Making ICTs Work:
A Study of Hong Kong NGOs in the Social Welfare Sector

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Abstract

As the roles and functions of NGOs have significantly expanded in recent years, there is a growing concern over the need to transform the operation and structure of NGOs. At the center is the issue of improving managerial and service delivery efficiency as well as governance of NGOs. In so doing, many public policy analysts and practitioners have recently regarded ICTs as an important tool to reengineer NGOs. This article examines how ICTs are embedded in the social welfare NGOs in Hong Kong where the nonprofit sector has been a crucial social actor to replace and supplement the positive non-interventionist government of Hong Kong. This article ascertains that unlike the well-developed ICT infrastructure and high-usage of ICT in other sectors in Hong Kong, the deployment and development of ICTs by Hong Kong welfare NGOs are still underway rather than completed. As a means to maximize the benefits of ICTs, this articles argues that both governmental and individual NGOs should strive to broaden the use of ICT applications for more than managerial and communicative purposes, bridge the digital divide to empower the service recipients, engage in active publicity campaigns, and devise measurements to assess the actual impacts of ICTs on the intended goal achievement.

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Introduction

Information and communication technologies (ICTs) have transformed the social, political and economic spheres at an unprecedented pace for the past two decades. Since ICTs provide new opportunities and at the same time poses challenges for national development, any social segment, which falls behind this adaptation to new technologies will lose competitiveness. As much as new, especially web-based, information technologies have been widely used in the commercial sector, the government and the public bodies have paid growing attention to the use of ICTs. How to effectively integrate information applications and how to positively generate value through ICTs has become a serious challenge which most organizations and institutions must meet.

Focusing on nongovernmental organizations (NGOs), this article examines the role and functions of ICTs in the social welfare NGOs of Hong Kong.[1] The degree and speed of ICT adoption varies across sector. In a relative point of view, the business sector is most keen to the strategic utilization of ICTs, which not only enhance productivity in the short run, but also may determine survival in the long run. Even though the public sector is slower than business organizations in the ICT adoption (Wescott 2003), how to become a leading e-Government country is a motto manifested by many governments in recent years. Despite this trend in the first and second sectors, the third sector, i.e., NGOs, is not as responsive to this technological revolution. Given that NGOs complement or sometimes replace the roles of the government and the business sectors and have deeply infiltrated the society, recognition of ICT-mediated utility is important for NGOs to

[1] Unlike the increasing academic and practical concerns, a crystal-clear definition of NGOs has not yet emerged (Martens 2002: 272). The World Bank (1999: 1-2) defines NGOs as "private organizations that pursue activities to relieve suffering, promote the interests of the poor, protect the environment, and stimulate community development." Although this broad definition highlights the functionality that the society expects NGOs to carry out, it does not address other important "self-governing" or "not-for-profit" aspects of NGOs. NGOs are called and used interchangeably with "non-for-profit sector," "third sector," "voluntary sector," or "civil society organizations (CSOs)." In so much as this diversity of terminology, NGOs depending on the functional areas are taxonomized into various categories—social welfare, charitable, religious, cultural, industrial, professional, and political and community advocacy groups.

maximize their social obligations (Burt and Taylor 1998, 2001). Therefore, the thematic focus of this article is pertinent because NGOs are able to benefit greatly from ICTs.

To meet the research objective, this article is organized as follows. The second section discusses the linkage between ICTs and NGOs. The potential that NGOs can exploit from the optimum use of ICTs is addressed in this section. The third and forth sections introduce historical and contextual backgrounds on the evolution of NGOs and the development of ICTs in Hong Kong, respectively. The fifth section examines the key ICT-related initiatives in the Hong Kong NGO sector espoused by the government. The current stage of ICT adoption by Hong Kong welfare NGOs is addressed in the sixth section. The last section raises policy implications and the remaining challenges that NGOs should consider.

Premises of New Technologies for NGOs

New computer and networking technologies have changed the mode of conduct at the micro and the macro levels in different sectors. No matter whether it is the private or the public sector, technologies were initially adopted from managerial considerations. To state it simply, ICTs can be viewed as an important tool to enhance efficiency and effectiveness in managing organizational operations and the service delivery process. Remarkably, however, ICTs have grown and been employed to embody applications beyond a clear-cut "work-better-and-cost-less" idea. There is a wide range of discussion about the additive positive benefits of ICTs, among which the notion of governance has received greater attention (United Nations 2001). Many scholars and professionals have more or less agreed that ICTs will be a vital driving force to reframe governance by improving operational transparency, accountability, and empowerment (Chadwick 2003; Choi 2004a).

Transparency, defined as the openness of making and implementing decisions to the parties concerned, can be enhanced by ICTs. Since ICTs work to expand the scale and scope of information circulated in cyber space, both the intermediaries and the ultimate recipients of new information processing technologies can be better informed when accurate information is timely available. At the same time, ICTs can increase the awareness of accountability because those responsible for organizational operations and

service delivery realize that their behaviors and choices are under close internal and external monitoring. The feature of two-way communication of the ICTs can empower the customers and clients, enabling them to participate in the decision making process (Pascual 2003). Therefore, governance can be redefined through technology-driven changes in transparency, accountability and empowerment combined with increased managerial and service delivery efficiency.

ICTs can reengineer the nonprofit sector in a similar way. The ultimate goal of the NGOs is to provide adequate service to the societal segments or communities in need. Successful achievement of this goal provides a fundamental base for the NGOs to secure their organizational legitimacy. When NGOs attain legitimacy in an efficient manner, they are also able to promote their governance. In this respect, ICTs can be a crucial alternative to increase efficiency by embedding new information processing and management technologies into the operation processes, and to reshape the institutional base by electronically connecting NGOs with funding agencies, service recipients, and the general public.

First, the most direct effect of using ICTs is that NGOs can increase the efficiency of internal management and service delivery. For example, NGOs can replace hard copies of standard letters and publications with e-mails and electronic versions, respectively, and to facilitate internal and external communication at less cost and higher speed. Second, NGOs can increase the transparency and the accountability of their operations not only to the oversight government agencies and donors, but to the public as well. Those who are care about the nonprofit activities can conveniently access necessary information if NGOs upload information, data and other resources regarding their organizational missions, financial reports, and ongoing projects and agendas onto a website. Third, ICTs can help NGOs facilitate direct communication with stakeholders and proactively reach out to new potential recipients.[2] NGOs can use this to mobilize the stakeholders for a better coordination medium, for a new fundraising source, for an effective discussion

[2] Stakeholders can be broken down into three groups—clients or recipients who directly receive services from NGOs; donors or patrons who provide chartable resources for NGOs; and taxpayers and the community who receive indirect benefits. Albeit for different reasons, these stakeholders are concerned with the performance and accountability of NGOs (Keating and Frumkin 2000: 7-9).

forum, and for a legitimacy-garnering mechanism. In particular, when ICTs work as an open channel for service recipients to participate in the decisionmaking process of NGOs, it empowers the recipients to influence decisions that affect their economic and social well-being (Ballantyne 2003).

The Rise and Evolution of NGOs in Hong Kong

The emergence and development of NGOs in Hong Kong is partly due to the historical and political uniqueness of the territory. Historically, the Hong Kong Government, characterized as a "positive non-interventionist" state, minimizes its intervention in the private sector (Lam and Perry 2000). Given a general, albeit not always consistent, assumption that a welfare state is accompanied by the strong engagement of the state regarding social needs, Hong Kong closely following a laissez-faire principle leaves many welfare functions to the society, many of which are overseen by the government in other welfare countries. Therefore, NGOs in Hong Kong carry out the third-sector role quite faithfully in the areas where government programs are absent.

Politically, the colony-based legacy of Hong Kong discourages the formation and active role of influential large-scale NGOs, especially those that challenge the governance function. This situation forges the status of NGOs as "residual" in a Hong Kong context (Lam and Perry 2000: 362). Nonetheless, NGOs and the Hong Kong Government in some sense are mutually interdependent. While NGOs rely on the government for legal registration and subventions, the government in turn depends on NGOs as a source of legitimacy of policies. By occupying a seat on advisory boards or ad hoc committees, NGOs particularly since the 1997 handover participate in the policymaking process by consulting the government on various issues (Lam and Perry 2000: 363).

Constrained in formations and functions historically and politically, however, the NGOs of Hong Kong have grown significantly in number and scope. In an annual policy address, Chief Executive Tung Chee Wha, remarked that volunteer-based NGOs form a tri-partite partnership along with the government and the business sector to develop and sustain the social capital (Tung 2004: 19-20). In 1992, it is estimated that 1,609 nonprofit organizations existed in Hong Kong, 87 of which were classified as social welfare NGOs

(Lam and Perry 2000: 365). Because neither the government nor the community has compiled accurate statistics on the NGOs of Hong Kong, it is very difficult to obtain up-to-date information about the size and activities of NGOs according to their functions. A rough report shows that about 3,400 charitable institutions and trusts operated in 2001 (Golin/Harris 2001: 11).

Despite the growth and the important roles of NGOs in the society, one of the potential problems facing Hong Kong NGOs is excessive reliance on the government for funding. The skewed financial dependence is well demonstrated in the welfare sectors, in which NGOs receive almost 90 percent of funds from the government (Yuen 2003: 92). This financial situation of NGOs may create a problem of accountability as well as governance. When the influence of NGOs was limited, the issue of accountability did not matter so much. Another factor behind this lack of attention to accountability is perhaps the assumption that NGOs were benevolent entities pursuing idealistic motives with self-financing and self-governing, which distinguished NGOs from other for-profit business organizations. However, when NGOs have become a strong social actor as they are now and when they have consumed more resources, the privilege of none- or less-scrutiny that NGOs previously enjoyed can no longer be granted. The reason is, on the one hand, that if the government became a primary funding source, it is more likely that NGOs would serve the whims of the government and politicians rather than the interests of the public. On the other hand, as unethical, albeit not always criminal, practices have tarnished the legitimacy of NGOs in several instances, NGOs should strive to make their operations and activities including finance and accounting more transparent and accountable to their stakeholders. At this moment in time, it seems that NGOs' misuse of money is not a serious concern in Hong Kong. Nonetheless, as NGOs are more dependent on government subventions, they should be more sensitive to the stakeholders in using funds because government funding is tantamount to taxpayers' money.

The Development of the Information Society in Hong Kong

Hong Kong is one of the major cities/countries, which widely adopt ICTs in both public and private sectors. As of 2003, Hong Kong reached 104 percent of mobile phone penetration rate, one of the highest rates in the world. About 68 and 60 percent of

households used PCs and the Internet, respectively. PC and Internet service use by enterprises were 55 and 48 percent, respectively (Government of the HKSAR 2004).[3] As Table 1 shows, thrusting Hong Kong toward becoming a digital city for the last three years was quite successful in expanding ICT infrastructure and its usage. In addition to the citizens' self-awareness of the convenience and benefits of ICTs, the meticulous efforts made by the Hong Kong Government also partly accounts for such a comparable success.

[Table 1 about here]

By initiating the "Digital 21 Strategy" in 1998, which was updated in 2001 and 2003, the Hong Kong Government has made much effort to facilitate the ICT infrastructure and applications, interconnecting the city through the Internet. Targeting eight key areas such as government leadership, e-Government, e-business infrastructure, institutional review, vibrant ICT industry, human resource development in a knowledge economy, and bridging the digital divide, the newly updated Digital 21 Strategy in 2003 attempted to encourage various sectors to embrace and develop ICTs to enhance performance and efficiency.[4] As a result, for example, the government increased the rate of an electronic option (e-option)—public services amenable through the Internet such as public facility booking and electronic public service registration—from 70 in 2001 to 81 in 2002 to 90 percent in 2003 (Government of the HKSAR 2004).

Overall, Hong Kong with the support of a strong commitment from the government has steadily transformed the society into a digital city in light of the ICT infrastructure buildup and the usage of ICT applications.

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[3] As for an international comparison, a 2003 UNDP report surveys technology diffusion and creation across countries. In 2001, the number of Internet users in Hong Kong was 386.8 per 1,000 people, which encompasses the average of the OECD member countries (332.0) and is far greater than the average of the world (79.6) (UNDP 2003: 274-7).

[4] The focus of the Digital 21 Strategy in 2003 slightly shifted to reflect the changing environment. For example, the 2001 Strategy emphasized the following five key areas: driving e-business, developing e-Government, fostering ICT manpower, building a digitally inclusive society, and exploiting enabling technologies (Government of the HKSAR 2003).

ICTs and NGOs in Hong Kong: An Overview

In conjunction with the NGOs, the Hong Kong Government launched an important ICT-related project, the "IT Hong Kong" campaign, in September 2000. Whereas the Digital 21 Strategy initiated government- and society-wide comprehensive applications, the IT Hong Kong campaign is more specific because it intended to help Hong Kong citizens become acquainted with the digital environment. This campaign is directly relevant to NGOs since it encouraged NGOs to increase interaction with citizens. In other words, although the campaign is inclusive of various social segments of the community such as housewives, parents and new arrivals, it also motivates actual and latent social service recipients including senior citizens and the disabled to actively participate in the campaign programs. In so doing, the campaign is carried out through collaboration with several government departments and bureaus. Major participants are the Commerce, Industry and Technology Bureau (CITB), the Home Affairs Department (HAD), the Information Technology Services Department (ITSD), and the Social Welfare Department (SWD) (ITSD 2003).

Among the various activities that the IT Hong Kong campaign pursues, several distinctive features are found to enhance the exploitation of ICTs by the beneficiaries of social services as follows. First, ITSD created various "IT Awareness Programmes (ITAPs)," aiming at promoting ICT awareness of and providing an ICT knowledge base for the general public, the elderly and the disabled. In the fiscal year of 2002-2003, ITAPs offered a series of free training and education courses, attracting over 17,000 senior and 9,000 disabled citizens to raise ICT- and Internet-literacy (ITSD 2003: 32). Second, the ITSD in partnership with the CITB set up the "IT Easy Link" service in June 2002. Receiving about 400 calls on a daily basis, this service deals with public inquiries when using ICT applications such as Internet and e-mail operations, file management, and database management systems to name a few (ITSD 2003: 32). Third, together with the creation of Cyber Centers, the government provided more than 5,000 computers with Internet connections for free use at diverse public locations across the city to ensure public access to computer facilities (Government of the HKSAR 2003).

Another important resource for the NGOs to build and maintain the digital environment is the Lotteries Fund (LF) subvented by the Social Welfare Department (SWD). Relying on LF, the SWD initiated to establish the "Joint Committee on IT (JCIT)" for the social welfare sector and to set up the "IT Resource Center (ITRC)" of the Hong Kong Council of Social Service (HKCSS). The ICT-related programs and LF-mediated funds of the SWD are designed to expand, improve, and assist both NGOs and service recipients for the better use of ICTs. To achieve this objective, the SWD uses LF to construct enhanced infrastructure and application systems, promote internal and external communications, develop human ware, and increase accessibility. For example, the following are the highlights of such efforts by the SWD in 2001 (Sit 2004):

- Infrastructure: PC Replacement Programmes replaced 1,584 PCs for 172 NGOs in March 2001 (LF grant of HK$26.1 million)
- Communications: 204 welfare NGOs were provided with broadband Internet access and digital certificates for three years (LF grant of HK$44.1 million), and portal sites were developed for the elderly and disadvantaged individuals
- Application systems: Core Applications Development supported application systems for financial and human resource management (LF grant of HK$35.7 million), and 14 ICT-related Business Improvement Projects (BIPs) were supported to develop management information systems, knowledge management systems, eService through websites, and a digital library for the visually impaired (LF grant of HK$12.5 million)
- Accessibility: A wider use of ICTs was facilitated for the elderly and the disabled by means of installing PCs at and providing Internet services to senior centers and rehabilitation services units, launching ICT awareness training programmes, and setting up a portal web site for people with disabilities (e.g., www.cyberable.net) (LF grant of HK$40.7 million)
- Human ware: Customized ICT training programmes were offered to NGOs (LF grant HK$3.6 million and the Social Work Training Fund of HK$.91 million).

ICTs and NGOs in Hong Kong: A Survey

To examine the efficacy of a series of programs initiated by the SWD and other related agencies, a questionnaire survey was conducted by the Information Systems and Technology Branch of the SWD from October through November, 2003 (SWD 2003). The questionnaire was distributed to 180 major Hong Kong NGOs in the social welfare sector, 115 of which responded. Overall, the survey results show that most NGOs already adopted and were developing ICT applications to improve managerial and service delivery efficiencies. However, the degree of the embracement of ICTs varies across the NGOs surveyed. Selected survey results are summarized in Table 2.

[Table 2 about here]

Infrastructure

A large portion of NGOs in the survey responded that their computer facility was connected by networks for shared use. The extent to which computers were networked is, however, different depending on the size of the NGOs. The survey result demonstrates that the larger a NGO is, the better connected their computer facility is. For example, whereas 40 percent of NGOs with more than 300 staff members (Group B) replied that 80 to 100 percent of their PCs were networked, less than 25 percent of NGOs with less than 300 staff members (Group A) had the same rate of PCs networked. It may be inferred from this fact that on the one hand large NGOs have more resources to invest in ICTs. On the other hand, large NGOs have a proactive attitude toward the use of ICTs as an important managerial tool for their operations.

Communications

Almost all NGOs replied that they had at least one type of Internet connection. And 69.9 percent of Group A and 24.3 percent of Group B were connected through broadband Internet connection for e-mail communication. However, many NGOs, especially 52 percent of Group B, used a low-speed 56K dial-up connection for e-mail communication. Given that e-mail has become an indispensable basic communication tool in many public and private organizations, the penetration rate of an e-mail system and the low-speed

connection lines indicate much room for improvement of the infrastructure for optimal ICT usage. In addition, it seems that there were not many NGOs, which adopted interactive applications to communicate with other NGOs and with stakeholders.

Application system

In addition to the simple communicative purpose of the use of ICTs, 87.8 percent of NGOs adopted one or more ICT applications/systems. The survey shows that large NGOs (Group B) had higher usage rates in every application/system and have greater desire to further develop applications/systems. Among the diverse applications in use, three applications—financial management, human resource management, and intranet for internal communication—were the most common features. Although NGOs perceived the need to expand ICT applications to the areas of service delivery and knowledge management, the scope of ICT usage was still limited.[5]

Accessibility

The survey displays that there exists a huge cleavage for one reason or another between large and small NGOs in increasing Internet accessibility of service recipients. 67.8 percent of NGOs responded that they provided the elderly and the disabled with facilities to easily access the Internet and training programs to increase their capabilities of using ICTs. However, only a small portion of the NGOs (23.4 percent) designed their websites with special features that met the needs of the elderly and the disabled for easy web access.

[5] Knowledge management is a concept that recently attracted much attention. Although there is no agreed–upon universal definition, it refers to the process through which organizations may create value from intellectual and knowledge-based assets by sharing among organizational members and departments and with other organizations. In relation to technology, ICTs can be regarded as an important engine to facilitate knowledge management. ICT-driven knowledge management not only improves customer service and organizational productivity, but also innovates the organization by disseminating existing and creating new knowledge.

Human ware

The survey also reveals a vast gap between two groups of NGOs in the human ware aspect. While 82.1 percent of large NGOs had at least one or more employees with formal ICT training and the majority in this group had multiple sources of external support, only a small portion of Group A (small NGOs) had formally trained ICT employees and sources of external support. The lack of adequate in-house human ware availability in small NGOs may obstruct further development of ICT facilities and applications. Therefore, when these NGOs faced technical difficulties or when they wished to structure new applications, they had to depend on external sources of expertise. In providing technical support to NGOs, the IT Resource Center (ITRC) of the Hong Kong Council of Social Service (HKCSS) was regarded as an important source of ICT support. This implies that more active involvement of the ITRC is required to make ICTs work in NGOs.

Conclusions: Challenges and Policy Implications

Compared with other sectors, the deployment and development of ICTs by Hong Kong NGOs in the social welfare sector are still underway rather than completed. At the present stage, it seems that neither NGOs nor the government takes a full initiative to retrieve benefits from ICTs in the social welfare sector. In order to actualize the latent advantages, there are several challenges that both the government and NGOs should overcome.

First, the current use of ICTs by Hong Kong NGOs is quite limited in applications, which hinders the maximum increase of managerial and service delivery efficiency and transparent and accountable operating procedures. As the survey results in the previous section illustrate, many NGOs, especially small ones, are passive in using ICTs in a sense that they adopt only the technology-transmitted benefits for internal communication or other elementary managerial purposes. However, ICTs can serve as a means to reengineer the operations and activities of NGOs that can go beyond managerial efficiency. And it requires NGOs to take a proactive approach to the use of ICTs. Since the aforementioned survey does not provide any concrete grounds to assess the progress of other ICT applications than managerial and communicative efficiency, it is difficult to estimate the

extent to which Hong Kong social welfare NGOs have promoted transparent and accountable operations driven by ICTs. The following general recommendations can, however, be made for further development of ICT usage.

As the role and the influence of NGOs increase in the society, the size of NGOs in terms of resources and boundary of activities also expands. As much as NGOs flourish in the society, they must be more responsive to the voice of social needs. What parallels this recognition is the issue of financial accountability. NGOs elsewhere now face mounting pressures to be more responsible for financial accounting to stakeholders. The issue of financial accountability has invoked controversy in the nonprofit sector due to the misuse of funds by NGOs. Many NGO-involved accounting scandals have been documented, some of which are so serious to induce a crisis of credibility. In a study that traced the criminal wrongdoings that U.S. charitable NGOs committed, Fremont-Smith and Kosaras (2003) raised the problem of governance of NGOs. How to structure the transparent and accountable accounting procedures is another complicated matter (see, for example, Keating and Frumkin 2000). However, what is less controversial is that ICT-mediated applications can help NGOs disseminate the financial statement and accounting information at less cost for internal and public monitoring.

Second, an effort to bridge the digital divide should be continued to achieve empowerment development.[6] Constructing infrastructure is the first critical step to derive benefits from new technologies. Equally important is the inducement of more people to use ICTs, however. It can be inferred by analogy that a highway is of no use if there are no cars running on it. Articulated in this aspect are serious gaps in two aspects—a gap between large, rich and small, poor NGOs; and a gap between the information haves and have-nots. On the one hand, small or local NGOs are positioned in an inferior position in adopting ICTs in the day-to-day operations due to limited human and budgetary resources and a lack of awareness of the need of ICTs. As the survey results amply demonstrate, Hong Kong is not an exception to the digital divide across large and small NGOs. On the other hand, social and economic inequalities are created by discrete capabilities of how to

[6] The notion of digital divide is defined as "the gap between individuals, households, businesses and geographical areas at different social-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities (OECD 2001: 5)."

use and access information among social groups (UNDP 2001; Nye 2002: 13). The main targets of NGOs are most likely the socially disadvantaged including the elderly, the poor, the sick, and the less educated. These social groups have, in most cases, fewer chances to know about ICTs, and this circumstance forces them to be information illiterates. This is paradoxical because ICTs may render service recipients powerless rather than empower them in shaping their well-being if the digital divide remains intact. Thus, it is crucial to realize that training and education programs are essentially required for the recipients to fully reap the benefits.

As addressed earlier, although both the "Digital 21 Strategy" and the "IT Hong Kong" campaign reflect the efforts of the government to bridge the digital divide, there still exist serious discrepancies among social strata in utilizing ICTs. As Table 3 displays, the poor, the elderly, and the less educated are disproportionately deprived of access to the ICT facilities and services. In particular, most disadvantaged are those who are located at the extreme ends of each social stratum such as households with a monthly income of less than HK$10,000 which constitute 25 percent of all households, the age group of over 65, and those with primary-or-below educational attainment. Assuming that a large portion of these social groups might be the ultimate recipients of welfare services provided by many NGOs, these groups are far from the abridged exploitation of the benefits from ICTs. In this regard, it is imperative that both the government and NGOs provide computer facilities not only in convenient locations for the public as the Digital 21 Strategy designs, but also in low income districts in the community as well. At the same time, what is necessary for the government in alliance with NGOs is to take greater responsibility to educate these groups on how to use and access ICTs.

[Table 2 about here]

Third, and related to the second, both governmental and individual NGOs should actively participate in publicizing the benefits of ICT usage. In this aspect, a valuable lesson can be driven from the experience of the Independent Commission Against Corruption (ICAC). The ICAC has been very successful to convey an anti-corruption message to the public through various media including TV commercials. The ICAC's

strenuous public campaigns have made the majority of the citizens alert of the dangers of corruption and support the agency activities (Choi 2004b). In a similar way, it is expected that active public campaigns will not only make the welfare recipients recognize the values of using ICTs, but also enable the general public to become aware of the programs that NGOs are involved in.

Finally, much effort should be allotted to develop measurements to assess whether the adoption of ICT applications have actually brought about intended benefits. For example, is the provision of computer facilities in the public areas effective to improve the capacity of welfare recipients to access the information they need? Does the NGOs' usage of the financial management system increase a sense of financial accountability? Does a human resource management application enhance the human-resource efficiency at less cost? To capture the bona fide advantages, therefore, the government as well as the NGOs should devise methods that operationalize the impact of ICTs on managerial and service delivery efficiency, and governance structures.

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Table 1 Major Indicators of ICT Development in Hong Kong (in percent)

Indicator	2000	2003
Mobile phone penetration	N.A.	104
External communications capacity (in Gbps)	45	900
Household PC penetration	50	68
Household Internet penetration	36	60
Household penetration for broadband Internet service	18	50
PC penetration in the business sector	52	55
Internet penetration in the business sector	37	48
Businesses adopted some form of e-business	N.A.	50

Source: Government of the HKSAR, 2004.

Table 2 Selected Survey Results of ICT Development in the Social Welfare Sector in Hong Kong (in percent)

Category	Survey questions	Range	Group A[a]	Group B[b]
Infrastructure	PCs being networked for sharing ICT applications/information	81-100%	24.4	40.0
		61-80%	23.2	40.0
		41-60%	17.1	8.0
		21-40%	17.1	4.0
		20% or below	9.8	4.0
		None	8.5	4.0
Communication	Types of Internet connection service	Telephone line (56K dial-up)	13.0	52.0
		Broadband	69.6	24.3
		Lease line	.9	6.1
Application systems	Applications/systems currently in use	Financial management	74.7	82.1
		Human resource management	35.6	75.0
		Intranet for internal communication	44.8	82.1
		Membership registration	41.4	42.9
		Program registration	23.0	28.6
		Knowledge management	20.7	21.4
		Others	13.8	17.9
		None	14.9	14.9
	Applications/systems to be developed in the next three years	Financial management	35.6	64.3
		Human resource management	39.1	53.6
		Intranet for internal communication	32.2	50.0
		Membership registration	35.6	46.4
		Program registration	34.5	39.3
		Knowledge management	25.3	50.0

		Others	10.3	25.0
		None	26.4	7.1
Accessibility	Provision of facilities for the elderly/disabled to access the Internet	Yes	59.8	92.9
		No	40.2	7.1
Human ware	NGOs having employees with formal ICT training	Yes	26.4	82.1
		No	73.6	17.9
	Sources of external ICT support	ITRC	41.4	60.7
		Hardware vendors	32.2	57.1
		Software vendors	27.6	64.3
		ICT solution vendors	16.1	75.0
		Others	20.7	10.7
		None	28.7	7.1

Source: SWD, 2003.

Notes: [a] and [b] denote small NGOs with less than 300 staff members (87 NGOs, or 75 percent, in a survey) and large NGOs with more than 300 staff members (28 NGOs, or 25 percent), respectively.

Table 3 PC and Internet Penetration Rates by Social Strata in 2001 (in percent)

Social strata	PC	Internet
Monthly household income (in HK$)		
Less than 10,000	22.8	14.5
10,000-19,999	58.3	42.9
20,000-29,999	76.2	61.3
30,000-39,999	82.9	69.5
40,000-49,999	86.1	76.8
Over 50,000	89.5	82.7
Average	60.6	48.7
Age		
1-14	90.3	79.4
15-24	88.0	81.1
25-34	73.6	65.1
35-44	52.0	42.3
45-54	26.2	19.6
55-64	8.8	6.0
Over 65	1.2	0.8
Average	50.3	43.3
Education level		
No schooling/Kindergarten/Primary	14.3	11.1
Secondary/Matriculation	60.0	50.1
Tertiary	91.1	86.9
Average	50.3	43.3

Source: ITSC (2002: 18-21).