Can the Cultures of India Survive the Information Age ?

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The coming of the "Information Age" is the topic of thousands of books, articles, and conferences. Predictions range from outrageous optimism to dire pessimism; we have analyses from a Marxist, a neo-liberal, an anthropologist, and many other perspectives; we have advocates and critics; we have more words on the subject than any human being could possibly absorb.

But what we do not have, at least not in sufficient quantity or depth, are analyses of the cultural implications of the new information technologies. By "cultural implications" I mean their relationship to the basic presuppositions, fundamental myths, unstated assumptions, linguistic taken-for-granteds, historic grounds and creation myths that unite a society: all of those conceptual, linguistic, imaginative, literary, musical, artistic, and intellectual threads that bind people together to make them feel "of one kind".

"Culture" in this anthropological sense, then, is a core part of our identities as human beings, connected to our mother tongues, to our families as children, to our root assumptions about life and the world, to our links to our ancestors, and to the fundamental texts, written or unwritten, of our social world. It is the glue that binds us together with those whom we recognize as being " people like us". It is what makes a set of individuals a people and not simply a gathering of strangers. In centuries ahead, when the history of these early years of the Information Age is written, I believe that its relation to culture will be among the features most discussed. The relation of the new technology to culture is especially vivid and pressing in this nation of India. For of all modern states, India is the one which has most successfully preserved, and even enhanced, multiple languages and cultures, plural literatures and traditions, and extraordinary cultural diversity. The official recognition of eighteen languages is only an outer manifestation of a far deeper heterogeneity, of the co-existence of multiple cultures, each with ancient literatures, valued traditions and historic arts and monuments. The question I want to pose is whether these rich multiple cultures of India can survive the Information Age. And by the Information Age, I mean most particularly the age brought about by the new technologies of computation and computer mediated communication, as well as television, film, radio, and all of the new media.

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Given the widespread fear of a kind of cultural imperialism spread through the new media, one would expect that there would be rich and thoughtful discussions of this question. Yet if we search through books, conference proceedings, and meetings about the Information Age, we find precious little on the subject. The technological challenges of rapidly developing information technology are so fascinating, so intellectually demanding that they alone are worth lifetimes of individual effort, to say nothing of countless international meetings. The economic implications of a world of global networks, of instantaneous communication, of electronic commerce, of households "wired" at a rate that doubles every year, of international monetary markets and economies linked electronically - these implications, too, are worthy of and receive intensive study. And not least important are the legal problems of reconciling the standards for the Information Age of more than one hundred countries, of determining what is right, proper, secret, public, pornographic, militarily dangerous, privately owned, obscene, subversive and so on. These problems (what is sometimes called the "new electronic world order") increasingly attract some of the best legal minds in the world. Were the German authorities right to arrest the German head of Compuserve for permitting the electronic entry of allegedly illegal materials from abroad via Compuserve? Is the U.S. justified in trying to prevent the electronic export of encryption devices? How can we

develop international rules to deal with transborder confidentiality, pornography, the drug trade, national security, subversion, terrorism, censorship, and property rights in an era of electronic communication? These cross-national legal problems deserve to receive attention.

But "culture" is rarely mentioned in South Asia or for that matter in Europe. I serve on the German-American committee of the American National Academy of Science and the German Max Planck Institute whose agenda is "Global Networks and Local Values". Apart from myself, the German and the American members of the group are extremely competent technically. Some are international lawyers; others are economists and economic historians. Still others are the men and women who can anticipate (indeed are designing) the technologies of the future. Our discussions of the technological, economic, and legal problems of the Information Age are enormously informative.

But there is a "cultural" issue in this committee which is only rarely discussed. Specifically, it is the issue of American cultural hegemony even vis-a-vis so similar, so technological, so advanced a partner as Germany. It is related to the commanding technological and economic position of the American hardware industry; it is connected with the dominance of American software even when translated into German. It is related to the fact that,

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according to one estimate, more than 90% of all Web sites in the world are in English. And it is connected to the broader worry that what is often called "American culture" sometimes seems (even to Europeans who by Indian standards are very much like Americans) to be an invasive, alien, or even subversive force that weakens, undermines or overrides traditional cultures — even of "Western" nations like Germany, France, Italy, or Spain. One latent question in the German-American group, then, is: How does one preserve cultural diversity (i.e.,"local values") in an era of global networks in which the English language and "American culture" play so dominant a role?

This is the issue I wish to address, with particular reference to India. I need not belabor facts that are obvious to all of us. Since Partition, India has been not only the world's largest democratic state, but the most linguistically and culturally diverse. It has preserved its unity as a federal nation, while at the same time encouraging the distinctiveness of the separate Indian States. Moreover, as you know, India has two unusual characteristics. First, it has the world's second largest pool of scientific manpower, reflected in the dynamic information technology industry. Second, it is a nation where the English language plays a special role as the link language of the nation. But precisely for this reason, some fear the vulnerability of India's

traditional cultures to an Anglo-phonic tide. This threat may be defined in different ways: by pointing to the role of English as the language of power and wealth in India, or by analyzing satellite TV that brings the antics of American millionaires in Hindi to thousands of Indian rural villages, or to turn to the Information Age, by acknowledging the hegemony of English-language, American-based information technology and software. To think intelligently about the relationship of technology and culture, we need a broader framework, which I will try to outline, recurring to India as the prime example of the as-yet undetermined potential of the Information Age.

As an oversimplification let us imagine a spectrum on which we place the outlooks of the cultures of the modern world. At one extreme is what we may call "cultural imperialism". This is the policy, extant in some nations today, of insisting legally on a single culture and prohibiting all other cultures, including all languages that are not the language of the dominant group. There are, as you know, nations where to speak or write publicly in a language deemed subversive may mean years of imprisonment. More commonly, linguistic imperialism entails making it simply impossible to do business, to be educated, or to conduct any but the most intimate aspects of family life in any language other than the mandated and official language.

One author has claimed that the teaching of English as a second language after World War II in developing countries had many features of linguistic imperialism. Others might argue that in India, the role of the English language as the link language of the Nation, the language of the higher courts, the Lok Sabha, the higher civil service, of nationally based as well as international business, and of higher education, that this role amounts to a de facto linguistic and by extension cultural imperialism because it effectively excludes from power, wealth and influence the great majority of those Indians, perhaps 95%, who do not speak fluent English.

I will return to this argument, which is in my· view debatable. For now, it is enough to note that against the role of English as a link language, we needed to set the opposite linguistic policies of the Indian States, the extraordinary linguistic and cultural pluralism of India as a nation and of India's great cities, and the multicultural tolerance which, ever since Partition, has characterized India more, I believe, than any other major nation.

Let us now turn to a second point along the spectrum, an orientation which we may call "global monoculture". By global monoculture I mean the de facto dominance of a single culture across all the important sectors of the world.

Coercion is absent (this is not naked imperialism); many languages are tolerated; multiculturalism is officially extolled. But the power of the dominant global culture is such that it tends to overwhelm, or reduce to a status of inferiority, all local cultures. Such was the case with Roman-Latin culture during the apogee of the Roman Empire; such was the status of Muslim culture and the Arabic language during the greatest epoch of Islam. And such, some claim, is the power of today's global monoculture, embodied in satellite TV, World Cup games, CNN, the Three Tenors at the Baths of Caracalla, Hollywood, Murdoch, Bollywood, Microsoft, Intel - a culture where 90+% of all Web sites are in English, and a world where, in contemporary India, unless one speaks, reads, and writes good English it is virtually impossible to use a computer, much less send e-mail.

The political scientist Benjamin Barber in his book *Jihad versus McWorld* terms this world "McWorld", combining McDonald's and Macintosh into a single epithet. Barber notes that even in France, with its proud cultural nationalism and its brilliant tradition of film-making, 90 to 100% of the most popular films each year are American. We could add today the role of CNN, the popularity of American dramas translated into languages like Hindi or Swahili or Spanish, or even Indian MTV, hosted by a laid-back young Indian who speaks English with an American accent. The singers and the languages of the songs, to be

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sure, are Indian; but the concept is not, in origin, Indian. How should we evaluate this global monoculture? The Japanese scholar, Toru Nishigaki, argues that despite the appearance of multiculturalism (e.g., "the many cultures of Benneton"), today's global culture is in the last analysis an American monoculture, founded on the enormous appeal of Hollywood films and American TV, on the dominance of the American entertainment industry and on the technological, economic, and military power of the United States. Nishigaki argues that we are witness to the spreading, subtly or directly, of "American" values of "free enterprise", materialism, consumerism, political liberalism, and so on. For Nishigaki, this American plague threatens to infect or relegate to insignificance all other cultures.

An alternative view has been stated by Samuel Huntington in a recent controversial work. He claims that far from being unified into one "Western" or "American" monoculture, the world is increasingly polarized around multiple regional cultural-religious centers - a neo-Confucian world in East Asia, an Islamic world in the Middle East and North Africa, a Latin American world in South America, et cetera. Huntington's work is popular with leaders of nations like Singapore, Malaysia, and the People's Republic of China, who claim that there exist something called "Asian values" (distinct from the so called "Western values"). Asian values allegedly stress patriarchal family

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deference, community unanimity, a disciplined and obedient citizenry, and an authoritarian state. According to this view, Western values like human rights, human dignity, and freedom of the press, religion, and speech are alien impositions that have no rightful place in an "Asian" context.

As is often true, the experience of India puts such views to the test. How can it be, if an obedient citizenry, cultural unanimity, and an authoritarian state are "Asian" values, that Indians are so firmly attached to political democracy, that Indians are almost as undisciplined as Americans, and that Indians have shown so dedicated a commitment to free speech, multicultural tolerance, and freedom of religion? The experience of India to date affirms the possibility of preserving multiple cultural patterns, and it raises doubts that values can be neatly classified as American values, Indian values, Asian values, or what have you. Indeed I myself believe that such values as the dignity of human life, the right to a decent living, the right to choose one's rulers, to education, to literacy, to freedom of speech, the press and religion that these values are not American, Islamic, Asian, or Indian, but simply human.

But many, including myself, would agree with Nishigaki that there is at least a danger of a global, covertly American

monoculture that relegates all other cultures to inferiority, antiquity, or second place. And it is easy, and not entirely inaccurate, to caricature this global monoculture, especially as seen in television and the World Wide Web. It is a world of individuals with platinum Visa cards checking into five star hotels, of glittering luxury sports cars whose dashboards sparkle with subtle green gauges, of viscous shampoos that promise fragrance and romance, of soaps that turn filth to pristine whiteness, of politicians who promise whatever they think will enable them to win. It is a world of freely downloadable pornography, of search engines encumbered with advertisements, of information so vast in quantity as to overwhelm the most brilliant and devoted computer user.

It goes without saying that this world is offensive, even obscene, when 300 million Indians and a billion other humans go to bed each night hungry. Indeed, so shallow is this monoculture that we are within our rights to ask whether it is truly a culture at all or, as my colleague, Claude Pesquet, has proposed, only an interface.

But we also need to ask whether the average person, rich or poor, really takes these tele-worlds and cyber-worlds very seriously. More plausible is the claim that these worlds occupy the same place in the minds as ancient mythologies and foundation myths, popular fictions and rituals. Indeed,

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I suspect that the Indian villager who watches *Dallas* does so with the same mix of amusement, interest and distance with which he previously viewed the televising of the great Indian epics. Neither are models that people seriously attempt to emulate in their ordinary lives, but they fall into the special category of legends, cautionary tales and entertainment.

In any event, there is another side to how we evaluate the globalization of culture, and once again, India proves a test case. In the last half century it has been convenient for Indians to use English as a link language for the diverse peoples of this subcontinent. Indeed, in the absence of some language that in a sense has belonged to no one State or people in India, it is hard to see how the business of this diverse nation could have been conducted. Moreover, the strong ties of India with the rest of the world would have been difficult if this subcontinent did not possess the second largest English speaking population in the world. There are obvious advantages to sharing a common culture and language, even as a second culture and language, with much of the rest of the world. Without that second language, India's vibrant software industry could not have happened.

A personal anecdote may be relevant. Through a mutual friend, I read the scholarly work – in English – of a

Pakistani author. His book was so outstanding that I found his e-mail address and thanked him for his work. Not knowing Urdu, I naturally wrote in English. (In any event, e-mail in Urdu is difficult if not impossible.) He replied in the fluent English for which educated South Asians are famous. An e-mail friendship resulted: we now exchange writings, views, and even fragments of our autobiographies; I truly feel that I today have a new friend in Pakistan.

All of this indeed presupposes a global monoculture in which we both participate, based on e-mail and the English language. My Pakistani friend remains in Pakistan because it is his homeland and he wants his children to be reared there. Is he the less a Pakistani because his English is fluent and we communicate in that language? Do Indians cease to be Hindus, Jains, Muslims, Parsis, or Christians because they can also speak excellent English? Does the desire for an electric fan, a refrigerator, a television set, decent medical care, a motor scooter, a car, shampoo, or a computer constitute capitulation to the consumerism of "global monoculture"?

As I said, India provides a test case. As I have said, to a foreign observer like myself, it seems that Indians live more peacefully, more comfortably with multiple cultural identities than any other people on earth. Long before

contemporary "global monoculture" was imagined, Indians lived easily with multiple cultural frameworks, shifting languages, and even plural personal identities. The Indian experience, if I understand it, suggests that it is possible to take part in a global culture which has, as Nishigaki indicates, many "American" or "Western" aspects, yet at the same time to retain identity and rootedness in one's own particular culture.

The next point on the spectrum is also well defined by contemporary India. I will call it "cultural diversity". This is a society or a world that contains and supports many distinct cultures, each with its own particular strengths and weaknesses, its own language and educational system, and its own capacity to instill in its members a sense of identity based on rootedness in their culture.

Such a world is not one in which people are necessarily monocultural or monolingual. It is possible to be rooted in one's culture and yet to collaborate with, to understand, to participate in, other cultures as well. India is again the world's best example of the possibility of multilingualism, which is a proxy for multiculturalism. In no other country of the world do people live so easily as in the major Indian cities with multiple linguistic and cultural groups. In no other country can people shift so easily from one to another cultural frame of reference,

including that of their childhood and their mother tongue. India can provide a model for what the rest of the world could be like.

Finally, at the far end of the extreme of this cultural spectrum, we have what Barber calls "Jihad" and what I will term "exclusionary cultural nationalism". By this I refer to the emergence of regimes, groups, or parties - in a few countries the ruling parties - which make the purity of their culture, their religion, their ethnicity, their tradition, and/or their language the central theme of their ideology and their politics. Cultural pride, in itself a benign and probably necessary base for community and identity, is here perverted into an intolerant and even violent exclusion of all that is not orthodox. In Western Europe and America we have examples of this in the Medieval Inquisition, in American anti-Communist "witch hunts", or in Soviet efforts to extirpate "revisionists" and agents of imperialism. Such tendencies exist, needless to say, in many other countries.

The characteristics of exclusionary cultural nationalism are well known. First is the creation of an imaginary past in which the culture was unsullied, in which foreign and modern influences did not exist, when cultural power extended over vast regions, and where the cultural, social, and political rules of society were uniformly obeyed.

Compared to that Golden Age, the present suffers, and the cultural goal is to return to that imagined past. Fortunately, according to the exclusionary myth, a "saving remnant" has preserved the authentic culture in its pristine and unperverted form. Compared to them, the enemies are therefore aliens, foreigners, subversives, cosmopolitans, infiltrators, fifth columnists, disloyal citizens. Their crimes are to introduce subversion, to challenge the hegemony of the culture, to produce pornography, to defile women, to violate sacred places and customs, to seduce children, to consort with foreigners and adopt foreign habits, foreign dress, foreign ideas. Purity is the supreme goal, and the pursuit of that holy goal may even justify holy wars or movements of exclusion and even extermination — what Barber calls Jihad.

Where does exclusionary cultural nationalism come from? In part, from the sense that one's culture is threatened, undermined, disvalued, and depreciated; in part from the belief (or fact) that the members of one's core culture are disabled, blocked, disenfranchised, or disempowered. This is understandable: to support our core sense of our own values and identities, we need to know that they rest on a valued culture. When a culture is disvalued or deprecated, it is not surprising that people turn ugly, intolerant, vicious, even murderous and genocidal. To explain is of course not to justify, but it is to warn that if cultural diversity is

undermined by global monoculture, then a kind of ugly exclusionist cultural nationalism can result.

With this framework in mind, let me now return to the question from which I began, namely whether the extraordinary diversity of India's cultures can survive the impact of the Information Age. As you might expect from a professor, my answer will be an equivocation: it all depends. But let me try to clarify one or two of the factors on which it depends. First, I noted earlier that one of the defining facts of contemporary India is the extraordinary role of the English language amongst Indian elites and the inaccessibility of the Information Age to the average Indian who does not speak good English. For some time, I have been interested in the accessibility of computation to the 95% of Indians who do not speak, read and write fluent English, and who therefore cannot use English language software.

The simple fact is that, at present, it is almost impossible to use a computer, to access Internet or the Web, unless one speaks, reads and writes good English. There are, of course, many creative solutions that have been proposed; an Indian standard called IISCI exists and is currently under modification; there are many creative solutions for local language computation. The Government of India has tried to promote local language software in a variety of ways.

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But to an outsider, it would appear that there is a long way to go before these efforts achieve their goal. Hindi, with at least 400 million first and second language speakers, is probably the third or fourth most widely spoken language in the world (after Chinese, English, and Spanish). Yet the major international software firms like Microsoft have not produced fully localized versions of their operating systems in this language, and the average Hindi speaker, no matter how gifted, wealthy, and motivated, must almost invariably turn to English language software if he is to use a computer. The same situation obtains with regard to other languages like Bengali, Telugu, Marathi, Gujarati, Kannada, Tamil, et cetera. Parenthetically, it is striking that in the current enthusiasm for the likely consequences of the liberalization of Internet service providers recently announced, there has been much talk about impact on villages, local schools, small farmers, tradesmen, et cetera – but almost no recognition that, at present, most villagers, school children, teachers, and merchants have no software they can possibly access in their own languages.

As seen by this outside observer, India faces very critical choices with regard to local language computation. There are probably more inventive, creative and energetic software engineers and designers in India than in any other country except possibly my own. But most major Indian software firms, no doubt for excellent reasons, have

chosen to focus on the export market rather than the domestic market. And the major American software firms (with the exception of IBM's DOS localization to Hindi) have not produced, and as far as I know have no plans to produce, full localization to any of the Indian languages - not even to Hindi, with as many speakers as living in the entire European Union. The Indian Internet situation is even more confusing, with many creative proposals, but few following the standard of IISCI, and most incompatible with one another. IISCI itself has been challenged, and efforts to modify it so as to adapt it to contemporary computing needs and to the languages of the Southern States have not yet borne fruit. CDAC and NCST pursue different approaches to localization; and there are also at least a dozen more. The result for Internet in Indian languages is, at present, an emerging tower of cyber-babel. There is an urgent need, recognized by many at the September CDAC conference in Pune, and the November IT.COM conference in Bangalore, for Indians to come together to standardize codes for the most important of India's 14, 16, or 18 official languages.

So a partial clarification of it all depends on the apparently technical issue of localization. In a world lacking local language software, computers in India in the Information Age are likely to be merely one more aspect of a move towards global monoculture.

Only English-speaking Indians, already the most powerful and wealthy group in India, will have access to the power-increasing Information Age. The gap between the empowered and the powerless will grow, and so will the devaluing of local languages and cultures. For this to happen is to risk the transformation of India's benign and generous cultural diversity into uglier forms of intolerant cultural nationalism, forms that are visible in my own country, in Europe, indeed in every country of the world. Localization (and its prerequisite standardization) is therefore critical if the Information Age is to reach and benefit broad sectors of the Indian population — what my friend Venkatesh Hariharan terms "the forgotten 95% of Indian computing".

Another conclusion emerges from conversations with major American software producers and with officers of some of India's cutting edge firms. In America, for complex reasons, the Indian "market" is not currently seen as sufficiently large as to justify the expenses of full localization of, let us say, Windows NT to languages like Hindi, Kannada, Telugu, or Tamil. I believe this belief is incorrect; but it means that what we are likely to see in the near term (and indeed already see) is the lesser step of "locale coding", which still presupposes a knowledge of English in order to run the computer (although it permits using the Qwerty keyboard to enter, or example, Devanagari

script). In India, as I have noted, the most dynamic firms have concentrated on the export market, and their long-term strategic plans usually involve shifting towards packaged software rather than focusing on the potentials of the domestic market.

These economic decisions mean that the most creative approaches to localization are not likely to be taken by major firms in the U.S. or India, but rather by small, backstreet operators in India - smart people with a dozen or so collaborators who are already producing innovative e-mail. programs, localizations, et cetera. The problem is, of course, that they are small, that they lack venture capital, and that the solutions each proposes is incompatible with the solution of his neighbour. But the inventiveness is there, and I suspect that it is from these back alley operators that eventually localization will come. For example, from one such firm I have already begun to receive e-mail in Gujarati, Marathi, and Hindi (none of which I can read, unfortunately), and indeed even the embedded code and keyboard layout which would permit me, were I fluent in these Indian languages, to reply in one of them.

A second factor on which it depends is, to put it too simply, the vision and commitment to cultural diversity of India's gifted technologists, entrepreneurs, and government

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officials. The relationship between economics, market forces and the role of public authorities is of course complex. My friend Harsh Kumar, best known as the inventor of the localization code known as Bharat Bhasha, sees a vast potential market for local language software in, for example, the small and medium sized merchants who work in Gujarati or Marathi in Bombay, who have the financial means to buy a computer but not the English to use English-based small business packages. Kumar rightly points out that in software, potential demand does not necessarily generate supply in the short run. If there is no software in Gujarati, there can obviously be no demand. Kumar tells the story of the two shoe salesmen who visit a rural Indian village of a thousand inhabitants. The first salesman returns to his company headquarters deeply depressed. "It is hopeless", he says, "there is not a single person in the whole village who wears shoes". The second returns to his company headquarters excited and jubilant: "What a marvellous opportunity", he says, "we can sell a thousand pairs of shoes! The market is untouched!"

Kumar is doubtless right that if the local language software existed there would be many who would buy it. But my own prediction is that the driving force behind the creation of standards and localization will be public authorities, and in particular the Indian States. You are doubtless familiar with the ambitious and brilliantly-publicized plans

of Chief Minister Naidu, and the ongoing work to computerize all land records in Andhra Pradesh. But if this work is to be useful to the average Andhra Pradesh peasant, then it must be in Telugu rather than, or in addition to, English. Or, to take another example, you doubtless know that the Government of Maharashtra has plans to link via e-mail all of the district offices in that State. I recently had the privilege of speaking with one of the officials in charge of this plan, and asked what language would be used. "Marathi, of course", he said. I asked if they had Marathi e-mail software up and going to permit communication between all of the many dozens, indeed hundreds, of district offices. "CDAC will provide it", he said. But at CDAC it emerged that this software is not yet fully functional.

My point has to do not with the work that remains to be done, but with the fact that only the State governments, and at the Centre only the Government of India, have the authority, the capacity, and the economic power to produce that standardization which is essential for the production of software in the rich and ancient languages of India. The technical problems of local language software in South Asia are, I am told, no more complicated, perhaps less so, than those of localizing to French, German, or Spanish - to say nothing of a language like Finnish, which is a localizer's nightmare. Indian languages are phonetic; the Northern

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languages have a common root in Sanskrit; the study of the grammar and structure of Indian languages from Panini onwards is very advanced; and localization, although it is always costly and time-consuming, presents no special technical challenges. Thus I think that the push under way from States like Karnataka, Andhra Pradesh, and Maharashtra is the force most likely to produce usable local language software and thus to make the Information Age accessible to the peoples of India.

My colleague at MIT, Michael Dertouzos, the Director of the Laboratory for Computer Science, has written a book entitled *What Will Be*. Michael is a technophile; he believes that the Information Age will empower people; he and his group have been at the cutting edge of technological innovation for the last 30 years, and remain so with, for example, the location of the Web Consortium at MIT. But Dertouzos makes the critical point that whatever the benefits of the Information Age - and he believes there are many - the Information Age will not solve the traditional problems of humankind. The gap between the poor and the rich, political oppression and injustice, hunger and disease, cultural intolerance and genocide - none of these have a necessary connection to the Information Age.   Indeed, these problems may grow in importance in the Information Age, he suggests.

To be sure, every new technology awakens utopian hopes. It was said that the telegraph and telephone, by encouraging communication, would prevent all future international misunderstandings. It was written that the automobile would eliminate the chief problem of the cities by eliminating horse manure (as indeed it did, but at some cost). Many claimed that electricity would eliminate factories and permit the decentralization of production to agreeable rural sites. The nuclear age would bring "electricity too cheap to meter". And now, the Information Age will produce a time when, as another of my MIT colleagues puts it, we will all be better for "being digital".

Dertouzos's warning is well taken with regard to culture, and can serve as epilogue and conclusion to my comments. The impact of every technology "always depends". Technologies are not autonomous forces, they do not have any necessary social or cultural effects. Technologies indeed offer us new opportunities, possibilities, problems and choices. But how they are deployed, how they are used, how they are shaped and perceived depends upon human, social, cultural, political will and decision. In our current euphoria about economic liberalization and the market, we cannot rely exclusively on blind market forces. We also need the active intervention of corporate and business leaders who possess vision and commitment to the well-being and the vitality of their cultures, and of political

leaders who know how, and are willing, to moderate the forces of the market so as to achieve goals of which the Information Age knows nothing - the elimination of poverty, the universalization of education, political freedom and democracy, and, yes, the preservation and deepening of cultural diversity.

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