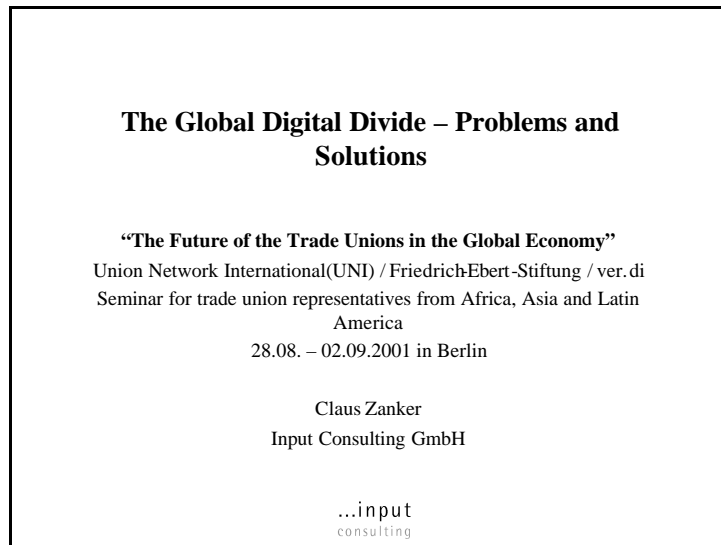


The Global Digital Divide – Problems and Solutions

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Thabo Mbeki, then the representative and now the successor of Nelson Mandela as President of the Republic of South Africa, as guest of the 1995 G7 summit on the information society in Brussels, pointed out to the representatives of the richest industrial countries that talk of the global information society overlooked the reality faced by the majority of the world population: "Half of humanity has never made a telephone call", said Thabo Mbeki in his speech, "and there are more telephone lines in Manhattan than in all of sub-Saharan Africa".

Only one year later, at the invitation of the South African Government leading representatives of the G7 states met with representatives of developing countries, NGOs and industry at a conference entitled "Information Society and Development (ISAD)" in Midrand near Johannesburg. This conference was to be the start of a worldwide North-South dialogue intended to exploit the potential of the information society for the special needs of the developing world.

„Everyone, everywhere should be enabled to participate in
and no one should be excluded from the benefits of the global
information society“

Okinawa Charter on Global Information Society
G8 Summit 2000, Okinawa (Japan)

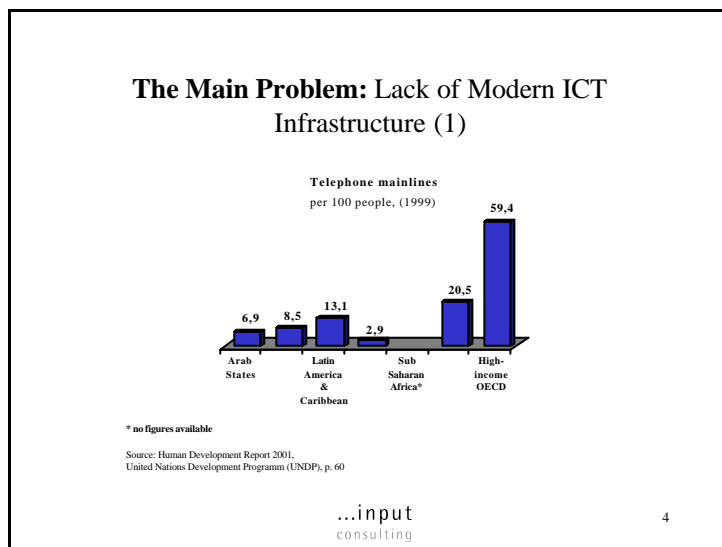
Four years later, at the G8 summit held in Okinawa, Japan, in the summer of 2000, the Heads of State and Government of the seven largest industrialised nations and Russia adopted the "Okinawa Charter on Global Information Society". Together with the private sector, the intention is to try to close or at least reduce the "digital divide" between North and South: "Everyone, everywhere should be enabled to participate in and no one should be excluded from the benefits of the global information society", in the wording of the Okinawa Charter.

The Digital Divide – a Global Dimension

- In a „knowledge-based economy“ the economic and social significance of access to information is increasing
- Regions with lack in ICT (Information- and Communication Technology) infrastructure are getting disconnected from the worldwide electronic networks
 - The discrepancy between „information haves“ and „information have-nots“ is widening
 - Further economic marginalisation of most developing countries ???

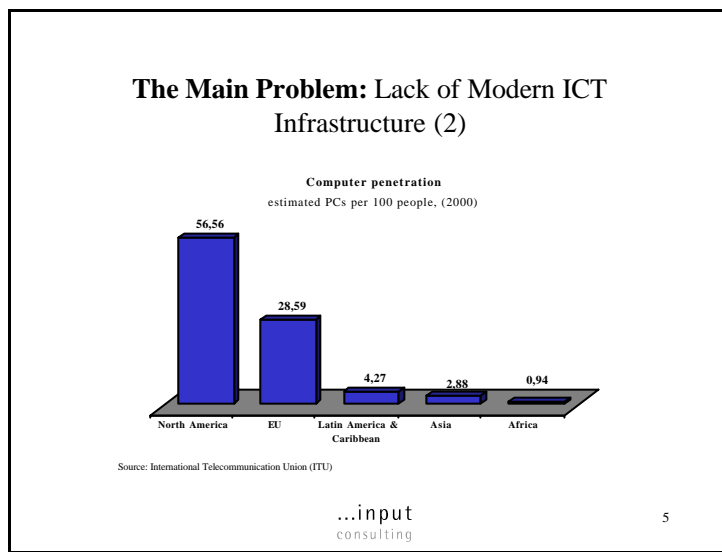
The political activities at international level prove that the digital divide is not a mere intrasocietal problem, but that it has long since taken on a global dimension. For one thing, the economic and social significance of access to information during the transition to a more knowledge-centred economy has greatly increased, whilst at the same time the discrepancy between the so-called "information haves" and the "information have-nots" has widened markedly over the past years. The marginalisation of the countries in the South is exacerbated further in this changed environment by their disconnection from the worldwide electronic networks. There is, first and foremost, a lack of infrastructure, such as telephone lines, computers with modems and electricity, all of which are needed in order to close this digital gap between North and South.

Meeting these access prerequisites to the worldwide data networks, and especially meeting all conditions at once, is unfortunately too frequently the exception in most countries of the South. The following data may demonstrate this:



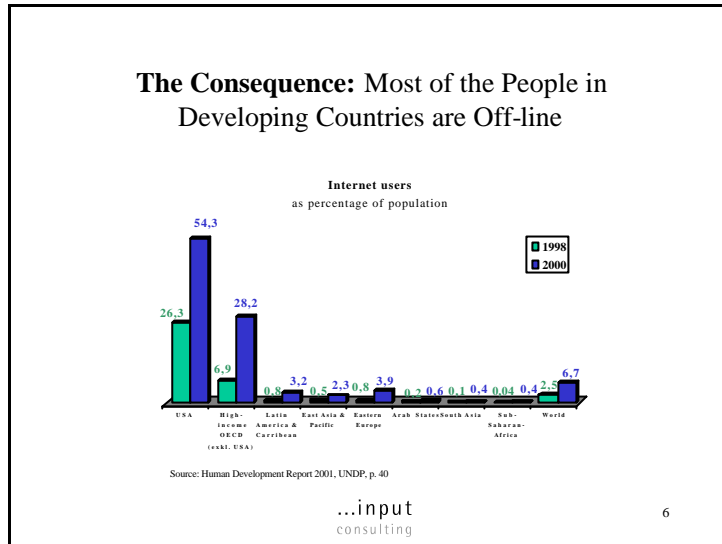
- Thus, 85% of the world's population do not even have a telephone line, and 25 countries, 20 of which are in Africa, have fewer than one telephone per hundred inhabitants. The average telephone density in the developing countries is 6.9 per hundred inhabitants, whilst the industrialised countries have 59 telephone lines per hundred inhabitants. However, the differences between the developing countries are considerable, too: Whilst Latin America achieves a telephone density of 13.1 lines per 100 in-

habitants, the Middle East have less than half that number. The last in line are South Asia with telephone densities of only 2.9 and Sub-Saharan Africa with 13.8 telephone mainlines per 100 people in the Republic of South Africa or 0.3 in Uganda. Furthermore, half the telephone lines in Africa are in the capital cities, even though only about 10% of the population lives there. The situation is made even worse by the low average quality of the telephone networks (all figures from: Human Development Report 2001, United Nations Development Programme – UNDP, p. 60)



- In addition, the vast majority of computers worldwide are in the countries of the North; two-thirds of them in the G7 states alone. According to information provided in 2000 by the International Telecommunication Union, 57% of the population of the USA had a computer, whilst the Member States of the European Union reached about 29%, whereas the figure is 2.9% in Asia, and on average fewer than 1% of the population in Africa have a computer. In India, the model country for the participation of the developing countries in the advantages of the information society, only 0.45% of the population have a computer (all figures from: International Telecommunication Union – ITU, <http://www.itu.int/ITU-D/ict/statistics>)
- The third precondition for an Internet connection – an adequate electricity supply - is hardly met in these countries, either. Every third person in the developing countries must do without electricity; 70% of the rural population in Africa have no electricity,

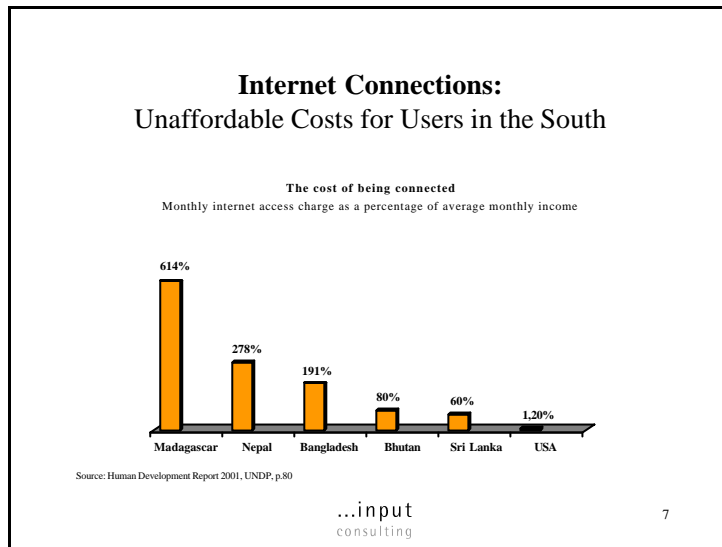
and only 15% of houses are connected to the grid in some Indian States (figures from: Uwe Afemann, University of Osnabrück, <http://www.dse.de/zeitschrift/ez401-4.htm>).



Accordingly, the world's more than 400 million Internet users are concentrated in the rich industrialised countries. 70% of Internet users worldwide live in North America and Europe (IDC, Merrill Lynch, "Handelsblatt", 20.08.2001). Whilst in the USA more than half use the Internet, in Latin America and the Caribbean only 3.2% do so. Finland has more Internet users in absolute figures than do the Caribbean states and the countries of Latin America put together. Sub-Saharan Africa and South Asia are almost completely offline, with a share of 0.4%. These latter figures include the Republic of South Africa, which is relatively well developed: Of the roughly three million Africans with Internet access, 1.8 million are in the Republic of South Africa alone. In other African countries, an average of only one out of 10,000 or 0.01% of the population, has access to the global data network.

In an article in 2000, the German news magazine "Der Spiegel" characterised the Internet situation in Africa as follows:

"Africa is the "no subscriber listed" continent. Outside the capitals, it is almost impossible to contact this part of the Earth by telephone, fax or the Internet... Many hundreds of millions of people are condemned to an offline existence – [they are the] outcasts of cyberspace" (DER SPIEGEL, 8/2000)



Insufficient density of lines is one aspect of the digital exclusion of the Third World, the lack of affordability of network access being another: The fees charged to a typical Internet user in the USA are 1.2% of average monthly income. For Sri Lanka, for instance, this value is 60%, for Bangladesh 191%, for Nepal 278% and for Madagascar 614%. An average earner in Bangladesh would have to invest eight years' salary in order simply to acquire a computer, according to UNDP data, whereas the investment constitutes less than one month's salary for a European.

Investments in ICT Infrastructure: Overburdening the Financial Potential of Developing Countries

| Country | In habitants | Internet user (1000) | Tele- phone lines per 100 people | PCs per 100 people | Share at world popula- tion | Share at internet user world- divide | Urban popula- tion | required invest- ment (US\$ billion) | required PC invest- ment (billion US-\$) | required invest- ment (US\$ billion) | Foreign liabilities (US\$ billion) | GDP (US\$ billion) |
|-----------|-----------------|----------------------------|--|--------------------------|--------------------------------------|--|--------------------------|--|---|--|---|--------------------------|
| Nigeria | 106,4 | 100 | 0,4 | 0,6 | 1,83% | 0,03% | 42,2% | 51 | 23 | 74 | 30,4 | 41,1 |
| Indien | 982,2 | 4 500 | 2,2 | 0,3 | 16,88% | 1,19% | 27,7% | 489 | 217 | 706 | 98,2 | 430 |
| China | 1 225,7 | 16 900 | 7 | 0,9 | 21,58% | 4,48% | 32,7% | 371 | 266 | 636 | 154,6 | 959 |
| Brasilien | 165,9 | 8 650 | 12,1 | 0,3 | 2,85% | 2,29% | 80,2% | 9 | 30 | 38 | 232,0 | 778,2 |
| | 2 510,2 | 30 150 | | | 43,13% | 7,98% | | | | 1 454 | 515,21 | 2 208,3 |

Source: Uwe Afemann University of Osnabrück (<http://www.fvz.fhn-oesnabrueck.de/014.htm>), figures from: UNDP, NUA

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8

But it is not only the cost of acquisition and use for the individual Internet user that form an almost insurmountable barrier for this medium to spread further. The investment needed for the necessary infrastructure would seriously overburden the financial potential of these countries at macroeconomic level.

An investment of roughly USD 1.5 trillion would be needed in order to build an information technology infrastructure in Nigeria, India, China and Brazil, where a total of roughly 43% of the world's population lives, in line with the world average of 15 telephone lines and the same number of computers per 100 inhabitants. This would correspond to 65% of the gross national product of these countries, and would be triple their current foreign debt.

The data describing the unequal spread of information and communication technology infrastructure and costs however do not by any means demonstrate the whole problem caused by the digital divide. This is not only a matter of Internet connections and computers, mobile telephones and optic fibres. Much more comprehensively, the risk is to the global distribution of access to information and knowledge as the new global capital, the real precondition of all progress (Kofi Annan). It is therefore a matter of harnessing information and communication technology for humane, social, sustained development in the Third World in an era of digital capitalism.

„E-velopment“ – the Solution?

- „Leapfrogging“ via ICT?
- „Electronic Development“ ist not a goal for itself, but ICT may play a supporting role in many areas of development cooperation
 - Healthcare
 - Education
 - Environmental protection
 - Agriculture
 - Public service

The term "digital inclusion" combines the hope that the countries of the South can use information and communication technology to integrate much better into the global economy, overcome their marginalised position, reduce the backwardness of their state of development, and perhaps even take the leap from an agrarian to an information society by "leapfrogging" the intervening stages. However, the corresponding fear exists that the gap between North and South will not only not be closed, but will widen further in the course of the "digital revolution" because the pace of modernisation in the centres of the digital economy is much higher in comparison to the newcomers of the South, and the latter will become more and more detached from new developments in the future.

The value of information and communication technology for the development opportunities of the Third World should not be underestimated. It is not the "technofreaks" from the cities of the North who want to get the South online in some charitable effort, or even the multinational telecoms who want to open up new markets by cabling the Third World. It is primarily players from the Third World who have recognised the opportunities offered by the appropriate use of information and communication technology as it is needed for their countries, just as they also see the risks of further marginalisation, and hence provide impetus for their own efforts, as well as pushing for global initiatives.

However, this form of "electronic development", or to use the artificial word "e-velopment", is the subject of some controversy. All representatives of high-tech enterprises, including Microsoft founder Bill Gates, doubt the value of information and communication technology for the developing countries, especially in comparison to other tasks. However, one should not allow oneself to be tempted to consider the matter as one of alternatives - "Pentium or penicillin". There will naturally always be more acute problems available than equipping the poor with information and communication technology. We cannot speak of "either food aid, education and healthcare, or computers, mobile phones and the Internet", and still less of "first one and then the other". The traditional fields of development cooperation, such as combating hunger, epidemics and illiteracy, improving food supplies and providing clean water and healthcare, will continue to top the list of the problems to be solved in the Third World.

"E-velopment" is not a goal in itself, but may play a supporting role in many areas of development assistance. It is therefore merely a means to an end, but is indispensable as such and highly valuable in many practical projects, be it in healthcare, education and environmental protection, in safeguarding the subsistence of farmers, in promoting women or in improving public services. Why should the supporting effect of information and communication technol-

ogy, as we have come to know and appreciate it ourselves for several years in our everyday lives and at work, not also be made available in the countries of the South? Health information and education on the risk of illness can be disseminated quickly and cheaply using information technology, while connecting hospitals to the Internet could improve their performance, facilitate diagnoses over greater distances and bring medical advice to remote areas. There are many possible applications in the educational field, such as access to libraries and teaching material, through to tele-learning, which would allow further training to be offered to residents rural areas. Equally, a large number of applications are offered in the area of social services and of trade. I would like to demonstrate the possible applications more clearly, using the four examples below:

„E-velopment“ - Examples

- Bangladesh: Leasing „Village Pay Phones“ from Grameen Bank
- Gambia: Digital cameras for remote medical advice
- Costa Rica: „Little Intelligent Communities“
- Barbados: Off-shore data processing services

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10

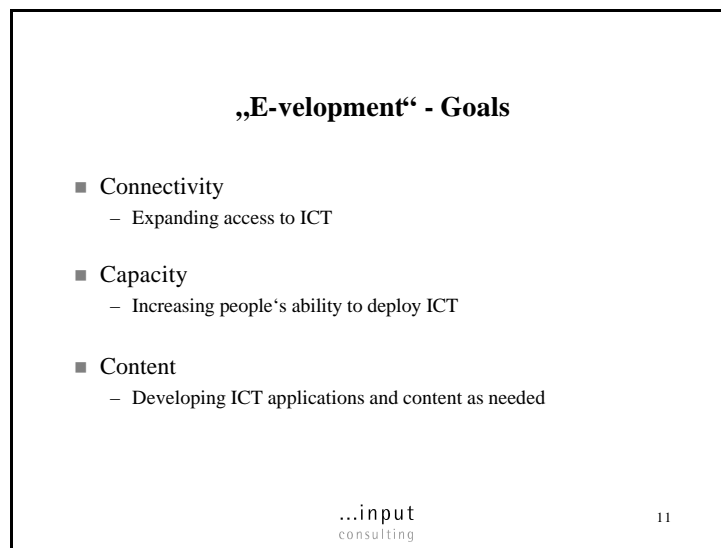
- The Grameen Bank in Bangladesh seeks to equip 68,000 villages with mobile phones by 2004. Grameen sells the mobile phones on credit, as so-called "village phones", to individual village residents, who in turn sell individual calls to other residents for an appropriate fee. The users of the mobile phones are especially small traders wishing to gain information on the market situation in town, but calls to the pharmacy, doctor or agricultural advisor also provide reasons to use this service. The cost of acquiring the mobile phones is very quickly paid back for the owners of these village phones. The farmers in the village have been able to increase their profits by 50% by gaining information on the market and price situation, for instance, for the sale of eggs. Workers, mostly day labourers, who were

previously reliant on the village labour market, can now call around to the surrounding villages and work where the demand is at a particular time. Telephone calls can be used to avoid expensive, long, risky journeys. In addition to these economic advantages, the mobile phones contribute many social benefits. Not only do contacts with friends and relatives become more intensive, many of the women now working as "phone women" used to live well below the poverty line prior to their cooperation with the Grameen Bank. Now, well-off village residents come to them seeking their services. Their function gives these women new respect –social advancement thanks to the telephone.

- On Ginnack, a remote island in the Gambia River, nurses use a digital camera to document their patients' symptoms. The pictures are taken to the next town on a laptop, where they are analysed by a doctor. If a specialist diagnosis is required, the digital pictures are sometimes e-mailed to Global Synergy in the UK and sent on from there.
- In the concept of "Little Intelligent Communities" (LINCOS), developed by the Massachusetts Institute of Technology (MIT) and the Instituto Tecnológico de Costa Rica at the initiative of the former President of Costa Rica, José María Figueres, new technological options are being combined with the offering of useful applications: The constructors have filled the last corner of now disused freight containers with high-tech appliances, to create steel community centres: electronic post offices, a medical practice, a bank, a library, a radio station, an office, a cinema, a mini laboratory, all combined in a tin box. Driven by solar batteries, with a satellite dish on top, the centre is always connected to the global data stream, even if it is set up in the middle of nowhere. There, farmers can obtain information on the Internet about the price of pigs or seed. E-mail greetings arrive from relatives who have emigrated to the USA. Children at school can also learn to use the new media. As a telemedical transmission centre, the communication container can save lives: The patient goes in front of a video camera in the narrow multilaboratory, and a doctor in the nearest town can examine him/her. The Lincos containers are even equipped to measure a sick person's blood pressure, temperature and pulse, to look down their throat and to record their ECG.
- Information and communication technology can however also change the international division of tasks and lead to the establishment of new service sectors in the

respective countries, as my last example shows:

With the construction of a high-performance telecommunication infrastructure, a number of Caribbean states have laid the cornerstone for the inclusion of their well-educated workers into the international division of labour. Companies in Barbados or Jamaica now carry out the data entry for American airlines and insurance companies online. They carry out the time-consuming transfer from paper to electronic form, and work with Call Centres in the telemarketing field for US retail chains. Computer specialists also perform important programming functions for software production. These are all tasks that have been outsourced by US companies and are carried out by the specialists in the Caribbean Islands for a fraction of the US labour costs. Several thousand such jobs have now been created in the Caribbean. The IT service sector is many states' second most important source of income after the tourist industry.



These examples are intended to demonstrate the broad spectrum of applications for information and communication technology for economic and social development in the Third World. E-velopment, however, only works if three closely-linked goals are pursued:

- Firstly, "connectivity": the access possibilities for information and communication technology must be expanded through adapted infrastructure projects.

- Secondly, “capacity”: there is a need to increase people's ability to deploy information and communication technology sensibly and in their own interest.
- And thirdly, “content”: information and communication technology applications and content must be developed and provided as needed to offer a real benefit, clearly related to the reality of life in the countries in the South. This means for instance that, the information in the net must be available in the language of the country or region in question.
- Naturally, none of these goals can be achieved easily or simply. A degree of financial effort will be needed, for which the present development aid budgets are by no means sufficient. In spite of the goal offered for decades by the United Nations of providing 0.7% of gross national product for development cooperation, the average of the 22 richest OECD states has achieved a level of only 0.24%.

If these resources are not increased, and if there is no redistribution favouring the development budgets, it will not be possible to combat poverty in a sustainable manner, and nor is it likely that useable bridges will be built across the digital divide!

In light of these circumstances and of the urgency of the problem, there is a massive need to form an "Alliance for e-velopment" combining the information and communication technology industry, Internet enthusiasts, trade unions, NGOs, churches and development assistance organisations in order to mobilise private and civil commitment to overcome the global digital divide and further the economic and social development of the countries of the South.

Many thanks for your attention!

Thank you for your attention!

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12

(Englische Übersetzung/ English Translation: Neil Mussett)