path. As a result the interaction will probably be less cohesive and effective.

Conversely, experienced telephone counsellors become highly attuned to variances in voice tone and innuendo that compensates in part for the absence of visual cues. The protection that the telephone affords callers allows them to share difficult, highly sensitive information in a time of great need. As a result, the telephone interaction can be experienced as deeply satisfying to counsellors that want to be involved in meaningful work.

There is a growing body of evidence that practitioners who work strictly by way of telephone and the Internet will, over time, become increasingly desensitized. After a

while, people become “less real” to practitioners when they are little more than disembodied voices – particularly in a call centre environment, where practitioners do not control the pace of work or the number of contacts with clients. In the United States, workers’ compensation claims related to stress tripled between 1980 and 1990, while a major study on stress identified lack of control on the job as the greatest contributing factor. The primary risk factor for stress-related illnesses such as heart disease is the lack of control over how one meets job demands and how one uses one’s skills (Karasek and Theorell 1990).

When Kids Help Phone launched in 1989, the service was simply viewed as a counselling service that was delivered by telephone. The service was built on the concept that the telephone, a readily available tool, could be used to connect helpers and help seekers. The call centre concept that exists today is a recent development. It grew out of a business context and represents the corporate mindset that has dominated the past couple of decades. Call centres are designed to process contacts (people) efficiently.

In purchasing an automated telephone system that would enable Kids Help Phone to operate most effectively, we inherited a number of options along with the system that were designed to meet the needs of a for-profit call centre. Business call centres are interested in automated systems that track and analyze call volumes, wait times, busy signals, call length and also track the performance of individual agents, or in our case counsellors. These systems are in place to ensure efficient operations and accountability. Monitoring and measuring are core features. When voluntary sector organizations adopt technology, usually the technology has been designed with these kinds of business objectives in mind. While human service organizations are also interested in efficiency and productivity, human service workers are not used to working in automated systems that measure and monitor their performance.

In any environment where productivity is closely monitored and measured, an adversarial work culture can inadvertently be created – an ecology of work in which people relate to the machines and the operating system rather than to each other (Menzies 1995). Some keen workers come to like the monitoring because it isolates the hard working from the not so hard working. Systems that track performance do hold workers accountable.

In a busy call centre environment, people rarely get an opportunity to speak to the people sitting next to them because the technology is designed for optimum efficiency. The technology is designed to anticipate the number of calls that will be received and the human resources required for maximum productivity. When people also don't have visual contact with their clients call centres can cause people to feel isolated even when they are surrounded by people and are talking to people all day long. Communication technology can create non-communication. This dynamic may have long-term consequences for organizations. When people no longer have an opportunity to communicate with each other in the workplace, opportunities for social interactions, social learning and community building disappear. This can negatively impact the development of a health organizational culture. "At the interface of biosphere and bitsphere, the reality of togetherness and belonging becomes eroded by asynchronous activities in virtual time and space. As the nation state bows to the forces of local and global commerce, vital social and human structures become deeply eroded" (Franklin 1995).

Technology is outwitting the constraints of time and space. The sequence and pattern of time is distorted by answering machines, voice mail, e-mail, chat line and bulletin board applications. Communication is becoming asynchronous. A message is sent and an answer is received at a later time. People no longer need to be in the same space to communicate. The paradox of ICT is that we are more frequently communicating with people who may live on the other side of the world that we have never met in person. At the same time, we are less frequently communicating directly with the people who are in close proximity to us. We do not know what the ramifications of this will be in the long term.

There is growing evidence that technology in the workplace is impacting people's health. The networking of computers reduces the need to get up and move around the office. This inactivity is leading to health problems and people becoming enslaved to their offices and workstations. Suddenly, how one sits in a chair has become a critical factor. Industrial psychologists are studying ways to reduce walking and face-to-face meetings to improve productivity, while ergonomists work to offset the impact of reduced motion. The old typewriters required actions that prevented carpal tunnel syndrome. Automation means that people are more likely to be facing a computer in silence all day than to spend

it in interpersonal exchange. This is a drastic change in human services culture that has been based on human exchange (Dainoff, 1996; Tenner 1996).

Once ICT applications are employed, they almost always require more technology than originally anticipated. For example, any business or service, but particularly human services that engage with vulnerable populations need to have systems in place to ensure quality assurance. However, monitoring practices raise ethical and legal considerations related to privacy and consent. In a call centre model, the only way that supervisors can monitor and evaluate employee's performance is to listen to the interaction. In traditional counselling centres, one-way mirrors and video cameras are used for this purpose. Normally, clients are asked to consent to videotaping. At Kids Help Phone, we require counsellors to tape-record their calls with callers periodically, to be reviewed in conjunction with a clinical supervisor, in order to support each counsellor's learning and development and to ensure that appropriate quality service is being provided. At Kids Help Phone we don't tell child callers when we are taping conversations because the service is built on the premise that we are providing children with a safe confidential anonymous place to call. Our concern is that some children wouldn't understand our need to supervise and might not feel safe if they thought their call was being taped. Tapes are carefully protected, and once listened to under supervision, are erased. We do not collect or store identifying information. While our practice is legal, it is not completely transparent. When technology is applied to human services the answers aren't quite as straightforward as they might be in a for-profit environment where call centres routinely inform callers that their call might be monitored.

When human services adopt ICT they are incorporating systems that have been designed with certain goals in mind that may have unintended consequences. When Kids Help Phone was first conceived the telephone was an ideal medium because it offered anxious and frightened children the privacy and anonymity they needed to feel safe. In the past five years or so, telephone technology has shifted to caller transparency. Call Display now allows people to screen their calls and know exactly who is calling before they answer. This has potentially serious implications for Kids Help Phone. We have had to hire technicians to find ways to block call display in our system in order to stay true to our mission and commitment to callers. Over the past few years, our call volume has

been declining, and we believe this is a direct result of Call Display and the resulting erosion of confidence among callers that their phone calls will remain anonymous.

Conversely, our Web-based "Ask a Counsellor" service is growing, we believe, because this Web-based bulletin board medium offers the anonymity that the phone no longer guarantees. More significantly, children at risk are using the Web more frequently and the phone less frequently. It is considerably more difficult to respond effectively and therapeutically on the Web than it is on the phone. On the Web, a practitioner can only work with what is offered in writing; there is no visual or auditory information. This raises important ethical issues and dilemmas; at what point is it no longer feasible to provide therapeutic interventions by way of information and communication technology, knowing that it distorts and reduces practitioners' access to client information?

Implications for Leaders, Managers and Organizations

Human service technology applications are opening up new ways of thinking about human service techniques, operations and the delivery of services. Individuals that are isolated due to age, illness, language, disability and geographic distance are transcending time, space, real and psychological barriers and are gaining access to information and services in ways that weren't possible before. ICT provides an infrastructure that can link people, organizations and social movements, locally, nationally and globally. It also permits the development of important information and practice knowledge support systems.

Voluntary sector organizations play three key roles: delivering services, testing innovative models and providing ethical leadership. In fulfilling this agenda voluntary sector organizations need to closely examine the implications of new systems and opportunities that ICT brings in relation to the efficacy of internal and external communications, management information systems, knowledge practice systems, evaluation, planning, human resource management and the ethical framework in which organizations function.

Growing pressure on the sector to do more and increasing competition for funding is causing organizations to look for ways to economize and to increase capacity and

productivity. Technology has been designed to primarily support the corporate agenda that values efficiency and productivity and the pursuit of wealth. The voluntary sector and the human services they provide require a new paradigm of science and technology that encourages designers and engineers to find solutions to human needs and allows people to control technology.

Organizations are becoming increasingly complex. Traditional management structures and practices of a command and control mindset will not be effective in the new knowledge-based organizations and society in which we live. Change is rapid and continuous. Organizations must be structured so that they can promptly seize new opportunities that arise; conversely, they must be prepared to abandon their current practices if new risks or negative outcomes become apparent. The modern organization must be organized for innovation and creative destruction (Drucker 1995; Zimmerman 2002).

In a knowledge-based society people and organizations are in a learning mode continuously. Revisiting Kids Help Phone as a case in point, at one time, supervisors were hired based on their management and clinical skills. Today it is a requirement that supervisors be able to use computers and fairly sophisticated software as a primary management tool. Experience and intuition are not as relevant as they used to be, and need to be backed up with the data that only ICT can provide.

Organizations too must position themselves to relinquish the comfort of the status quo and seize new opportunities. Kids Help Phone at present is also a counselling service for parents and a research institute; it offers a public education program and youth leadership program. The technology, that is the underpinnings of the organization, has changed significantly enough in the fourteen years that we have operated that we are currently re-evaluating if the telephone help line model has a future, particularly for children. Call display features are undermining the protection that the telephone once offered callers. The Internet is increasingly becoming the medium of choice for our youngest generations. Kids Help Phone has moved into Web-based therapeutic interventions with no theory or experience to guide us. This requires a willingness to accept risk, and a continuous learning environment where processes and techniques are tested, adjusted and rejected every day. Organizations may need to be constantly re-evaluating their missions

and core competencies and be implementing long term planning strategies that anticipate the unknown.

In this type of environment a team model is the most agile form of organization and supports team collaboration and the sharing of ideas and knowledge that is critical to innovation and continuous learning. This model shares power and responsibility with front-line workers. The leader's job is to set direction, encourage, inspire and provide knowledge workers with the tools they need to get the job done.

Throughout this paper we have discussed the human-technology interface and how ICT can alter communication by eliminating reciprocity, distorting time and space and changing synchronicity. Interacting with a computer or a telephone all day can be somewhat surreal and can cause people to feel isolated and lonely. Call centre environments and jobs where people spend most of their time interacting through technology can cause people to feel monitored and controlled, and creates employee compliance and non-activity. This is antithetical to the conditions that inspire creativity, innovation and action. Organizations that adopt technology as primary tools of communication will need to create *more* opportunities for people to connect face-to-face than ever before. Meetings where ideas are brainstormed and discussed require time and process. This does not fit with the efficiency/productivity paradigm. Internally, electronic forums can support spontaneous communication and capture ideas and energy in the moment.

ICT in the workplace is impacting employees' physical and emotional health. Wellness programs that educate and encourage personal care and healthy life styles can help ameliorate the stress and physical symptoms that can manifest in high tech environments. Wellness technicians may indeed become a commonly accepted position in organizations in future. Finally, healthy, achieving organizations are defined by the strength of their commitment to the purpose of the organization and the strength of their relationships with colleagues.

5

Conclusion

Information and communication technologies are complex systems that are transforming human interactions. ICT is opening up new ways of reaching and communicating with people and can expedite local and global social movements. At an organizational level, it is creating opportunities to develop innovative ways to deliver services and to create knowledge information systems that support practice. The values of technology that have permeated society all too frequently dictate that what is efficient is the right thing to do. Efficiency and productivity, as primary values, can serve human services only when *efficient productivity* includes the variables of quality and effectiveness – based on a full understanding of and support for the nature of the service that is being provided. The voluntary sector and the human services they provide require a new paradigm of the interaction of science and technology – one that encourages designers and engineers to find effective solutions to human needs and allows people to control technology.

Information and communication technology is seen as a method to improve communications. This can be true only when technology-based interactions are sufficiently balanced with face-to-face interactions.

References

Abram, David (1996). *The spell of the sensuous*. New York: Pantheon Books.

Berry, Wendell (2000). *Life is a miracle*. Washington, DC: Penguin Books.

Bunge, Mario (1999). Ethics and praxiology as technologies. *Journal of the Society for Philosophy and Technology* 4, no. 4 (Summer). Montreal: McGill University. Also available on line at http://scholar.lib.vt.edu/ejournals/SPT/v4n4/pdf/bunge.pdf.

Coe, J. A., and G. M. Menon, eds. (1999). *Computers and information technology in social work: Education, training, and practice.* New York: Haworth Press.

Dainoff, Marvin J. (1990). Reducing health complaints in the computerized workplace: The role of ergonomic education. *Journal of Interior Design* 16, no. 2: 31–38.

Drucker, Peter F. (2002). *Managing in the next society*. New York: St. Martin's Press.

_____ (1995). *Managing in a time of great change*. New York: Truman Talley Books.

_____ (1992). *Managing for the future: 1990s and beyond*. New York: Truman Talley Books.

Duvall, Jim (2001). *Time sensitive client directed counselling*. Toronto: Hincks-Dellcrest Centre.

Elliot, Patricia (1993). *Rethinking the future*. Saskatoon, Saskatchewan: Fifth House Publishers.

Forsyth, Michael (1990). Adam Smith's relevance for today. Adam Smith Institute.

Franklin, Ursula (1999). *The real world of technology*. CBC Massey Lectures, 1989. Revised edition. Toronto: House of Anansi.

Friedman, Thomas (2000). *The Lexus and the olive tree*. New York: Farrar, Straus and Giroux.

Friedrich, Ernest (1979). *Good work*. New York: Harper and Row.

Guthrie, Ruth and James Pick (1997). Teleworking ethics. University of Redlands, Redlands, CA. http://www.luc.edu/ethics/23260etc2/etc2-9GuthriePick.html

Havas, Katalin G. (1999). Contradictions in principle of ethics and contemporary technology. *Techné: Journal of the Society for Philosophy and Technology* 4, no. 4 (Summer).

Henwood, F. (1993). Establishing gender perspectives on information technology: Problems, issues and opportunities. In *Gendered by design: Information systems and office systems*, ed. E. Green, J. Owen and D. Pain (London: Taylor and Francis), 31–49.

Husserl, Edmund (1977). *Cartesian meditations: An introduction to phenomenology*. Translated by Dorion Cairns. Dordrecht (NL): Kluwer Academic.

Hurst, Lynda (2002). In U of T prof's brave new world, humans come first. Republished on line from *Toronto Star* at http://www.mie.utoronto.ca/labs/cel/news/archives/20020713-star.htm.

Karasek, Robert and Tores Theorell (1990). *Healthy work: Stress, productivity and the reconstruction of working life*. New York: Basic Books.

Kingwell, Mark (1998). Future of intimacy: A search for soul in the new machines. *Maclean's* (1 June): 60–64.

Kurzweill, Ray (1990). *The age of intelligent machines*. Cambridge, MA: MIT Press.

McMullen, K., and G. Schellenberg (2002). Mapping the nonprofit sector. Ottawa: Canadian Policy Research Networks.

Menzies, Heather (1995). *Whose brave new world? The information highway and the new economy, between the lines*. Toronto: Between the Lines.

Miller-Cribbs, Julie (2001). Information technology and oppressed populations: Integration or isolation? *Journal of Technology for Human Services*, 18(1/2). Reprinted in *Using technology in human services education: Going the distance*, ed. G. Menon and N. Brown, N. New York: Haworth Press, 2001.

Mumford, Lewis (1970). *Pentagon of power: The myth of the machine, Volume two*. New York: Harcourt Brace.

Postman, Neil (1992). *Technopoly: The surrender of culture to technology*. New York: Alfred A. Knopf .

Putnam, Robert (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Shuster.

Rawls, John (1971). *A theory of justice*. Cambridge, MA: Harvard University Press.

Rifkin, Jeremy (1995). *The end of work: The decline of the global labor force and the dawn of the post-market era*. New York: Putnam Publishing Group.

Sassone, Peter (1992). Survey finds low office productivity linked to staffing imbalances. *National Productivity Review* 11, no. 2 (Spring), 145–58.

Schoech, Dick (2002). Technology challenges facing social work. *Electronic Journal of Social Work* 1, no.1 (15 February). www.ejsw.net/Issue/Vol1/Num1/Article5.pdf.

Sclove, Richard E. (1995). *Democracy and technology*. New York and London: Guilford Press.

Shiva, Vandana (1993) *Monocultures of the mind*. London and Penang: Zed Books and Third World Network.

Simmons-Physick, Christine (1994). *Counselling young people by phone*. Toronto: WIT Co.

Strasser, Susan (1989). *Satisfaction guaranteed: The making of the American mass market*. New York: Pantheon.

Stein, Janice Gross (2001). *The cult of efficiency*. Toronto: House of Anansi.

Taylor, Frederick W. (1911). *The principles of scientific management*. New York: Harper Bros.

Tenner, Edward (1996). *Why things bite back: Technology and the revenge of the unintended consequences*. New York: Alfred A. Knopf.

Torjman, Sherri (2001). Reclaiming our humanity. Paper written on behalf of the Coalition of National Voluntary Organizations, the Canadian Council on Social Development and United Way Canada. Ottawa: Caledon Institute of Social Policy.

Turkle, Sherry and Seymour Papert (1990). Epistemological pluralism: Styles and voices within the computer culture. *Signs: Journal of Women in Culture and Society* 16, no. 1: 128–55.

Wajcman, Judy (1991). *Feminism confronts technology*. London: Polity Press.

WNSP (2003). Women's Networking Support Program. Web site. Association for Progressive Communications. http://www.apcwomen.org.

Zimmerman, Jan (1986). *Once upon the future: A woman's guide to tomorrow's technology*. New York: Pandora Press.