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NETWORK ANALYSIS OF DISCONNECT IN THE HOLLOW STATE: THE CASE OF E-GOVERNMENT SERVICE PORTALS

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Abstract

The use of network arrangement in the development and implementation of e-government service portals is on its increase. Yet, research on network arrangement in sourcing service portals still lags behind developments in practice. This paper uses a network analysis perspective to identify any disconnect in the network arrangement in the sourcing of e-government service portals. We analyzed the hyperlink information embedded within e-government service portals to map out the network cohesion between and among governmental agencies and third parties. The results of this study found that although government is harnessing both the private and social capital, private firms remain as the key providers whereas non-profit organizations tend to loose out in both technology and information sourcing.

Keywords: hollow state, service portals, network cohesion, social capital.

1 INTRODUCTION

Many countries now deploy Internet technology to remake their service delivery. The promise of such programs as e-government service portals where citizens can access public services and information through a single point of entry has led to the rise of the dot-gov phenomenon. But despite the early fanfare, recent research has indicated that e-government is still in its infancy stage of development, and government has to do a lot more to convince the masses that e-government can improve their quality of life (Booz Allen Hamilton, 2002; United Nations, 2003). When it comes to the development and implementation of e-government service portals, governments alone might not have the needed resources and knowledge, and will have to resort to contracting with third parties including non-profit organizations and private firms. Researchers have used the term the “hollow state” as a metaphor to denote that third parties increasingly take up the role of the state in managing public service delivery (Milward, Provan and Else, 1993). In relation to e-government as the provision and delivery of public services happens to be online, e-government service portals effectively provide a virtual front-end of the hollow state.

The hollow state essentially consists of a diverse alliance and network between governmental agencies and third parties. The management of such a diverse network can be problematic (Milward and Provan, 2003). With the objective of e-government in delivering seamless online services, the concern towards integrating outputs from diverse activities has become one of the most challenging tasks in network management. Against this, many countries have begun to implement reform programs that emphasize collaboration within and between governmental agencies and third parties. The emphasis moves beyond simply contracting with third parties to concertedly arranging a network of relationships in the provision of better content and services for consumption. This paper seeks to examine the level of integration of the state of play in the content and service provision with e-government service portals. The following sections will first outline the underlying challenges and objectives of network management in the hollow state, and then present the details of an empirical study based on the analysis of two government service portals, and describe any disconnects within and between governmental agencies and third parties. Finally, the discussion will examine the implications of the findings towards the appropriation of social capital.

1.1 Network management

In an age of tight public spending, government has to rely on third parties in part to design, finance and build the entire public sector infrastructure. The acclaimed benefits of contracting with third parties include the attraction of private investment, increase in efficiency of service delivery by reducing the transaction cost, access to market skills and expertise that will speed up the implementation, and facilitation of organisational and cultural change in both public and non-profit sector (Domberger and Fernandez, 1999). With the hollow state, it is essential to attract all the key actors to forge a network of relations. The ultimate goal of this network is to harness the so-called social capital which includes the actual and potential resource available and possessed by individual actors (Nahapiet and Ghoshal, 1998), and the shared norms and trust that facilitate co-operation within and/or among groups (OECD, 2001). The network of relations serve to bridge social capital by generating information benefits (Burt, 1992), providing cost effective resources for competitive action (Alder and Kwon, 2002), and enhancing the overall capacity for creativity (Pelled, Eisenhardt and Xin, 1999), fostering information, knowledge and technology transfer (Cross, Borgatti and Parker, 2002).

The e-government initiative provides a unique opportunity to build social capital. What constitutes the right kind of network in providing and delivering public sector assets and services remain as one of the key concerns. Government not only has to consider both the private and non-profit sectors on equal terms but also has to avoid situations that create mistrust and conflict. A key challenge for government is to identify what facilitates and importantly what undermines social capital. So what are these factors? In their extensive review of social capital, Alder and Kwon (2002) provide an opportunity-

motivation-ability framework to explicate the network conditions that facilitate the creation of social capital. First, the location that individual actors occupy in a network will provide a unique opportunity to link to other actors. Most importantly, the location and the proximity to focal actors will have a significant impact on the appropriation of social capital. Second, it is what motivates donors to help recipients in the absence of immediate returns. This includes collective goals, enforced trust, and norm of generalized reciprocity. Third, it is whether the donors have the ability to help the recipients. This considers not only whether the potential donors are available and accessible in times of needs but also whether they have the resources and knowledge to engage in problem solving (Cross, Borgatti and Parker, 2002). Simply put, an actor with opportunity and motivation to help others does not add value to social capital. An effective way to build social capital is to form a relation where members of the network have the opportunity, the motivation and the ability to help one another.

In a nutshell, network management in the hollow state revolves around arranging networks rather than managing organizations (Milward and Provan, 2003). It involves designing efficient contracts, which provide sufficient incentives for encouraging cooperation and joint service production between governmental agencies and third parties. The degree in which the level of services being contracted out and managed by third parties determines the level of hollowness and in turn the level of network management. That is, the higher the level of hollowness, the greater the network management in order to avoid any disconnects in the system. Potential disconnects may arise as a result of conflict of interest among and between third parties, and/or due to the disparity of capacity between governmental agencies and third parties (Fredericksen and London, 2000).

For government, the desire to forge a closer link with the non-profit sector considers that non-profit organizations can provide a web of association to help individuals succeed, and decrease the need for the state to intervene and to resolve social conflicts (Huntoon, 2001). When it comes to electronic service delivery, because core competencies of government are hardly in the area of information and communication technologies (ICT), government has to rely on the ICT capabilities of the private firms. For the non-profit sector, e-government provides a new way not only to form closer ties with the relevant governmental departments, but also to increase their visibility by their sheer presence on the e-government service portal, which potentially provides non-profit organizations with a larger share of Internet audience. An increase in visibility will help non-profit organizations raise their public profiles and increase public awareness of their missions and beliefs. The closer link with government will also bring them closer to resources and expertise of the private sector. In return, because of the closer ties that they have with the local communities and voluntary bodies, they can offer both government and the private sector the insights and knowledge of local and social issues to enrich the information content of the e-government service portals.

For the private sector, e-government offers access to a potentially very lucrative market. As most of the e-governmental service portals gradually move towards organising their online services around citizens, such citizen centric services will require government to reform its internal processes and to work out the best way to improving connectivity among intergovernmental departments. In this regard, the private sector will be able to provide government with the needed capabilities to make the existing services integrated and fully transactional. Also, the coming together of non-profit organizations on the e-government service portal can reach the economies of scale to attract private finance and investment.

Whilst government and the non-profit organizations aim to foster social capital, the private sector has a radically different agenda of exploiting social capital to build private and economic capital. Conflict of interest such as this may jeopardise internal cohesion, erode trust, and inhibit information exchange and collective action (Coleman, 1988, 1991). This presents government a delicate situation that requires a careful balancing of activities (including policy-making and funding allocation) that eventually lead to the development and the utilization of both public and private goods. What constitutes the right kind of network in providing and delivering public sector assets and services remains as one of the key concerns. Government not only has to consider both private firms and non-profit organizations on equal terms but also avoids situations that creates disharmony. Specifically,

government has to be seen as impartial by the general public when it comes to form network ties with private firms and non-profit organizations. Situations such as when government forms closer ties with private firms than with non-profit organizations or vice versa can seriously damage network cohesion.

1.2 The present study

The present study attempts to map out the networks of relations among government, non-profit organizations and private firms. The aims are twofold. First, it is to identify the network pattern presented via the hyperlinks of the portal. Second, it is to answer whether certain actors are dominant or disconnected in the network of relations, and if so, to examine whether such relations can be sustainable and/or open to intervention.

The hyperlinks of e-government service portals represent the actors selected (or endorsed) by government. As one of the primary effects of social capital derives from the information flow among actors, these hyperlinks represent the information exchange of the existing networks. Actors that are directly hyperlinked are more likely to engage in frequent interaction and information exchange. Whereas actors that are not directly hyperlinked are less likely to work together, and are likely to rely on intermediates to serve as information broker (Burt, 1992). The configuration of these hyperlinks implicates opportunities as well as missed opportunities in the process of social capital creation. For example, people without the technical and social access to government information and services are likely to be excluded from this process. Hence government has to exert its authority to engineer a preferred network of relations by ensuring that the existing network includes non-profit organizations that represent the digital underclass.

As a network of relations exists through the interactions of at least two actors, we applied social network models to measure, and to map out the relations and information flow among actors. The emergent property of the linkages between units of observations is the central concept of the network analysis. Wasserman and Faust (1994) stated that the fundamental difference between social network explanation of a process and a non-network one is the relationship among actors. The nodes in the network are units of governmental agencies, non-profit organizations and private firms, and the links represent relations or information flow between the nodes. The measures used in the present study to indicate the characteristics of a network of relations included the following. The in- and out-degree of a node measures the level of activity of a node. The network connectivity indicates network cohesion. The network density measures the level of connectedness among the nodes in a network. The line connectivity indicates the level of difficulty to disconnect a network. The measure of centrality identifies the most important actors in comparison to other actors in a social network. That is, in contrast to actors at the periphery of a network, actors at the centre are the most active ones with more ties to other actors. The closeness index measure indicates how active an actor has to be to get in touch with all other actors. Low closeness will suggest an actor is distal to the centre and needs to take more steps to reach others.

2 METHOD

Service portals. The present study examined the e-government service portals of Singapore and Taiwan. There were two reasons of choosing these two Southeast Asian countries. First, most of the e-government research has focused on the Western countries. The present research served to add new knowledge. Second, both countries were relatively mature in the development and implementation of portals (Accenture, 2002; West, 2001).

Network data. The data were based on how web pages of each portal were hyperlinked within and among governmental agencies, non-profit organizations and private firms. In addition to the hyperlinks, the information content of each web page was classified accordingly to the scheme as shown in Table 1. For instance, hth_g was used to stand for health information provided by government. The information classification followed the classification currently used by each portal

with a few exceptions. First, whilst government and the private sector would regard water, gas, and electricity and so forth as facilities, non-profit organizations would treat them under environmental issues. Second, online civil services included all the transactional type of public services; those services that were not fully transactional were classified according to their information type. The combination between information type and actor type (government, non-profit organizations and private firms) resulted in 51 information-actor units, e.g. cvl_g standing for "civil services from government", env_o "environmental information from non-profit organizations", and bus_c "business information from private firms". A relational link existed where there was at least one hyperlink between 2 units. Some links between units might happen more than once. This could be used to indicate the popularity of a specific actor. In this study, the focus was on the relational links rather than the strength of those links, hence single rather than frequency counting between units was taken. The presence of a relation between units was entered as "1" and the absence as "0" into a (51 by 51) transition matrix. The matrix was bi-directional as each row represented a link initiator, and each column represented a link receiver. The matrix data was then analyzed by Netminer (2.0). The data collection was carried out between 15-Aug-02 and 10-Sept-02.

Information Type	Information Content
Business (Bus)	Business development, online business transaction, shopping
Culture (Cul)	Movie, song, book, art, museum
Community (Cum)	Community, charity
Online civil service (Cvl)	Government online civil service, personal information updates (such as birth, address change, death, marriage), electoral registration, electronic payment
Directory (Dir)	Contacts, street map, postcode, yellow pages, calendar
Education (Edu)	School, learning, research, library
Environment (Env)	Waste collection, environment protection
Facility (Fac)	Water, electricity, gas, public infrastructure
Finance/Economics (Fin)	Investment, tax
Health (Hth)	Birth, death, hospital
Housing (Hus)	House and Land
Human (Hrm)	Human resource service, training, job
Leisure (Lei)	Sports, travel, game, e-card, restaurant, entertainment
Legal/Regulation (Lgl)	Law and regulation
News (New)	News, weather, time
Technology (Tec)	Hardware, software
Transportation (Tra)	Vehicle, traffic, public transportation
Security/Defense (Sec)	Military service, police service, emergency service

Table 1. Information Type and Content

Network measures and analysis. Three layers of network analyses were conducted: all the 51 information-actor units were analysed first, followed by the bi-partite networks and the within actor network. The first layer examined the characteristics of the entire network. The bi-partite networks compared and contrasted the external network relations that a focal actor forged with others; specifically three pairs of comparison were made: the network that government formed with non-profit organizations vs. government with private firms; non-profit organizations with government vs. non-profit organizations with private firms; private firms with non-profit organizations vs. private firms with government. The third layer of network examined the internal cohesion among units within each actor. The aim of cascading from the entire network to individual actor networks was to provide a drill down analysis of the relation between external and internal network cohesion.

¹ According to Di Maio (2001), a fully transactional service allows citizens to conduct a complete task online without interacting with government officers either by phone or by personal visit.

Coding and reliability. In view of the vast cyberspace, the data collection was restricted to three tiers (government, non-profit organizations and private firms) of hyperlinks. Searching within the same tier (actor) did not constitute a tier change. It was only when the hyperlinks took the users to another actor's site. The justification of a 3-tier boundary was that information would be effective when the search effort is efficient enough for citizens. Over complicated or lengthy search links could frustrate citizens and result in users aborting their search. Only webpages that contained links to specific information were coded. The network data collected based on the webpage could be quite reliable considering that it was based on the presence of a hyperlink that could be clearly seen on the webpage, there was no cognitive process and interpretation involved. Nevertheless, to ensure reliability, each portal was double checked for any missing hyperlinks. Lastly, most of the identification of organizational type was quite straightforward. However, some non-profit organizations' websites used .com and some governmental websites use .org did cause some confusion. In this case, the objective information of the website (under "about us") was used to guide the decision. The information coded was also double checked to ensure reliability. Given the information categories were derived based on the sites' classification, no disagreement was found.

3 RESULTS

3.1 Entire networks: Singapore vs. Taiwan

Table 2 displays the nodal and the network measures of the e-service portals of Singapore and Taiwan. In contrast to Taiwan, Singapore shows a significantly higher nodal activity (in terms of in- and out-degree of a node), network connectivity (in terms of line-connectivity) and centrality (in terms of in- and out-degree centrality, and in- and out-closeness centrality). In terms of connectivity, 653 relational links out of 2550 total possible links were found on the Singapore portal; that gives a network density of 0.256. This is considered not very high as the network density ranged from 0 to 1. The average number of links was 12.804, indicating that each actor had just under 13 relational links with other actors. For the Taiwan portal, the average number of relational links was 8.26, there were 421 relational links out of 2550 total possible links; the network density was 0.165, which was less dense than Singapore. The centralization index (CI) indicates the variability of each network centrality measure. The Singapore network was relatively higher on in-degree centrality whereas a higher variability for Taiwan on out-degree centrality and in-closeness. The differences observed in CI suggest the network of relations exhibited on Taiwan's e-government service portal was sparser than Singapore. Taken together, the network of relations of Singapore is more interconnected and cohesive than Taiwan.

	Singapore			Taiwan			T-Test	
	Mean	SD	CI	Mean	SD	CI		
In-degree of a node	12.80	6.76		8.26	5.65		3.69	***
Out-degree of a node	12.80	8.04		8.23	7.53		3.21	**
Line-connectivity	14.13	6.69		8.63	6.09		4.34	***
In-degree centrality	0.26	0.14	35.08%	0.17	0.11	28.04%	11.98	***
Out-degree centrality	0.26	0.16	49.36%	0.17	0.15	54.56%	-11.27	**
In-closeness	0.49	0.09	36.15%	0.38	0.13	36.38%	5.32	***
Out-closeness	0.49	0.19	60.89%	0.38	0.19	72.30%	2.96	**

Note. n = 51 information-actor; links for Singapore and Taiwan were 653 and 421 respectively; CI = centralization index.

Table 2. Nodal and network activity of Singapore and Taiwan portals

A close examination of the information-actor units with in-degree links higher than the average has reviewed the following. For Singapore, there were 24 actors with in-degree higher than the average. Among them, 50% were government actors, 42% private firms and 8% non-profit organizations.

SINGAPORE			
	Gov with non-profit organizations	Non-profit organizations with private firms	Gov with the private firms
	M (SD)	M (SD)	M (SD)
In-degree of a node	10.12 (5.72) ^{a,b}	8.09 (5.14) ^b	11.71 (5.84) ^a
Out-degree of a node	10.12 (6.21) ^{a,b}	8.09 (5.20) ^b	11.71 (6.17) ^a
Network density	0.31	0.25	0.35
Line-connectivity	10.67 (4.73) ^a	9.01 (4.87) ^a	12.21 (5.36) ^a
In-degree centrality	0.31 (0.17) ^{a,b}	0.25 (0.16) ^b	0.35 (0.17) ^a
Out-degree centrality	0.31 (0.19) ^{a,b}	0.25 (0.16) ^b	0.35 (0.18) ^a
In-closeness	0.51 (0.09) ^{a,b}	0.46 (0.12) ^b	0.55 (0.12) ^a
Out-closeness	0.50 (0.22) ^a	0.46 (0.20) ^b	0.55 (0.16) ^a
TAIWAN			
	Gov with non-profit organizations	Non-profit organizations with private firms	Gov with the private firms
	M (SD)	M (SD)	M (SD)
In-degree of a node	8.06 (5.20) ^a	4.00 (3.68) ^b	7.71 (4.84) ^a
Out-degree of a node	8.05 (6.18) ^a	4.00 (3.64) ^b	7.71 (6.37) ^a
Network density	0.31	0.13	0.35
Line-connectivity	8.70 (4.90) ^a	3.76 (3.47) ^b	7.92 (5.37) ^a
In-degree centrality	0.24 (0.16) ^a	0.13 (0.12) ^b	0.23 (0.14) ^a
Out-degree centrality	0.24 (0.19) ^a	0.13 (0.11) ^b	0.23 (0.19) ^a
In-closeness	0.47 (0.02) ^a	0.26 (0.14) ^b	0.41 (0.14) ^a
Out-closeness	0.47 (0.19) ^a	0.25 (0.17) ^b	0.42 (0.20) ^a

Means with different superscripts are different at $p < .05$ whereas those with the same do not.

Table 3. Nodal and network measures of Singapore and Taiwan bipartite networks

For Taiwan government, there was no significant difference between the networks with non-profit organizations and that with private firms. However, significant differences were obtained for non-profit organizations and private firms. The results indicate that non-profit organizations were better in forging a closer network relationship (in terms of higher nodal activity including in- and out-degree, and network connectivity and cohesion) with Taiwan government than with private firms. The reverse is true for the private sector. The private sector had a closer network relationship with government than with non-profit organizations.

3.3 Inter-actor network cohesion

Thus far, the network differences observed between Singapore and Taiwan portals could have been the results of the internal cohesion within each actor. Table 4 displays the comparison of same actor of the two countries. First, there was no significant difference of internal cohesion between Singapore and Taiwan government. Second, the non-profit organizations' network connectivity of Taiwan was significantly lower than that of Singapore. Finally, the nodal activity and the network connectivity and

cohesion of Singapore private firms were significantly higher than that of Taiwan. This suggests there was a lack of internal network cohesion within Taiwan's private firms. In short, the Singapore e-service portal was geared more towards delivering citizen-centric services whereas the focus of the Taiwan e-service portal was on government matters. In terms of nodal activity and network cohesion, the networks forged among Singapore's actors were more cohesive and integrated than Taiwan for all the three layers of networks.

	S Gov	T Gov	T-test	S NPO	T NPO	T-test	S Private	T Private	T-test	
	M (SD)	M (SD)		M (SD)	M (SD)		M (SD)	M (SD)		
In-degree	10.56 (4.97)	8.72 (4.01)	1.22	3.81 (3.07)	2.63 (2.87)	1.12	6.88 (4.23)	3.29 (2.99)	2.86	**
Out-degree	10.56 (3.45)	8.72 (4.42)	1.39	3.81 (2.70)	2.63 (2.12)	1.38	6.88 (3.45)	3.29 (3.04)	3.22	**
Line-connectivity	10.34 (3.33)	10.30 (2.73)	0.04	4.51 (2.94)	2.44 (2.05)	2.31	* 6.82 (3.41)	2.57 (2.77)	3.99	***
In-degree centrality	0.62 (0.29)	0.51 (0.24)	1.24	0.25 (0.20)	0.18 (0.19)	1.08	0.43 (0.26)	0.21 (0.19)	2.82	**
Out-degree centrality	0.62 (0.20)	0.51 (0.26)	1.42	0.25 (0.18)	0.18 (0.14)	1.39	0.43 (0.22)	0.21 (0.19)	3.12	**
In-closeness	0.74 (0.16)	0.69 (1.27)	0.17	0.37 (0.21)	0.30 (0.18)	1.06	0.59 (0.20)	0.29 (0.20)	4.35	***
Out-closeness	0.71 (0.19)	0.69 (0.15)	0.26	0.37 (0.21)	0.29 (0.20)	1.38	0.58 (0.18)	0.29 (0.22)	4.22	***

Note. S = Singapore, T = Taiwan, NPO = non-profit organizations; Gov with NPO (n = 34), NPO with Private (n = 33); Gov with Private (n = 35).

Means with different superscripts are significantly different at $p < .05$ whereas those with the same do not.

Table 4. Nodal and network measures within actor

4 DISCUSSION

Many research scholars have argued that the key task of public administration in the hollow state is to learn how to manage networks (Agranoff and McGuire 2001; Frederickson and London, 2000). Specifically, effective management of network revolves around integrating diverse service providers such that collaboration will create a one-stop shop providing the users with a continuum of care (Milward and Provan, 2003). Effective network management is particularly important to the design and sourcing of service portals for delivering services in a seamless fashion, and for offering new and richer information content. On the basis of network analysis, the present study indicates that both Singapore and Taiwan governments in general are harnessing private finance and social capital in the development and implementation of service portals, however, there a few disconnects in the setup of the "virtual" state.

In terms of network centrality, the online civil service of the Singapore portal served to bridge social capital as compared to that of Taiwan. Coupled with high in- and out-degree links, the online civil service offered more opportunity linkages. In terms of distance to information exchange, its in-closeness and out-closeness were also higher than Taiwan. This suggests that Singapore online civil service took a shorter path to reach to other network actors; hence, its ability in information transmission was better than Taiwan. The network indices show that Taiwan online civil service was less active in information transmission, whereas Singapore was active both in service delivery and information transmission. In reviewing Taiwan e-government strategy (RDEC, 2001), the emphasis is on deploying information technologies to raise the quality of public services, including accelerating

service speed, enriching service option, extending service time, broadening geographical service scope and lowering costs. However, less emphasis is on increasing information transmission. The network indices of the present study generally concur with this.

As for Singapore, five strategic thrusts to drive forward its e-government vision (IDA, 2000) include: pushing electronic service delivery; building new capability and capacity to tap on the power of collaborative knowledge management and to provide instant knowledge; innovating with information and communication technologies; anticipating being proactive; and developing thought leadership on e-government. Singapore e-government broadens its vision not only in providing online civil service, but also in leading Singapore through more collaborative knowledge management. This is indeed the case as the out-degree and out-closeness of Singapore was more convergent. This suggests Singapore actors seek to increase connectivity by offering their own sites to connect other actors to the network. The openness in resource sharing is important to cultivate social capital. More interesting hyperlinks serve to provide more opportunities for interaction. The willingness to share both its site content and position, and the ability to provide good information all give Singapore a powerful network to harness collaborative knowledge management. In contrast, the information content of the Taiwan service portal was originated from government actors. This implicates that Taiwan government does not delegate much power to external actors, and most external actors have to rely on government to get the needed information. Such dependency might hinder social capital creation because external actors have less opportunity to co-produce new information content with government.

Information sourcing is paramount in e-government. The present study has confirmed the important role played by the private firms. From the early adoption of Internet technologies, the private firms not only have the first mover advantage of acquiring a bigger market share of Internet users but also are better in providing business information on the Internet than any other actors. For example, when it comes to the development of leisure information related to things that people can do in the national parks, government will need the input of the private firms to enrich the information content. As government has no budget to provide national park tour service, and there are not any other organizations able to provide free service, it is inevitable to involve the private sector to create new information content. Under this, the private sector can exploit its network position and readily convert social capital to advance its private interest. The wide range of commercial involvement in information provision can be regarded as a form of information sourcing. It seems that Singapore has outsourced large part of their portal information content to private firms. Although there were no monetary or obligatory contracts, the quality of outsourcing information needs to be defined, monitored, evaluated and controlled. Policy maker in e-government should ensure that the information content shown on its portal meets the objectives of e-government. It is important that what has been contracted out is "the process" instead of "the policy" (Bastow, Dunleavy, Margets and Tinkler, 2000).

The present findings also suggest that in comparison with private firms, non-profit organizations are most likely to lose out. Whilst non-profit organizations may be keen to forge a closer tie with government and the private sector, they might not have the capacity to absorb and embrace new ICT (Cohen and Levinthal, 1990). Recent reports on ICT capability of the voluntary and community sector suggest that the level of Internet and communication technologies infrastructure was still relatively poor (e.g. Wyatt, 2001). It is clear that non-profit organizations have to acquire a better position on the Internet. Non-profit organizations with websites could definitely gather more attention and resource from others. To increase social capital at the whole network level, other actors could help non-profit organizations better position themselves on the e-government service portal. First, non-profit organizations could be listed on the directory services provided by government and the private sector. For example, take environment protection; non-profit organizations can join the apparel industry to create new contents aiming to educate people of how to recycle shopping bags. Second, non-profit organizations can come together to form a single entity to strengthen their network position, for example, using one non-profit organization portal rather than many to interact with other actors. In this way, one interaction with the non-profit organization's portal could get all other non-profit organizations closer to other network actors; this will reduce the time and resources to promote the

visibility of individual networks. Government plays a significant role in arranging the network to enhance internal and external network cohesion. When all the actors are closely knitted (Alder and Kwon, 2002), network cohesion facilitates trust and shared goals to develop, attracts members to engage in problem solving (Roger, 1995), promotes an efficient information screening and distribution (Nahapiet and Ghoshal, 1998), and allows an early adoption of innovative technology specifically when information relating to the profitability of the innovation is ambiguous (Abrahamson and Rosenkopf, 1997). All these acclaimed benefits are particularly relevant to the assessment of the potential and realistic values of ICT impact on governance and the general public.

Recent literature suggests that the allure of the status of being e-ready has led to something of a rush mentality, with insufficient emphasis on redesigning services around the intended users, and importantly possessing and packing information for better consumption (Kuk, 2003; United Nations, 2003). As increased use of ICT does not automatically transform into increased uptake and usage, governments need to recognise that sole reliance on the private firms to furnish the needed knowledge and skills on technology sourcing for the delivery of online services might not return with the desired effects, and that simple transfer of information and services from traditional to electronic channels might not guarantee that users will follow suit. Contrary to the view that the first stage of e-government simply involves publishing the existing information electronically in a new channel, information has to be collated, processed and packaged to increase its appeal for consumption. In this regard, the voluntary and community sector including the non-profit organizations play a significant role in sourcing the content and in avoiding making an ineffective process including dissemination of uninteresting information more efficient.

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