Making Information Transparent as a Means to Close the Global Digital Divide

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Introduction

The digital divide—roughly the inequality of access to and benefiting from the new information and communication technologies—has generated a lot of debates and discussion in today's world. According to Toby Arquette, there has been an explosion of talks, conversations, reports, research works, media coverage, and so on about the issue:

> A convenience sample of newspapers, journal articles, newswires, and similar mass media sources in the Lexis-Nexis database from January, 1990 to December, 2000, reveals that 14,123 addressing the digital divide appeared. Even more revealing is the explosion in frequency in coverage of the digital divide issue: 1995, 3 stories; 1996, 31 stories, 1997, 43 stories; 1998, 316 stories; 1999, 2054 stories; 2000, 11,676 stories. This represents almost a 3000% increase in issue coverage since 1995. As of July 2001, 4,457 stories are devoted to the digital divide issue (Arquette, 2002: 9).

It is quite clear that stories about the digital divide has a strong appeal to the public imagination. This is perhaps due to the fact that information and communication technologies (ICTs) have pervaded very deeply in the lives of an increasingly greater number of people, especially in the poorer countries.

In this paper, I would like to offer yet another perspective to this already well worn topic, perspective that ties it with the emerging field of philosophy of information, especially information ethics. More specifically, I will concentrate myself on the *global* digital divide—roughly, the disparity in access to the information and communication technologies between the developed and developing countries or societies. I will try to argue that a reason why the so-called information poor remain where they are is because, following Albert Borgmann (1999), the so-called information poor already possess a vast resource of information, and, following Hernando de Soto (2000) the rich resource of information available to them is locked up and cannot be fully utilized. Hence, Floridi's brand of information ethics that takes the infosphere as central to ethical concerns needs to be qualified. Finding out how to solve this problem also involves venturing into the more established philosophical endeavors concerning global justice, because one is now dealing with the problems emerging from the (unequal) relations among cultures and nations of the world (O'Neill, 2000; Hongladarom, 2001).

Characterizing the Digital Divide (or Divides)

The gap between the so-called 'information rich' and 'information poor' is too broad to enable one to understand the complexities of what is currently going on because it presupposes that there is a simple divide between those who possess the technologies and enjoy their benefits and those who cannot do so for whatever reasons. The term 'digital divide' itself is a metaphor evoking the image of a gulf, a chasm, between those who enjoy the technologies and those who do not. Courtright and Robbin (2002) have analyzed the meanings of the term 'digital divide' and found that they vary according to how the phenomenon itself is viewed. If the intended meaning calls for the image of physical prowess and willingness of tackle actual problems, then the metaphors of muscle and motion are used. For example, 'bridging' the digital divide conveys the meaning that the divide can be crossed by constructing bridges. On

the other hand, when the emphasis is on deeply held values that bind members of a society together, a different type of metaphors is used, such as to 'level the playing field' or to 'connecting to opportunities'. This shows, *prima facie,* the attitudes toward the digital divide phenomenon that stakeholders, in Courtright's view, do have, but since metaphors usually become frozen with normal use, these attitudes can be imprinted in how words are selected and used. Hence the meaning of 'digital divide' is charged with attitudes and beliefs and refers to some kind of obstacle between two groups of people that needs to be 'bridged' and 'connected.'

Toby Arquette (2002) traces the intellectual root of talks or discourses about the digital divide and finds that the talks revolve around the 'triumvirate' of development, globalization and society. Talking about the digital divide has become prevalent in development discourses, where the divide is regarded as yet another hurdle against development. It also figures rather prominently in talks about globalization, as it quite dramatically shows the inequalities among nations and cultures. Lastly, digital divide talks play a role in attempts to delineate the information society, thus putting them in the ongoing stream of scholarship in science, technology and society studies (STS). This shows that the digital divide is a social phenomenon. As an object of attention in discourses on development, globalization and society, talks about the digital divide show that the concept is deeply engaged with social scientific studies, and such talks do not seem to be able to distance themselves from talks in areas such as development, globalization, or society. In either case, it seems to show that talks about the digital divide cannot take place meaningfully outside the contexts of its relation to social and historical contexts.

Some scholars, furthermore, argue that the digital divide is not a unitary concept that can be applied to the same type of phenomenon. On the contrary, one should more accurately talk about the digital divide*s*, as there are many different kinds of the divide. Eszter Hargittai, for example, argues that there is the second-level digital divide, consisting of the gap between the skills people have when they are online (Hargittai, 2002). This is in contrast with the usual interpretation of the digital divide merely as the

gap between those who possess or do not possess the technology. On the other hand, one can see that there are many types of the divide simply by looking at the situation in, say, the United States, where there is obviously a kind of divide and compare it to a country such as Thailand, where there is a divide too, but of a different kind. In the US, the divide can be seen quite clearly along racial lines, with a much higher percentage of whites enjoying the technology than blacks do. In Thailand, on the other hand, the divide is located along the urban and rural line, with urban, middle class people on one side and the rural farmers on the other. But even so this is still too crude a description of the actual conditions. It is clear that the difference here stems from, or could be explained by, the different historical paths that Thailand and the US took. But if that is the case, then talks of the digital divide as if it were a single phenomenon appearing all over the world would be too broad, and cannot do justice to the obvious role that cultures and historical paths play in policy deliberations on the digital divide.

Not only does the digital divide cut across many boundaries, it seems one could meaningfully talk about the divide among groups rather than among individuals. Floridi, on the other hand, argues that the digital divide is more a matter for individuals rather than groups or nations (Floridi, 2002b). However, one can plainly see the wide disparities in the percentage points of those who are connected to the Internet in a developing country such as Thailand and the same type of number in, say, the US or Sweden. On average, a Thai would enjoy far less chance of being connected to the Internet (assuming that this is really something to be enjoyed, but more on this later) than would an average American or Swede. Thus it seems one can talk about the divide among groups, as statisticians usually do when they compare percentage points of a type of phenomenon among various groups. Talking about the divide among groups is also essential when the focus is on *global* digital justice—a kind of global justice dealing with equal (or unequal) distribution of information use and connectedness through the information network across the globe. Without the conceptual tool enabled by the talk of the divide among nations, one would have no means by which one can perceive the disparities as occurring among and between groups.

While there is a tremendous amount of information on the digital divide in the West, especially the US, information and research on the phenomenon Asia except Japan and the other Third World countries has attracted far less attention. The figures that most dramatically highlight the disparities between the West and the rest of the world can be found, inter alia, in the *Information and Communication Technology (ICT) Development Indices* (UNCTAD, 2002). Here the ranking of ICT diffusion by countries, according to the statistics in 2001, shows that the first twenty top ranked countries in ICT diffusion are all Western countries, with the US at the top. Only three Asian countries make it to the list: Japan (10), Hong Kong (9) and Singapore (14), whereas among the twenty bottom ranked countries, six are in Africa, and the rest are all in Asia and the Pacific islands (UNCTAD, 2002, p. 35). Thailand, for example, has only 2.27 million people online, or 5.64 percent of the whole population (Mekhopee, 2002, p. 150); Japan, on the other hand, has according to an estimate by her Ministry of Post and Telecommunication s more than 56 million, or around 44 percent of the population (NUA Internet How Many Online, 2003).

As for the disparities within countries, Karsten Giese has documented the digital divide in China (Giese, 2002) and found that use of the Internet is concentrated on the coast and the big cities such as Beijing, Shanghai as well as Hong Kong and vicinities. World wide web users in these areas account for a staggering 60%, whereas the inland area has only 10% (Giese 2002, p. 50). In Thailand, 16 percent of population in the Bangkok Metropolitan Area have access to the Internet, while only 4 to 5 percent of the people in the rural areas outside of Bangkok do so (Mephokee, 2002, p. 150).

It is clear, then, that disparities do exist between the West and the rest regarding the use of information and communication technologies. There is the digital divide between these two groups of countries. The issue is a part of the problem in global justice, and the philosopher's task is to conceptualize this problem in order that one has a clear grasp and comprehension of the issue. In what follows I shall discuss the works of Luciano Floridi and Albert Borgmann. The aim is to argue that a very important

problem for philosophy of information is to study how information is spread throughout the world as well as the role of culture in any philosophical deliberation on the ethical aspects involved.

Information Ethics and Transparency of Information

In a series of articles, Luciano Floridi advances a theory of information ethics that aims at establishing a moral theory based on the concept of information (Floridi, 1999; 2001; 2002a; 2002b; 2003; Floridi and Sanders, 1999; 2002). For Floridi, information ethics is to be a kind of ethics that takes, not human beings, but the collected sum of information itself, or the 'infosphere', as central. Standard ethical theories, such as Kantianism and utilitarianism, are based on the recognition that it is human beings that are to be the center of ethical deliberations. For Kantianism, it is the reasoning capacity, and the recognition that human beings are to be treated as ends and never as means, that serves as the linchpin of the system. On the other hand, utilitarianism is based on the concept of the utilities, which are interpreted as those of human beings. Floridi calls these ethical systems 'biocentric' ethics since they are focused on the biological creature. On the contrary, Floridi advances another kind of ethics that takes the infosphere itself as central:

> Biocentric ethics usually ground their analyses of the moral standing of bio-entities and ecological systems on the intrinsic worthiness of life and the intrinsically negative value of suffering. IE [information ethics] suggests that there is something even more elemental than life, namely being, understood as information; and something more fundamental than pain, namely entropy. According to IE, one should also evaluate the duty of any rational being in terms of contribution to the growth of the infosphere, and any process, action or event that negatively affects the whole infosphere—not just an information entity—as an increase in its level of entropy and hence an instance of evil. Without information there is no moral action, but in IE information moves

from being a necessary prerequisite for any morally responsible action to being its primary object. The crucial importance of this radical change in perspective cannot be overestimated. Typical non-standard ethics can reach their high level of universalisation of the ethical discourse only thanks to their biocentric nature. However, this also means that even Bioethics and Environmental Ethics fail to achieve a level of complete impartiality, because they are still biased against what is inanimate, lifeless, intangible or abstract (even Land Ethics is biased against technology and artefacts, for example). From their perspective, only what is intuitively alive deserves to be considered as a proper centre of moral claims, no matter how minimal, so a whole universe escapes their attention. Now this is precisely the fundamental limit overcome by IE, which further lowers the necessary condition that needs to be satisfied, in order to qualify as a centre of moral concern, to the minimal common factor shared by any entity, namely its information state. And since any form of being is in any case also a coherent body of information, to say that IE is infocentric is tantamount to interpreting it, correctly, as an ontocentric theory. The ethical question asked by IE is: "What is good for an information entity and the infosphere in general?" The answer is provided by a minimalist theory of deserts: any information entity is recognised to be the centre of some basic ethical claims, which deserve recognition and should help to regulate the implementation of any information process involving it. Approval or disapproval of any information process is then based on how the latter affects the essence of the information entities it involves and, more generally, the whole infosphere, i.e. on how successful or unsuccessful it is in respecting the ethical claims attributable to the information entities involved, and hence in improving or impoverishing the infosphere. IE brings to ultimate completion the process of enlarging the concept of what may count as a centre of minimal moral concern, which now includes every information entity. This

> is why it can present itself as a non-standard, patient-oriented and ontocentric macroethics (Floridi and Sanders, 2002, pp. 19-20).

The passage quoted above neatly sums up Floridi's view on information ethics. Any action that promotes the infosphere is to be judged as good, and any that threatens it is to be judged the opposite. Hence, Floridi's theory is a kind of naturalism in ethics, where normative evaluation of an action is to be based on whether that action promotes or demotes some kind of natural entity. One might well compare Floridi's theory here with Spinoza's. In any case, taking information as the center of ethical consideration may prima facie provide ammunition for arguing that the digital divide is a problem that needs to be solved. However, when one realizes, as I shall show presently, that there are many kinds of information and the so-called information poor are not actually as poor in information as one might think, and that the information that can break the digital divide needs to be transparent, the kind of information ethics proposed by Floridi here may not, as it stands, be adequate to the task.

In order to see how the last sentence of the previous paragraph is the case, let us take a brief detour and have a look at what Albert Borgmann has to say on the nature of information. In *Holding on to Reality: The Nature of Information at the Turn of the Millennium* (Borgmann, 1999) Borgmann advances an idea of information as being connected with human history and level of sophistication in their dealing with the natural environment. Borgmann sees that information, especially what he calls 'technological information', the kind of information that is made possible by the contemporary computer and communication technologies, is poised to replace reality altogether. And he is calling for a balance among, in his terms, 'natural', 'cultural' and 'technological' information.

According to Borgmann, natural information is the most primitive kind of information. The term 'primitive' here is used in the sense of something being simple and natural, not in the pejorative sense. However, it is clear that for Borgmann natural information stands first in the history of the development of information. Natural

information is information about reality; it is itself part of the natural world that stands for another part. Thus the existence of round pebbles on the shore signals that a river is nearby, or the presence of such and such bird songs signals that such and such kind of birds are within hearing range. Black clouds in the sky show that rain is imminent, and so on. Natural information is the simple signaling by one part of nature to another part, mostly through physical cause and effect relations. Pebbles got rounded because of the water in the stream, and so the roundness of the pebbles signals the running of the water. Moreover, the information encoded within texts is also a kind of natural information. Texts can record what is happening far more accurately the memories.

Cultural information, on the other hand, is information *for* reality, since it contains recipes for designing reality. Thus information contained in cookbooks as well as architects' drawings are of this kind. Cultural information does not merely describes reality; it makes reality happen through its role as the blueprint, so to speak for the designing and making of aspects of physical reality. In this sense, all music scores contain cultural information since they prescribe how a piece of music is going to sound like. The third kind of information, technological information, is information *as* reality. As technology progresses, so does its capacity for imitating and in the end replacing reality itself. Borgmann's example is the compact disc. The information contained in an audio CD, for example Bach's cantatas, is not only an imitation of the live music when the cantatas are performed, but the music one listens to on the CD threatens to become the real embodiment of the music itself. The accuracy and clarity of the music one hears on the CD is such that live performances pale by comparison. Technological information can take us further away from reality through its power of becoming reality in itself. Virtual reality simulations, when perfected, are capable of creating an alternative reality where the reality one can feel through one's immediate senses (not through the mediation of the technology) can seem 'unreal'. Borgmann, in short, is calling for us to hold back and take a reflective look at the current situation where technological information is threatening to take the primitive reality away from us, and to strike a healthy balance among the three types of information.

What this analysis of information in Borgmann implies for the digital divide problem is that it helps us become aware that talks about the divide presuppose that one is taking a one-sided view on technology and its progress. Having no technology, being unconnected to the World Wide Web and the other paraphernalia of communication technologies, is a problem needing a solution. The talks of the 'information rich' and the 'information poor' also presuppose that there is something, information, whose possession indicates whether one is rich or poor. Presumably the more information one possesses, the richer one becomes, and vice versa. However, Borgmann shows that there are more kinds of information than the technological one that seems to be implied by the talks about the digital divide. The poor villagers in remote areas in Thailand certainly do not lack natural information. In fact they are very rich in this regard. They have a rich set of resources that enable them to cope with the environment and potentially even to prosper. Knowledge and skills involved in planting rice, for example, involve a huge amount of natural information—knowing when to plant the rice, which seeds to sow, what are the proper techniques of tending the young rice, how to recognize potential pests and how to deal with them, when to harvest, and so on and on. Thus the fact that the farmers are unconnected to the Internet should not be taken to mean that they are information *poor;* in fact for a specific kind of information they are very rich. Urban blue-collar workers also can be quite rich in formation, although they don't own computers or do not know how to surf the Internet. What they are rich in includes how to negotiate the difficult tasks of living in the urban area, how to do their job and make a living, and so on. They might be involved with natural information, and in some cases they also deal with cultural information, as when they have to work out a plan or follow a set of guidelines.

Thus, talking about a divide between the information *rich* and *poor* does not seem to be valid when one realizes that there are many kinds of information as Borgmann suggests. Those who are generally taken to be poor in information can be quite rich in other kinds, as we have seen. And those who are believed to be rich in information can indeed be rather poor in other kinds of information too. University

professors who routinely check e-mails many times a day and are well versed in finding information through the search engines may be at a loss when asked to tell a strain of rice from another, something that a farmer can do with ease. The gap between the so-called information rich and information poor, then, is not a simple matter of one side not having enough information and the other having perhaps too much, but one has to bear in mind what kind of information too. The rural poor in Thailand generally possess a rich heritage of natural information which comprises their traditional knowledge bases; they also have a rich resource base in cultural information, stored in memories and texts. What they lack is perhaps the technological information, usually in digitized form stored in computer-accessible media. The existence of technological information presupposes computer networks, which in turn presuppose that there are resources for making the networks functional in the first place. But be that as it may, talks of the digital divide as if there were only one type of information, as mottoes like "the more information you have, the better off you will become" happen to illustrate, neglect the fact that there are the other kinds of information which are no less pertinent to individual and social life. Furthermore, as Erszter Hargittai (2002) has shown, merely being in possession of information does not automatically translate to one being on the right side of the digital divide. One has to factor in the skills involved in making full use of the resources at hand. Analogously, the 'rich' may be indeed quite poor when they do not know how to utilize the resources available to them.

Nonetheless, one cannot deny the fact that Thai farmers earn on average much less than their counterparts in the European Union and the US, and factory workers in Thailand enjoy far less leisure time and earn much less than university professors. The figures mentioned earlier clearly show that, for some kind of information at least, there is a wide gap between the urban middle class and the rural poor in the country, as well as between average social groups in the poor countries in the South and the rich ones in the North. Although there might be many kinds of information according to Borgmann, this does not drive away the fact of the digital divide (or divides). Thus something must be going on rather than the mere fact that one side of the divide enjoys more

information than the other. Since the so-called information poor do in fact have quite a lot of information available to them (at least as natural and cultural information rather than technological one), what makes them on the wrong side of the digital divide can perhaps be explained by the fact that they either do not have the resources to make full use of what is available to them, or they are prohibited from doing so. The rural poor in Thailand , for example, are on the wrong side, not simply because they do not own computers nor because their villages do not have electric power or telephone lines—of course these are essential in bridging the divide—but also because they do not know how to translate whatever information available to them (in whatever form) into the kind of information that enables them to enjoy the full benefits that the information that is available to them is capable of bringing. The reason why the so-called information poor are likely to remain materially poor as well is not because they don't have the information that will take them out of poverty, but because the information they have remains implicit and thus unavailable to convert into capital, which can actually alleviate the poverty. This requires some explanation, which I will do in the next section. Right now it is quite clear we have in our hands here a problem concerning justice, in fact *global* justice if we are talking about the global digital divide.

Now, however, we are in a better position to argue for the thesis that an ethics of the digital divide needs to take cultures and historical traditions into consideration. This is so because, as Borgmann argues, there are more kinds of information than the technological one, and the bifurcation of the people of the world into the information 'rich' and 'poor' is itself a poor way of defining the problem. However, Floridi's information ethics is predicated on the idea that ethical norms are based on the size of the infosphere—on whether the norms do improve or impoverish the infosphere. This works well if everything in the infosphere is *transparent*; that is, if any and all the information contained in the infosphere is readily available to be discerned and made use of by anybody who cares to enter it. But if reality is such that the information remains locked up and thus unavailable to the poor villagers, then they remain poor, both informationally and economically, even though they may have a rich store of

information. Whatever information the villagers have, such as the knowledge and skills involved in finding medicinal herbs in the forest and so on, cannot be converted into the kind of capital that can lift them out of poverty and ignorance because there is no mechanism to transfer these knowledge and skills in such a way that they are connected with the other existing knowledge and skill systems, thus becoming available to the global infosphere. In short, the information possessed by the villagers needs to be made transparent.

The Mystery of Capital and How Information is Represented

In *The Mystery of Capital: How Capitalism Triumphs in the West and Fails Everywhere Else* (2000), Hernando de Soto advances a thesis that the reason the West became successful mobilizing and making full use of capital is that the West has perfected the system of registration and accounting of resources, especially land, whereas the rest of the world is far behind in this regard. The basic idea is that it is information made transparent, in the sense outlined above, that separates the West from the rest. The poor in the Third World countries, so argues de Soto, are in fact much richer than they seem because they possess, collectively, a vast store of information that has not been converted into the kind of informationthat can be, for example, digitized, catalogued and put to the legal framework. The poor may sit on a vast tract of land, but they do not legally own the land. They do not have land title deeds that can document their ownership. Without the title deeds, they have no way to create capital. Without any means to change the land into assets, they have no means by which they can create capital that can catapult them onto the world economy. The key issue here lies in how information is represented, or made transparent to the legal and economic system. Change how this information is perceived, and a vast amount of capital can be created.

For de Soto information plays a crucial role in his view of how property can be turned into capital. The process of representing the complex array of assets and property makes it ‘mind friendly’ (de Soto, 2000, pp. 218-221). Thus things very

different from one another such as pieces of gold, tracts of land, pieces of jewellery, heads of cow can be made interchangeable and put to work under the same system. This is of course how the modern money system works. According to de Soto, “capital results from the ability of the West to use property systems to represent their resources in a virtual context. Only there can minds meet to identify and realize the meaning of assets for humankind” (de Soto, 2000, p. 218). The West captured the magic of turning base metals, gold, land, manufactured products, various types of service, and everything else into abstract numbers under one representational system that indicates their economic values. They developed a system whereby these values can be represented to the mind in such a way that the mind can work on them and not to the things directly. This is analogous to how the mind works in conceptual or language systems. Information needs to be made transparent and available through representational system; otherwise it would remain hidden and unaccounted for. Though in many cases it might be plainly visible, such as the pieces of land occupied by the poor in the Third World, without the representational system that enables the land to be documented and thus presented as a value in the system, it is as if the land is invisible, nonexistent.

De Soto’s key idea is that representing something in a network of commensurable and fungible system gives it value and liquidity. It is as if calling something by name elevates it into a member of a network of meaningfulness, a linguistic and conceptual network, and thus in a way creates its ‘existence’. Philosophers have long been familiar with the important roles that conceptual system plays in thinking and cognition. It is well known that the debate between realism and anti-realism as regards to representational system focuses on whether the thing represented does have its separate existence apart from any means of representing it. Of course an economic argument is a far cry from a philosophical one, and one cannot rely on de Soto’s argument here as an ally in arguing for an anti-realist position. Nevertheless, it is quite clear that information plays a crucial role in creating capital, which relies ona system of representation for it to work. And this information that can

make the whole process work must not lie hidden and unaccounted for. In my words, it needs to be transparent.

Here is the connection between de Soto's view and the argument on the digital divide that I am trying to advance. We have seen that information must be transparent in order that those who possess it can benefit from it fully. In fact for a piece of information to be transparent is just for it to enter the representation system that gives it value in de Soto's sense. A tribe in a remote rain forest may possess a rich store of information, including some that could be life saving when developed into drugs, for example. The problem with the tribe, what makes it 'poor' in information, thus putting them on the wrong side of the digital divide, is that this store of information lies untapped and unrepresented. Floridi's infosphere should be populated only by those pieces of information that are well represented. That is, the pieces should be arranged in such a way that the mind finds it easy to work on them. If this can be done, then a way can be found to solve the digital divide problem. The tribe can benefit from the potentially very lucrative pieces of information that they possess, and the world benefits from the life saving drugs that can be developed out of them.

Information Sharing

Floridi argues that entropy in information is an 'evil' and needs to be reduced or eliminated (Floridi and Sanders, 1999; Floridi, 1999). Simply put, entropy is the amount of loss of information when it is transmitted from one place to another, or when it is stored in a storage system that admits of some degree of loss. In order to bridge the digital divide, Floridi looks for actions that follow the following four basic norms of information ethics:

1. information entropy ought not to be caused in the infosphere.
2. informationentropy ought to be prevented in the infosphere.
3. information entropy ought to be removed from the infosphere.

4. information ought to be promoted by extending, improving, enriching and opening the infosphere, that is by ensuring information quantity, quality, variety, security, ownership, privacy, ploralism and access (Floridi, 2002b, p. 4).

Thus Floridi aims at preventing entropy from entering or occurring in a system. Talks aboutentropy, however, somehow conveys the meaning that continual work has to be exerted on the infosphere to keep it running smoothly. The metaphor is that of keeping a thermodynamic system working without increasing the entropy. This requires constant energy. My contention, on the other hand, is that the more appropriate metaphor seems to be a grid that can be laid down on the infosphere, making it possible to locate and triangulate everything inside. This means that, for the natural information possessed by the remote villagers in the Third World, a way needs to be found to categorize it in order that the information belongs to the infosphere in such a way that it can more substantially benefit those villagers.

What is needed here is that there should be a system of information *about* information, a kind of second-order information that deals with the natural and cultural information possessed by the villagers and made available to the world through cyberspace. Closing the digital gap does not only mean bringing in information from one presumably ‘right’ side of the gap to the supposedly ‘wrong’ one. Instead it means a more adequate, equitable and fair way of sharing information between the two sides. One needs to be careful that the so-called information poor, since they are less powerful than the other group, not be exploited by this way of sharing information and that they actually benefit from it. (In fact the role that power plays in the digital divide is investigated in Moss, 2002). An evil that can emerge from this configuration if we are not careful is that the more powerful in cyberspace would exploit the second-order information obtained from the poor villagers without adequate compensation. This requires that there be justice in cyberspace which is global and does not limit itself to national boundaries only. There is unfortunately not enough space in this present paper

to deal with this very important issue of justice in cyberspace, or information justice, but this could be a fruitful avenue of further research.

If the argument so far is on the right track, then ‘information sharing’ and ‘making information transparent’ should be the key concepts in solving the digital divide. Simply pouring in more information to the so-called information poor does not work. Neither does pumping money and other material resources to the poor and hoping that they somehow pick up on their own later on. Solving the digital divide problem can be accomplished if one realizes that the so-called information poor is in fact not poor at all. Instead they already possess a vast store of information which has enabled them to survive and even to prosper. Bridging the digital divide for them means bringing them over to the global economy, enlisting them as members of today’s globalization. In some cases this might not be desirable, considering the various well known ill effects of globalization such as cultural or economic domination. However, it is not practicable now to shut oneself off from globalization. It is no longer possible anymore for Thai villagers to shut themselves off from the world. The world is encroaching on them every minute, through televisions, radios and more recently the Internet. They need to become part of the global economy.Thus a way needs to be found to combat those ill effects so that the villagers can enjoy thebenefits of globalization. What lies in store for them is that they need to find a way to convert their already rich resources in natural and cultural information into something that can be converted into capital. If de Soto is right, which I believe he is, then the villagers’ system of information should be made transparent through a mechanism that surveys and categorizes it in such a way that is ‘mind friendly’.

The implication this has so far on informationethics is that the notion of the infosphere needs to be supplemented by that of transparency. Moreover, the apparent optimism that anything that impoverishes the infosphere is bad and anything that improves it is good should also be qualified. An action that concerns information process is a good one in this case just in case it promotes the *transparency* of the information in the infosphere, and not good otherwise.

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