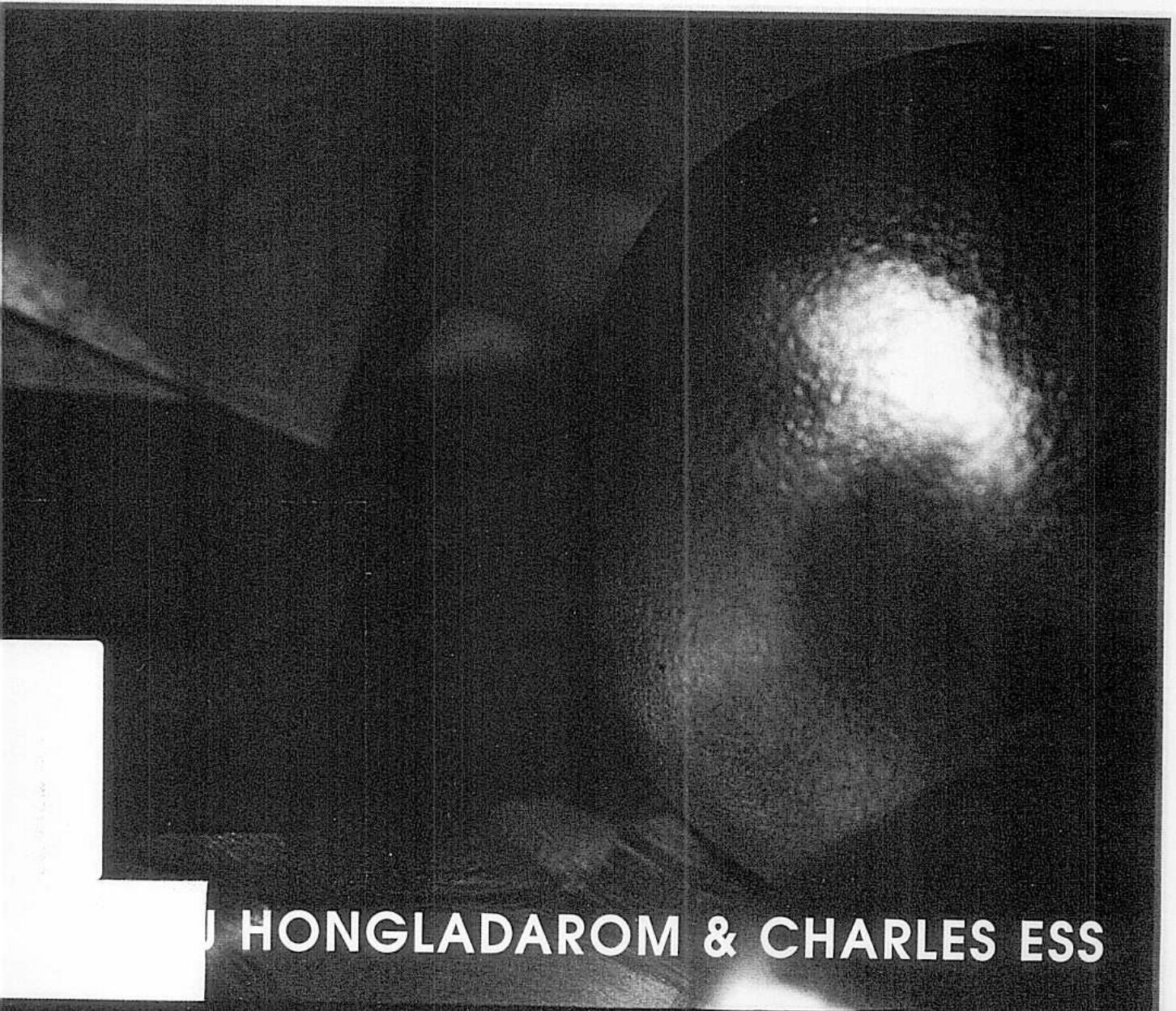# INFORMATION TECHNOLOGY ETHICS
Cultural Perspectives

HONGLADAROM & CHARLES ESS

INFORMATION TECHNOLOGY ETHICS
Cultural Perspectives

Communication and commerce continue to connect people from different cultures through information technology. **Information Technology Ethics: Cultural Perspectives** is the single reference source to take a global approach to the diverse ethical issues evoked by information and communication technologies and their possible resolutions. The comprehensive chapters contained in this book describe the problems and possibilities of genuinely global information ethics, which are urgently needed as information and communication technologies continue their exponential growth. International experts from diverse backgrounds address both theoretical and culture-specific issues in explicit detail. This Premier Reference Source provides the most thorough examination of the information technology ethics field.

Chapter IV
Culture and Technology:
A Mutual-Shaping Approach

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ABSTRACT

The aim of this chapter is to discuss the mutual influence between culture and technology on a broad inter- and transcultural level. Especially, how does information culture shape the meaning of information, communication, and knowledge, and consequently, the design, spread, and usage of ICTs in certain societies? Vice versa, we are interested in the ways in which the spread and usage of ICTs affect the predominating culture. We aim for a model that incorporates cultural as well as technological factors in order to provide a basis for future ICT research that goes beyond both technological determinism and social constructivism. We believe that new technologies indeed can contribute to more justice in the world in terms of access to knowledge and wealth, if sociocultural factors are taken into account more seriously. Current developments in the context of the UN World Summit on the Information Society raise awareness in this direction. At the same time, we are well aware that the loose notion and imprecise definition of the concept of culture allows for the exploitation of the term in empty political and technological policies. Culture degenerates to an indispensable buzzword in the current ICT debate. This chapter is an attempt to introduce the concept of culture into the socioresponsible ICT research on equal terms with technology, economy and society.

THE RELATIONSHIP BETWEEN CULTURE AND TECHNOLOGY

How can technology be defined? Technology often is considered a means to a particular end, the means being artificially created, not natural, and something that is not directly necessary for the individual or the end user; it serves, rather, to fulfill the need to produce something that is later to be consumed. However, we use the term in a broader sense. We regard technology as being more than just the sum of such artefacts, which are merely the crystallized, concrete manifestations of human behavioral patterns. A method is the *how*, the way in which a goal is reached and which involves the use of means. A means is a medium in that it mediates between the starting point and the desired result, regardless of what sort of action is involved. Thus, one could speak of social technology (e.g., psychotherapy) as a technology and not merely of technology as something used for (material) production in a society. So, technology also includes the know-how involved in the use and application of the artefacts. In short, technology embraces the ways and means of acting in pursuit of a goal (Hofkirchner, 1999).

How can culture be defined? Using the same analogy for technology, it could be understood to be an equally artefact-based concept, which is not a means to an end but rather an end in itself. That is to say, it is not in itself an essential of life, but rather something that represents a human desire (i.e., what makes humans distinct from other living beings). Here, too, there is a notion that culture is not only the result of a process but also this very process as it moves toward the goal; that is to say, culture is a characteristic of goal-oriented actions (i.e., the striving toward goals as well as the goals themselves) (Hofkirchner, 1999). It is this notion of culture that we refer to in this chapter.

Are there imaginable connections between culture and technology? The two ideal-typical extreme positions are well-known, each making a single direction of determination (Hofkirchner, 1999).

The first position can be referred to as technological determinism, which postulates the total, or at least dominating, influence of technology on culture. Technology is supposed to develop more or less on its own, pushing social development along as it goes. This may be interpreted positively or negatively. An uncritical opinion of Marxist origin saw social advancement as an inevitable result of technical achievements, just as the ideology of the bourgeoisie justified the progress of the technically possible as socially desirable. This view is opposed entirely by fundamentalists who hold technological development responsible for the loss of important values in society. Neither philosophy accepts the possibility of technological development being influenced in any way. Both ignore the fact that there would be no such development if multinational corporations and national governments were to stop investing in research and development; if there were no economic, military, or political interests to divert their resources into these areas; and if there were no values, morals, or norms that underlay these economic, military, or political interests. The fact that on a micro-level there are countless thousands of engineers constantly involved in technology design, and that on a macro-level managers and politicians decide which technological options are realized, supports the second theory—social constructivism—that technology is constructed deliberately to be a part of society. According to this view, the interests of those groups that dominate the genesis of technology finally are embodied in the technology, which in itself cannot be neutral. Here again, both a critical and an approving variant may be distinguished. While the one bemoans the inability of existing technology to pursue ethically justified, socially acceptable, and peaceful and environmentally sound objectives, the other sees the existing economic, democratic, and human rights structures as the best guarantee

of developing optimal technological options. Both versions neglect the inherent dynamism within technological development.

Do the two theories—technological determinism and social constructivism—together give a realistic view of the relationship between technology and culture? This would mean that two equally matched factors—the technical and the cultural—would not become complete without the other. Furthermore, one also might break away from strict determinism and grant each side a measure of independence, thus denying that one side totally dominates the other. But would we then have a workable proposition to discuss, or would we be reduced to the assumption that one factor partly influences the other but is itself partly influenced by its counterpart? This is a superficial answer. Is it not rather the case that the actions we are talking about, whose dependence on mediating factors we want to stress if we are talking about technology and whose immersion in value judgments we wish to highlight when we are discussing culture, not only have an individual character, but rather, through the availability of technological methods and cultural values on the part of society, acquire a deeply societal nature? The use of technology makes every action no longer unique to any individual person. Technology is based on cooperation, be it in the application of special methods, the implementation of these in specific social areas, their invention and development, or in any situation in which the skills and knowledge of other members of society are required. The same holds true for convictions, value judgments, instructions, standards, behavioral patterns, and the like. These are just as much a part of the context of life of the individual, and they promote certain technological methods but discourage others. Technology makes every technologically mediated action into a socially determined one, and its use is a human characteristic. Technological development is part of cultural development; this means that technology is part of culture, and so their relationship to each other is one of part

and whole. Culture is the all-embracing factor in this context.

In each part-whole relationship, the parts are the necessary preconditions for the emergence of the whole but are not the sufficient condition for the complete determination of the result. The whole arises from the parts but then exerts control over them in the form of downward causation; the parts are no longer independent of each other as separate entities but are dominated by the whole. The relation of part and whole in regard to technology and culture is, therefore, as follows: technology has the meaning, the purpose, and the task of functioning as means and method for solving social problems. Social interests, cultural values, norms, and morals are thus in the origin and manifestation of technology in its invention, diffusion, and application in the entire process of its development, as its reason for existence. This, however, is insufficient to enslave technology completely. Technology is ambivalent; sometimes it appears to resist our intentions by wholly or partly failing to do what is wanted of it, and other times it not only fulfills our expectations but goes on to do other useful tasks that originally had not been anticipated. Technology represents potential for the realization of social goals. These technologically realizable goals may correspond to pre-existing goals within society; the practical attainment of these by technological means, however, may cause them to change, at least slightly. It is, of course, also possible that the intended goals may differ from those that can be reached with technological support. In this case, new technology may be developed in order to meet the requirements, or the requirements may, as it were, be adapted to fit the reality of what is technically possible. Realizable goals, therefore, do not always exist at the start of the process but may be discovered as options made available by technology. Whether society decides to pursue these goals on the grounds that they are possible is no longer a question of technology but rather of social decision making (Hofkirchner, 1994).

To conclude, we consider the relationship of technology and culture to be dialectic. A relationship is usually called *dialectic* if, first, the sides of the relation are opposed to each other; second, both sides depend on each other, and third, they form a relation that is asymmetrical (Hofkirchner, 2004). A part-whole relationship is dialectic since part and whole represents opposites, the whole depends on the parts as well as the parts on the whole, and parts and whole build up a hierarchy in which the different levels cannot be replaced by each other.

Considering this notion of the relationship between technology and culture on a broad and general level, the following section attempts to add further thought in the context of information and communication technologies (ICTs) and culture. The specific meaning of information and communication for different societies, which is predominantly the result of a special culture, determines the meaning and, therefore, the spread and usage of ICTs. Vice versa, ICTs have been developed and will be developed in the future in certain (information and communication) cultures, which leads to the functions and practices of use we are facing when we implement ICTs.

INFORMATION AND COMMUNICATION CULTURES

When referring to information and communication cultures, we address the basic significance of having access to information and knowledge and the practices of communication and cooperation in a specific society. The most important consideration involves the relationship between those who have access to information and the practices of information that has a profound effect on the distribution of power of control over flows of information within society. It is assumed that within societies with a strong hierarchical structure, the flow and dissemination of public information is restricted to just a

few people, while in more liberal societies, there is a far broader basis for direct access to public information. Furthermore, more hierarchically structured societies are less likely to be expected to adapt to the Internet than liberal societies with a flatter hierarchy (Maier-Rabler, 1995, 2002).

The general attitude toward access to information, toward transparency of structures and processes, and toward empowerment and freedom of expression pertaining to a specific society or state is deeply rooted in traditions and practices of social and cultural conditions. The cultural-social framework of a society is formed mainly by the political-social system, by the legislative system, and particularly by the predominating ethic and religious values. As a result of these diverse dimensions, a continuum between the poles of information-friendly vs. information-restrictive cultures emerges (Maier-Rabler & Sutterlütti, 1992; Maier-Rabler, 1995).

Information-friendly societies foster the development of knowledge throughout all groups of a society by providing equal and universal access to collective and individual human development for all citizens. In information-friendly societies, curiosity is encouraged by education systems, and skills for information retrieval are taught rather than just being fed information. Questions count more than answers, and students are encouraged to research instead of memorize given information (Maier-Rabler, 2002).

The political system in information-friendly cultures is likely to be in a form of communicative democracy within a developed system of civil society. Direct democratic participation is a living practice enjoyed by all social groups. The

legal system is likely to be an information-rich, case-based system in which access to information is vital for legal practice.

The economic system in an information-friendly environment strongly depends on access to information and its dissemination to shareholders and customers. Wealth and success are highly valued, and information on turnovers, revenues, and profits are publicly available. Information-friendly societies experience a great expansion in their limitations, especially through the new information and communication technologies. At the same time, it has become clear that without a capable citizenship and without capable institutions, unintended and even unwanted consequences take place. What is more, the current crises of the stock markets have been due to access to information that neither has been audited nor controlled. On a political level, we face a threat to well-established forms of representative democratic systems through populist political trends. New ways of direct democratic participation turn into the opposite, if utilized by people who have not had the chance to acquire the needed skills. However, in information-friendly societies, the chances to implement successful programs to provide equal chances for all members of society to acquire capabilities (in the context of ICT) are higher than in information-restrictive societies.

If we turn to information-restrictive societies, however, we see that they are characterized by a strong hierarchical order throughout society, leading to fewer chances for social, economic, and cultural movement. In such environments, people obtain access to relevant public information when needed, whereby the information is predominantly defined by the authorities or other higher-ranking institutions or persons within the respective hierarchical system. In such societies, people are accustomed to information simply being provided and not having to actively retrieve it. This attitude characterizes the relationship between citizens and authorities, customers and businesses, the public and the media, and students and teacher. The education system in information-restrictive cultures does not encourage curiosity or question-based learning. The "right" answer is the measure of success. What is right and what is wrong again are defined by authorities in the education system. People are not trained to address their environments and to pose questions critically. These answer-oriented societies are an obstacle for the optimal utilization of new information and communication technologies. Digital communication networks such as the Internet work best with a question-oriented approach that leads to a variety of plausible answers in different contexts. Expecting the right and only answer (as people in information-restrictive societies are trained) leads to predictable disappointments and, therefore, less motivation to get involved in new media.

In information-restrictive cultures, the flow of information between authorities and citizens as well as between businesses and customers follows the push principle, whereby authorities and businesses decide which information is being passed on. In such cultures, the Internet is perceived merely as a new and additional (mass) medium to transfer information to a mass audience. Consequently, a huge amount of information and communication capacities of the Internet simply are left unused. As there are not any geographical, national, or cultural borders within digital communication networks, information and applications from information-friendly cultural environments compete with those from information-restrictive cultures on a global stage.

We assume that information-friendly cultures provide a competitive advantage for their members in the global information society.

THE HUMAN-CENTERED AND CULTURALLY SENSITIVE ICT ADOPTION PROCESS

This chapter aims toward a better understanding of ICT adoption processes being dependent

Figure 1. Model of a human-centric and culturally sensitive ICT adoption process
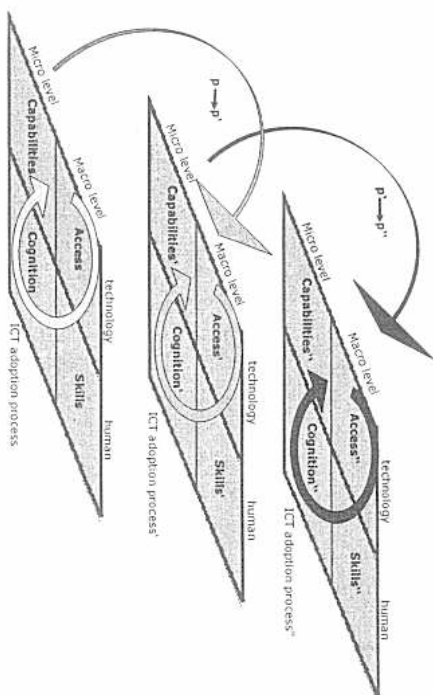
from different information and communication cultures. This process, in most societies, is driven by predominantly techno-economic e-policies that are still striving to overcome the Digital Divide and to foster economic growth by means of ICTs on the macro-level of state policy. This approach has been criticized by various authors in recent years (Preston, 2004; van Dijk, 2005; Warschauer, 2002).

Most critics have in common the need to turn away from techno-deterministic viewpoints to human-centered and culturally sensitive approaches. This also can be characterized as a shift from building infrastructures to creating identities, or from bridging the digital divide to closing the knowledge gap. This means putting the individual in the center of the adoption process of technology; therefore, cognitive, cultural, and social factors must be considered in order to achieve a comprehensive understanding.

Following Mansell (2001) and Garnham (1997), we suggest adopting a rights-based capabilities approach in the ICT adoption process to ensure that people have the possibilities to make informed decisions about the specific ways in which they want to make use of ICTs. Acquiring those capabilities first demands awareness processes on an individual cognitive level. Only when people understand the individual and social implications of ICTs will they be able to make informed choices about their specific usage patterns. The stage when people shift from technology-driven skills to culturally embedded understanding is the stage that brings the ICT adoption process from the macro-level of state e-policy to the micro-level of the individual—an indispensable precondition to bring about the skilled user.

This process requires socially or culturally motivated individuals on the one hand and governments who want to offer a set of alternative choices for their citizens to allow them to achieve whatever new-media-lifestyle they want on the other.

As we have already mentioned, the development of these adoption processes depends strongly on the predominating information and communication culture in a given society. In information-friendly environments, people have a greater chance of developing capabilities in the

context of ICT and, therefore, making informed decisions based on the degree of their involvement with new information and communication technologies.

The following model aims to visualize two dimensions of the ICT adoption process: (1) the stages from access to capabilities and (2) the helical transformation of adoption processes (p) as a result of the mutual relation between technology and culture. Every culturally embedded adoption process leaves the new capable user on an advanced stage that itself is the ground for the access step to technology.

Model of a Human-Centered and Culturally Sensitive ICT Adoption Process

The adoption process, which also can be considered the major stage for targeted Policy measures, starts with the problems of technology-determined access. We need access to technology in order to make experiences and to trigger the following steps. Unfortunately, many processes get stuck in the access stage: "If they build it, they will come" could be the motive for this access-only strategy, which is predominantly in the interest of the technology industry and, therefore, an industry policy measurement.

The critique of the access-only strategy led to a human-oriented enhancement of the same strategy. People need to have adequate skills in order to use the accessed technology. At first glance, this could solve the problem—not only provide people with technology but also train them to use it. Similar to the access stage, the skills stage also is geared predominantly to the interest of the technology; in this case, the big international or global software monopolists. Acquiring skills means dealing with a given technology. The creative potential of people in the context of technology is not addressed (National Research Council, 2004).

A further step has to be taken in order to involve the individual in the process of adopting new information and communication technologies. People must know why they should make use of ICTs and not only how to use them. On the cognitive level, the awareness of technology in the specific cultural sphere has to be raised. Here, there is a cultural translation of technology. Only when people understand the diverse patterns of different practices of ICT usage will they be able to make the informed choices as preconditions for gaining capabilities. And only the capable user will provide the basis for economic growth and competitiveness for which most countries, regions, and cultures are striving.

The capable user is the point of departure for the next iteration of the ICT adoption process (p'). Capable users have different demands for access to new technology and also represent a different level for skills training. Such qualified users, who differ in terms of cultural and social backgrounds, represent the input into p', and so forth.

DIGITAL CULTURES

Cultural Shifts: Transculturality

In recent decades, the concept of interculturality has been very popular and influential in regard to the fairly young discipline of intercultural communication (Leeds-Hurwitz, 1998). In this context, communication was understood to be an action taking place between countries that were perceived as self-contained units. In this traditional definition, cultures are seen as types of autonomous islands that are virtually completely closed-off, which Beck (1997) called metaphorically the "container theory of society" (p. 49). But modern societies are very diverse entities. They contain and incorporate many elements of different origins, and the boundaries between foreign and indigenous cultures get blurred and finally become untraceable. Tsagarousianou (2004) sug-

gests that diasporas should not be seen as "given communities, a logical, albeit deterritorialized, extension of an ethnic or national group, but as imagined communities, continuously reconstructed and reinvented" (p. 52). Welsch (1999) developed a new approach of connected cultures, which he called *transculturality*. This approach emerged due to cultures being interconnected and similar lifestyles merging and being assimilated. Cultures cannot be perceived as homogenous units anymore, because they are complex and diverse in themselves. "Cultures today are extremely interconnected and entangled with each other. Lifestyles no longer end at the borders of national cultures, but go beyond these, are found in the same way in other cultures. The way of life for an economist, an academic or a journalist is no longer German or French, but rather European or global in tone" (Welsch, 1999, 197f).

This also can be observed in the Internet community. People from different countries use a sort of transcultural ideological language in chat rooms and are united by common interests. Even though they come from very different parts of the world, they have more in common with each other than they have with some members of their respective national communities. The mutuality derived from their similar interests prevails over the mutuality derived from nationality.

Enhancing Welsch's (1999) concept of transculturality, we consider that this concept needs a more focused perspective on the permeability between global and local cultures, which means that transculturality allows the individual to switch between different identities according to current needs, feelings, interests, and demands. People want to belong to a certain group and want to be identified as a member of such a group; they do not want to constantly act, think, and live on a global level. The identity of the self cannot exist only on a global level, and therefore, "the search for identity, collective or individual, ascribed or constructed, becomes the fundamental source of social meaning. ... Yet identity is becoming

the main, and sometimes the only, source of meaning in an historical period characterized by widespread destructuring of organizations, fading away of institutions, delegitimation of connected social movements, and ephemeral cultural expressions" (Castells, 2001, p. 3).

LINKING CULTURE, KNOWLEDGE, AND ICTS

At this point, we introduce the extended concept of culture, which is intertwined with the concept of knowledge with the aim to discuss the correlation between culture, knowledge, and the role of ICTs. This endeavor eventually should lead to an approach that allows us to connect the complex concept of cultures with its impact on various spheres of our respective lives and, therefore, on our identity. Therefore, the term *digital culture* will be used to describe the model of mutual influence between culture and technology, which we use as a fundamental framework to develop a new understanding of the use of ICTs. This model aims at an understanding of cultural differences in handling information to guarantee a beneficial development of society.

If the concept of transculturality is introduced into the notion of knowledge, there is a rapid increase of global knowledge. ICTs allow direct communication between vast numbers of people with different cultural backgrounds but do not automatically distribute access to knowledge equally. In fact, many citizens cannot gain access to global knowledge or even local knowledge other than to their own knowledge because of their low economic status (digital divide) and their low educational levels (cultural divide). These divides create groups of haves or have-nots, communication-rich or communication-poor, winners or losers in the globalization process. Concerning identities, these divides determine the different opportunities of switching identity levels. However, the more people are capable of
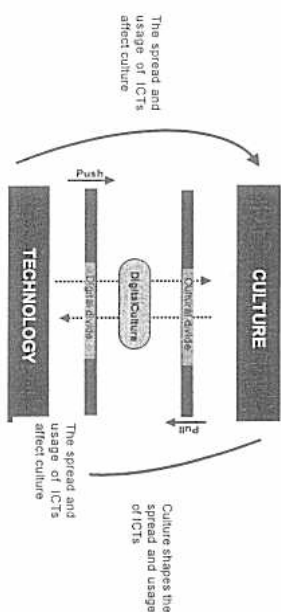
assuming different identities, both on a local and global level, the more they are capable of gaining advantages in the digital culture.

To avoid getting caught in this gap-trap and to guarantee a sort of mutual benefit, we have to find a way to reconcile some aspects of knowledge production and acquirement, which means that global knowledge has to be incorporated locally (pull factor) in order to allow people to benefit from global knowledge on a local level. Also, local knowledge has to be introduced into the cycle of global knowledge production (push factor) in order to make sure that there is an awareness of the existence of this local identity in a global society. Thus, developments in this global society can be influenced with regard to local positions. We face the challenging task of creating a permeable flow of communication that allows for global and local knowledge bases to interact.

COMBINING ICTS AND CULTURE TO A NEW APPROACH

As already mentioned, technology and culture influence each other and are mutually dependent on each other. It is, however, important to discuss the terms *culture* and *technology* and the respective points of view. It is equally important to demon-

Figure 2.

The spread and usage of ICTs affect culture

TECHNOLOGY

CULTURE

Push

Pull

Digital Divide Digital Culture Cultural Divide

Culture shapes the spread and usage of ICTs

The spread and usage of ICTs affect culture

strate that culture and technology influence each other by using the term *digital culture*.

Drawing upon these basic insights, we will discuss the dialectic of shaping, diffusion, and usage of ICTs in societies and different cultural knowledge bases along the following dimensions: content, distribution, and context.

DIGITAL CONTENT CULTURE

This indicator refers to the concept of knowledge production or, in other words, how data are converted into knowledge. According to Willke (2004), one has to distinguish between data and knowledge, even though knowledge management often is mistaken for data preparation and data exchange.

In fact, data are nothing but raw material for knowledge, and in the age of ICT, getting ahold of useful data is not difficult. What is difficult, however, is reducing and filtering huge amounts of potentially useful data and converting them into information first by putting them into a broad context that adds relevance to them; knowledge is gained by putting information into a practical context and modifying or creating a practical context and modifying or creating a practical due to it in order to make the information practically useful (Willke, 2004).

ICTs, like the Internet, can transport and make available huge amounts of data and information. The content to be distributed is taken from this basic range of knowledge. In a metaphorical sense, the Internet can be linked to a sea of information, all of which is useful in principle. Yet, to get ahold of the invaluable essence of relevant information, we have to siphon off all irrelevant information. The focus is on translating data and information into helpful insights that can be used to improve real-life situations by adding practical relevance to the data.

To guarantee the success of knowledge transfer and the adaptation of new knowledge, a transdisciplinary approach, in addition to an interdisciplinary approach, has to be adapted. This means that different scientific approaches are used, but an effort also is made to involve the local community in the process. In that way, one can ensure that the goals are adapted to the local culture, which increases the likelihood of locals accepting them.

There are three main topics that have to be discussed: knowledge management, learning strategies, and educational approaches.

DIGITAL DISTRIBUTION CULTURE

The second dimension illustrates the relationship between the channel that is used for information transport and the dissemination of knowledge—the pull/push strategy.

The first aspect is the communication code: if a message is to be transported, it has to be converted into numbers, text/words, and/or pictures (Willke, 2004). There are limits to the amounts and kinds of information that can be transported in a certain channel. This depends on the type of channel as well as the respective circumstances (e.g., legal, technical, environmental, infrastructural) that, in fact, might influence the usage of the channel.

If we distinguish between explicit and tacit (i.e., structured and unstructured) knowledge, we can see how difficult it is to distribute knowledge. While explicit knowledge (represented in documents, databases, products, and processes) is easy to transfer, tacit knowledge "is more dependent on action, context and personal experience, which makes it difficult to formalize and communicate" (Martin, 2003, p. 44).

The next aspect can be observed in culturally influenced communication rituals. Each and every one of our actions is influenced by culture (i.e., norms, values, beliefs), and by performing these actions repeatedly, we permanently reinforce our cultural understanding. A similar cycle of conditioning can be found in technology. We develop technology by drawing upon our cultural understanding. We then use this technology on a daily basis and, thereby, cause it to impact our identity (reinforcement).

This development can be observed with the personal computer. The term *personal* already indicates that this technology was invented in a very individualistic culture. The more time we spend interacting with computers/technology in this way, the more our patterns of thought and conveying knowledge are assimilated to those used by computers/technology. Our way of thinking becomes more abstract, and knowledge is reduced to mere words and graphics, which lead to future inventions being more abstract as a logical result. The term *digital culture* means that we shape our ICTs and are shaped by them in reverse.

The same applies to the Internet, whose basic technology was developed in the academic-military information culture in California in the late 1950s and early 1960s. This implies a certain practice of converting data into knowledge using the Internet as a practical source for information. In similar information cultures, it is clearer how one can use this kind of data. But people from a different cultural setting who have a different concept of knowledge acquisition might not be

Table 1.

Dimensions		Digital Divide	Cultural Divide	Digital Culture
Content		Data, Information "knowing that ..."	Knowledge "knowing how ..."	Data, Information, Knowledge "knowing why ..."
Distribution		Channels limited to technical possibilities	Inadequacy between text and channel	Sharing and dissemination of knowledge
Context	Limited to technical	Connectivity	Skills Realization Application	Inclusion Awareness Capabilities

able to make adequate use of the Internet. They might not be familiar with the work processes dominating the information culture within which the Internet was developed. Therefore, it could lead to difficulties to connect to and make use of the Internet. Besides, the way the Internet is used might not cohere with their cultural behavior.

DIGITAL CONTEXT CULTURE

There are factors that influence culture and technology on a meta-level. The central questions are: What culture do we live in? What culture do we work in? What culture do we act in?

An important indicator is knowledge as a commodity or as a free public good. First, costs are linked to the question of whether knowledge can be circulated freely or whether it should be treated as property (IPR—intellectual property rights; DRM—digital rights management). Second, costs refer to the investment and maintenance of infrastructure (hardware, software, bandwidth), and finally, we have to calculate the costs for educating people to use ICTs successfully and to develop the ability to convert data into knowledge.

Another important indicator deals with power, which can be explained by using the game theory. It seems that most political and economic decisions are based on the zero-sum game theory, which means that any gain for one player represents an equal loss for the other. We have to face the fact that empowering people also means a loss of power for the powerful to some extent. The powerful create new competitors by empowering other people, societies and/or subcultures. This is not so much about unlimited development as it is about creating a situation of equal opportunities.

Content, distribution, and context are influenced by technology as well as culture. It is not enough to focus only on the digital divide but also on the cultural divide, and by using the concept of digital culture, we can develop a kind of empathy with the goal that we have to create inclusion and development as a central value, if we really want to change from a segregated to an inclusive society.

THE ONE AND THE MANY

In this respect, it is worth discussing the relationship of the one and the many. Due to global challenges that endanger the species as a whole and that must be met by a single set of intelligently coordinated actions, the partitions of humankind are on the brink of forming a unit on a planetary scale, and many cultures are on the brink of forming one culture. The awareness of this required delicate relationship between the one and the many may serve as a normative idea that guides the measures to be taken to advance world society.

The question is how one of the many relates to another one and how the many relate to the oneness that is made up of the manifold. Is the world society to become the common denominator of the various identities? Or is one of the many the only one? Or are the many merely summands of the individual? Or do the many participate in a one that goes beyond them?

The reductionist way of thinking in intercultural discourse is called *universalism*. Cultural universalism reduces the variety of different cultural identities to what they have in common. Identities are homogenized by a sort of melting pot that was named McWorld (Barber, 2001). Modernism (i.e., the pursuit of human rights, democracy, and capitalism based on the same mode of metabolism carried out by the same technology everywhere) is universalistic—shimmering between a claim to liberalism and pompous imperialistic behavior as it is witnessed by its adversaries. In either case, it gets rid of the richness of cultural identities, the many are reduced to a shallow one, and there is no diversity in the unity.

A second strand in intercultural discourse revolves around the way of thinking that overuses projection. It may be called *particularism* or *totalitarianism*. Cultural particularism or totalitarianism extrapolates what separates one cultural identity from the rest and construes an imaginary common. It also leads to homogenization. The melting pot in this case, however, was named Jihad (Barber, 2001), because it is the anti-modern fundamentalism that may be a good example for imposing a certain one out of the many on the rest of them. Here, a culture that is accredited with very specific social relations is raised to the level of the ideal, which is to serve as a model for all other cultures to copy. Thus, a specific form is built up to be the general norm. Inasmuch as it is something particular that is raised in this manner, it concerns particularism.

Inasmuch as it reaches the status of the general norm, it concerns totalitarianism. This results also in unity without diversity.

A third way to conceive intercultural discourse is *relativism*. Cultural relativism rests on the figure of dissociation. By denying any commonality of different cultural identities, it yields fragmentation. The many fall apart. Inasmuch of multiculturalism and separatism suit postmodern thoughts. Here, each of the many cultures is seen as something with the right to exist and remain free from external interference. Each special case is made into a norm in its own right. Inasmuch as it is one of many that is made into a norm, we may speak of pluralism. Inasmuch as every special case is treated thus, we must, however, speak of indifferentism. Relativism does not claim general validity and does not wish to unify anything or anyone. The postmodernist form leaves differences as they are. World society would simply be diversity without unity.

None of these three options can satisfy. Either the one is regarded as the necessary and sufficient condition for the many, the many are considered necessary and sufficient for the one, or one and many are deemed independent.

Cultural thinking that reconciles the one and the many is achievable only on the basis of an integration and differentiation way of thinking. It integrates the differences of the manifold cultural identities and differentiates the common as well. Welsch (1999) coined the term *transculturalism* and notions of *glocalization* (Robertson, 1992) or *new mestizaje* (a term coined by John Francis Burke in "Reconciling Cultural Diversity With a Democratic Community: Mestizaje as Opposed to the Usual Suspects" in Wieviorka (2003), which are useful in this context.

The process of emergence of a new sustainable world society may be sketched in terms of dialectics. Diversity is not abolished but rather sublated and leads in an evolutionary leap to a unity through diversity, which, in turn, enables and constrains diversity in order to make it diversity

in unity, which then builds the new base for unity through diversity. World culture is located on the macro-level; the partitions of world culture that are located on the micro-level take care of the world culture in order to preserve humanity.

CONCLUSION

Starting with a critique of both techno-deterministic and social-constructive approaches toward the relationship between technology and culture, we argue for a dialectical, mutual-shaping approach. Especially in the context of information and communication technologies (ICTs) and society, this dialectical relationship between culture and technology is important. To strive for the capable user, cultural dimensions have to be incorporated into a model that transfers the spread and usage of technology on the one hand and the social shaping of technology on the other. The concept of digital culture represents a framework that embraces the techno-cultural dimensions of content, distribution, and context. This framework provides an applicable instrument that allows addressing the important questions in the context of technology and society, such as equal knowledge distribution, provision of capabilities, and social inclusion.

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