

# Intermediaries in ICT4D: The other “I”

by

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## ABSTRACT

The challenge of bringing developing countries into the “information society” has been traditionally framed as bridging the digital divide. Meeting this challenge has predominantly been through technical solutions aimed at providing physical access to the Internet. Yet, other aspects of the divide such as low literacy rates, gender and religious issues arguably pose bigger hurdles in getting the benefits of the Internet to the vast majority of the population of developing countries. They are seldom aware of the information available on the net and even when they are, they have difficulty using it. To facilitate access and use of the Internet by the population, an intermediary is often needed. While case studies in the literature have shown several examples of such intermediaries, the role of this entity has not been conceptually examined. In this paper, we attempt to meet this knowledge gap by conceptualizing the characteristics, types and roles of the Intermediary entity. We provide examples from both published work and our own empirical data to illustrate our conceptualizations. Based on this, we discuss implications for research and practice.

**Keywords:** Intermediaries, ICT4D, developing countries, public Internet access, digital divide

## INTRODUCTION

While launching “e-Qalam”, which is a digital pen that assists readers to read and understand the Quran, the Malaysian Prime Minister Datuk Seri Najib Razak made the following remarks:

*“The digital divide is real and growing with profound implications. It is not just an issue of equitable access to technology and a gap between the info-rich and info-poor. It also covers the literacy and basic skills, localized content, the development of self-managed communities and empowering society by providing opportunities to use ICT. ... We can have the best access to ICT but it will be no use if individual citizens do not see value in this for their conduct of daily life, work or play”.* (New Strait Times, September 8, 2009).

The implication is clear. While governments and agencies are clearly motivated to bring the developing world into the Internet world, actions taken had focused on mainly one aspect of the digital divide: providing physical access. The proposed solutions have primarily been technological and infrastructural. Thus, efforts have focused on providing inexpensive computers such as simputers and 100-dollar computers, and setting up public access points such as telecentres.

These are commendable efforts and internet penetration has indeed increased. For example, between 2000 and 2007, average number of Internet users in the developing world has increased from 2 to 13 per thousand (ITU World Telecommunications/Indicators database). Much of this is attributable to proliferation of Cyber cafés and Telecentres (Furuholt and Kristiansen, 2007b). Yet, problems remain in achieving wide-spread penetration. For example, Telecenters face sustainability problems and privately owned internet cafes are driven by market potential thereby excluding large parts of the rural population. These issues have been dealt with extensively in the literature, and in other papers in this workshop. Instead of adding yet another voice to this aspect of the discourse, in this paper we turn our attention to another, and arguably a more severe aspect of bridging the Digital Divide: the actual use of ICT and the Internet. As is evident from the speech by Datuk Nejjib Razak, the overwhelming majority of the population in developing countries does not have the capability to avail the Internet.

Several reasons are attributed to this state of affairs. Developing countries have low literacy rate (around 30% or under) to begin with. Even among the literate, resources (time, money),

knowledge and motivation to use ICT is low (Heeks 2000). The vast majority of the population simply do not know what information is available, where to find it and how to use it (Sein, 2009). There is a gender, social and educational divide as well (Warschauer 2003). Internet users in developing countries tend to be typically male, young, have higher education and live in the urban area (Heeks 2000).

What is needed is another entity to step in and facilitate the bridging of the gap. Policy makers, scholars and opinion leaders especially in developing countries are aware of this. For example, in a speech to the Bangladesh Telecentre Initiative, Professor J. R. Choudhury who heads almost all ICT related policy initiatives in Bangladesh stated:

“for any public access facility to be successful in catering to the needs of the majority of population, there has to be a person in between the end user and the computer, the so-called ‘infomediary’ (derived from information intermediary) or ‘information worker’.

There is also ample evidence in the literature about these 3rd party entities (Bailey 2009, Gronlund 2000, Mahrer and Krimer 2005, Madon and Sahay 2002). However, with a few notable exceptions, their involvement directly in the interaction process has received less explicit attention. Among the exceptions have been terming these 3rd parties as intermediaries (Heeks 2002), examining their roles in mediation (Madon and Sahay 2002, Beck et al. 2004) and categorizing the different types of intermediaries in the specific context of eGovernment (Sein 2009). What is lacking is a systematic conceptualization of their characteristics, roles and context of intermediation. This conceptualization will contribute to further our understanding of the dynamics of ICT in development and in practical terms, help develop interventions that have the potential to lead to development.

In this paper, we aim to develop the concept of intermediaries. We will use both published literature and our own research to define the dimensions along which intermediaries can be conceptualized. The next section provides a brief summary of this literature review. Next, we will outline the dimensions and illustrate our concepts with empirical examples. We then present a few vignettes from our ongoing research to further illustrate our points. We conclude the paper by discussing implications for practice and offering avenues for future research.

## **PRIOR WORK ON INTERMEDIARIES**

The concept of Intermediary in the context of ICT4D is not new. More than a decade ago, Cronin (1998) listed such information professionals as librarians as “traditional information intermediaries”, a view further advanced by Ashcroft and Watts (2005). Their role was essentially to simply help users access information that is publicly available by locating these sources. Other intermediaries took a more advanced role by integrating various sources on a specific topic, structuring these findings into a form understandable by interested users and disseminating it to them. Examples of this type of enhanced service include the Center for Responsive Politics in US that present information on campaign finance to activist citizens (Bhatnagar 2002). In a developing country context, local intermediaries integrate information on health found on the Internet in English and then translate it to local languages and convert them into local contexts (Edejer 2000).

The role of the intermediary in specific application areas has been explored. Edejer (2000) is such an example where the area is health. Perhaps the most explored area is eGovernment and governance in general. Authors have examined corruption (Bhatnagar 2002), moderating discussion on democracy (Edwards 2002) and providing eGovernment services of various types (Gorla 2007, Bailey 2009). This stream of research also provides another insight – the “offline” service offered by intermediaries. A good example of this is given by Prakash and De (2007) in their study of the acclaimed Bhoomi project of computerizing land records in the Indian state of Karnataka. Kiosks were set up in several villages where records could be entered into the system. However the actual registration of land records took place in distant district headquarters where the hard copy certificates were issued. As a consequence, land holders had to travel to these district headquarters which many could not afford in terms of both money and time. Some kiosk operators seized this opportunity by doing the registration on behalf of the farmers and getting the certificates for them.

The streams of research on specific application areas focus predominantly on content and thus on use of information. By contrast, most of the literature on the Internet in general had studied the role of intermediaries in providing physical access. In a few cases, these intermediaries also provide help to users in accessing the Internet through services such as trouble shooting, tips etc. (Mutula 2003, James 2005, Tan 2007, Furuholt and Kristiansen 2007a). These intermediaries

are mostly internet or cyber café operators or employees of cyber cafes. Many also provide additional services such as fax, digital photos, and some go further and conduct training and education to users and prospective users (Kristiansen et al., 2003).

While the interaction between a user and an intermediary happens at an individual level, there is also an organization level of intermediation. Many internet access points are either set up by organizations such as NGOs or are “orchestrated” by organizations (Mukerjee 2008). In the latter role, these organizations do not set up telecentres or cafes themselves, but provide financial, infrastructural and consulting support to entrepreneurs to do so. Organizations take a more meaningful role in facilitating use of the Internet. Specifically Madon (2000) examined the use of the Internet in sectors such as health and education, and derived some conclusions for government intervention, including the important role of intermediary institutions, and Tan (2007) reported the role of volunteer women organizations in Tanzania. Beyond facilitating and enabling use, intermediaries can also take an activist role with the aim of empowering disadvantaged groups. Examples include the role played by an NGO on behalf of slum dwellers in India (Madon and Sahay 2002) and by government officials in Sweden (Beck et al. 2004). The latter study also reveals another dimension of the intermediary concept: an intermediary may also be a government official.

The technology in addition to the Internet is also worth examining in exploring the role of the intermediary. In the DNet project in Bangladesh, the intermediaries themselves do not use the Internet directly. Instead they use mobile phones to relay questions asked by the users to the Pallitathya Kendra (Rural Information Center) where other operators access the Internet and then give the intermediaries the answers who in turn give it to the users. Another example is using megaphones to inform fishermen in India about weather information gathered from the Internet. A more intriguing aspect is using technology itself as an intermediary such as software that is an automatic reading tutor (Mills-Tetty et al. 2009)

In summary, the intermediary entity can be conceptualized along several dimensions. The obvious place to start is the service they offer which can range from simply providing physical access to facilitating use through online and offline service and all the way to activism. Who these intermediaries are, whether they are individuals or organizations, and how they perform as intermediaries are other dimensions that are useful to conceptualize the Intermediary entity. In

the next section, we present our conceptualization in Table 1. The table lists examples and references to anchor our propositions.

### CONCEPTUALIZING THE INTERMEDIARY ENTITY

**Table 1.** Intermediaries and public Internet access.

Dimension	Description	Examples	References	
What are they doing?  The service offered and performed by an intermediary	Offering physical access (to the Internet) only	Any Public Internet Access Point (PIAP)		
	Facilitate access (user support etc.)	Most PIAPs	Furuholt and Kristiansen (2007a)	
	Creating awareness	Schools, NGOs, PIAPs		
	Facilitate use (access information from the Internet)	PIAPs		
	Service "package" (off line service as well as online service)	Some PIAPs, Governmental One-stop service offices		
	Training			
	Other related services (fax, digital photos etc.)			
Who are they?  Various intermediary roles	Individual	Entrepreneur	Internet café staff	
		Developer	Telecentre staff	
		Governmental official	One-stop service officer	
		Informal	Experienced users, friends	
	Organizational	NGO	Women's group, political parties	
		Governmental office	IT help-desk staff	
		Private company	Consultants	Ciborra (2005)
Technological	Computer programs	Automatic reading tutor	Mills-Tetty et al (2009)	
	Devices	e-Qalam, digital pen		
How are they giving the services	Direct people-to-people support in an PIAP.			
	One-to-many training			
	At a distance, via radio or TV		Kenny (2001)	
Why are they doing this?	For profit	Internet café owner (entrepreneur)		
	Development objectives	Telecentre manager		
	Political objectives	Activists		
In which context	General Internet access			
	Specific area	e-government, e-health, e-learning		

## VIGNETTES OF SOME INTERMEDIARIES

In this section, we provide three vignettes of intermediaries in three different contexts. These are drawn from research we conducted in Tanzania and Indonesia.

### **Sengerema Telecentre, Mwanza region, Tanzania**

Sengerema telecentre (STC) was initiated by the Tanzania Commission for Science and Technology (COSTECH) with support from the International Development Research Centre (IDRC) and other international donors back in 2001. At that time it was the country's pilot rural telecentre.



Today, STC offers a wide variety of IT related services. First, they run an ordinary Internet Café business where the staff help users to operate the computers, and to search for relevant information and services. Their application area therefore is general Internet use. However, they also offer distance learning courses, and conduct training courses on payment (one week per month, they conduct training for free as a way to help local people of limited means to use the Internet in general). They run their own library. Future plans include helping local government in setting up e-Government initiatives. As part of their activities that can be best described as a “comprehensive IT vendor”, STC offers ISP services to various organisations

(NGOs etc), and run ISP services for the local and district government. They offer a variety of IT consultant services, such as desktop publishing and web design as well as secretarial services. Along this vein, they have equipped a conference room with video conferencing equipment, for rent. They even import, refurbish and sell (locally) used computers at subsidised prices.

The ISP services are their main source of income, together with the Internet café. An interesting feature of the centre in terms of staffing is that to a high degree they are relying on volunteers. Only 5 out of 18 employees have permanent positions. In addition to relying on volunteers and paid staff, the centre also gets assistance from local NGOs such as Sengerema Women Information and Communication Group, for dissemination of information and on local dance groups and musicians for creating awareness and promoting the telecentre. STC also runs their own Community Radio Station. It works as an intermediary to reach out to the rural villages with relevant information.

STC is an organizational Intermediary offering expanded services, non-Internet services, training and education and even exhibit aspects of activism through their pro bono training weekly and selling refurbished computers at subsidized rates. This profile can be described as a multi-intermediary role, individual as well as organisational.

### **Sea Boys Internet café in Dar es Salaam, Tanzania**

Sea Boys Internet café was founded in 1999. During our visit in 2006, it was run by Gaspar a 26 year old local manager. The Internet café was located close to schools, hospitals, hotels etc. and had a customer base of approximately 50% students, 20% professionals, 10% “streeters” (mainly young men), 10% tourists, and 10% others, divided equally (50/50%) between men and women. There were 9 computers for customers’ use and the price was as low as 500 Tsh per hour (0.5 USD), due to very tough competition. On weekdays, an average of 30 customers visited the café and double as many on week-ends.





Gaspar, the manager, performed a very basic intermediary role – that of providing physical access and facilitating use. He had more than 50% regular customers, and he told us that: *‘They become my friends and then I advise them on how to use the computers and access the Internet’*. One example of these regular customers was a local entrepreneur who was marketing spare parts for Japanese cars from his own web site, developed in and operated from the Internet café, with the help of Gaspar. Here, his role expanded to providing additional services. Another group of customers were women who were communicating with their husbands who worked abroad. They were helped to use e-mail by Gaspar initially which indicated a limited training role. Gaspar’s profile can be described as an “Individual Entrepreneurial Intermediary”.

### **E-government in the district of Sragen in Indonesia**

The district of Sragen is one of 440 districts/cities in Indonesia, and one of the leading districts in implementing e-government in Indonesia. It is located in Central Java and has a population of 850,000. The economy of Sragen is mostly agriculture-based. The use of information technology (IT) in the public sector in Sragen started in 1998.

In October 2002, Sragen opened a so-called *Kantor Pelayanan Terpadu* (KPT, One-Stop Services) to provide the public with a

simpler process to get certain permits and licences. In the beginning, the KPT had authority to issue 17 types of licences, such as building permits, restaurant licences, etc. When issuing the permits, the KPT coordinated their work with other governmental offices, and thus simplified the bureaucratic process considerably. During the last five years, their authority has been extended to 52 types of licences, where 16 of them are delegated to sub-district offices, and nine to village offices.

In 2006, 52 offices were connected to the computer network and the Internet. During the next three years, starting from 2007, a further 208 village offices will be connected to the Internet. Even if the Sragen district has been leading in e-government implementation, the public can still not access the provided services directly through the Internet. The citizens have to physically visit the service points set up at the sub-district offices; an adjustment to fit the local context. In the future, they plan to expand this further, not only to the village level, but make the services accessible through the Internet, anytime and anywhere.

Sragen is an example of an organizational Intermediary in a specific application area, namely e-government. The operators of KPT are the contact point with the citizens. Intermediation is indirect and consisted entirely of providing a “packaged” service consisting of online and offline services. This profile can be described as “Government Intermediary”



## DISCUSSION

### Implications for Research

A number of interesting research issues emerge from our conceptualization. These are listed below:

#### *Issue 1: Variation of roles in different application areas*

While a convincing case can be made for the necessity of Intermediaries in ICT4D, the importance of their role may vary across different application areas. Most of the argumentation for their need comes from the eGovernment literature both conceptually (Heeks 2000, Sein 2009, Schuppan 2009) and empirically (Bhatnagar 2002, Madon and Sahay 2002, Traunmüller and Wimmer 2003, Ciborra 2005) E-Health is another arena where they are important (Edejer 2000). Whether they are as vital in general access to Internet is an interesting research area. The importance of a local activist or “catalyst” in sustaining public Internet access points such as telecenters have been emphasized by Sein et al. (2008). The vignettes we presented in the previous section provided some support for this conjecture. In these vignettes, we attempted to suggest some profiles of types of Intermediation. Expanding and enhancing these profiles is an interesting research area.

#### *Issue 2: The “other” side of intermediation*

While we have stressed the positive side of Intermediaries, there is also a potentially dark side. Intermediaries can increase corruption as they represent another layer between common citizens and the system (Kumar and Best 2006, Schuppan 2009). In fact, elimination of manual intermediaries is often the motivation behind developing eGovernment service such as Bhoomi for land reforms (Prakash and De 2007). Some even regard elimination of intermediaries as contributing to what they call “real democracy” (Netcheva 2002). Bhoomi initially succeeded in reducing the role of the manual intermediaries (known as “village accountants” or VA). Yet a deeper analysis of Bhoomi suggested that instead of eliminating these VAs, transforming them into intermediaries as outlined in our paper would perhaps be more useful. The key could be to study the motivation behind why intermediaries take that role.

### *Issue 3: Characteristics of the Intermediaries*

Motivation is related to the characteristics of intermediaries. For starters, a simple mapping of their characteristics may be useful. A descriptive study can potentially unearth reasons and motivations of the intermediaries. There are preliminary indications as can be gathered from the profiles we sketched in the three vignettes above.

### *Issue 4: Theoretical premises to study Intermediaries*

Studying Intermediaries in more depth requires sound theoretical premises. Perhaps the most used theories in the ICT4D eGovernment literature are Structuration Theory and Actor Network Theory. Both are appropriate for studying Intermediaries. For example, the concepts of “enrolment and translation” and “delegation” from ANT and those of “signification” “domination” and “legitimation” from Structuration provide appropriate lenses to understand the dynamics of Intermediation and the role of Intermediaries. Another theory that is applicable is Stakeholder theory that gives us a value proposition of those Intermediaries.

### **Implications for Practice**

If intermediaries are vital, the question is how do we develop them? This can be an integral part of setting up Internet access points. For example, in Bangladesh, the Grameen Phone Community Information Center project (GPCIC) selects kiosk operators, trains them and provides them relevant support to set up and then run the kiosks. In training them, it would be useful to stress their intermediation role. The DNet project in Bangladesh, mentioned earlier, explicitly uses intermediaries. Especially interesting is that most of these intermediaries are women who use mobile phones. This advances the empowerment of women and also leverages the power of mobile phones that is perhaps the driving force behind the next technology wave, dubbed ICT4D 2.0 by Heeks (2008).

### **Concluding remarks**

The main contribution of this paper is the explication and systematic conceptualization of Intermediary as an essential entity in ICT4D. Since we used mainly published work, and some of our own primary data, the conceptualization is more descriptive than normative. Obviously, the dimensions we outline here are neither exhaustive nor perhaps the most important. As such,

this is a preliminary attempt that needs to be detailed and specified further. Much more work is needed to make it more cogent and useful by both enhancing it and by pruning it. Like any such conceptualization, it is an emerging one. Our hope is that it will raise and sustain the interests of our colleagues who are studying ICT4D.

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